Poster presentations
Oesophageal, gastric and duodenal

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PP0001

BERGEN BRAINGUT STUDY: DIAGNOSTIC GUT BIOMARKERS IN IRRITABLE BOWEL SYNDROME WITH IMAGING MASS CYTOMETRY

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Introduction: Irritable bowel syndrome (IBS) has a worldwide prevalence of ~11%, and thus has a considerable negative impact on both society and millions of individuals. The pathophysiology of IBS is multifactorial and incompletely understood, involving low-grade inflammation in the gut, visceral hypersensitivity, increased epithelial barrier permeability, altered gut-brain interactions, and an unfavourable composition of gut microbiota. Although we currently have no cure for IBS, a diet low in fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) has shown to give ~70% of patients clinically significant symptom relief.

Aims & Methods: In this study, we seek to uncover how 12 weeks of strict low-FODMAP diet affect the intestinal immune system, visceral hypersensitivity, and gut integrity in patients with IBS. We will use highly multiplexed Hyperion imaging mass cytometry to investigate the cellular microenvironments in duodenal biopsies from n = 48 patients and n = 21 healthy controls at baseline and n = 21 patients at 12-week follow-up.

Results: With basis in known literature on relevant markers in IBS, we have developed an antibody panel for use on formalin-fixed, paraffin-embedded (FFPE) duodenal tissue with Hyperion imaging mass cytometry. The panel includes 35 markers for comprehensive spatial analyses of the gut mucosa in IBS before and after diet intervention. It comprises several immune cell markers for a broad immunologic mapping, in addition to markers for gut integrity and neuro-immune communication. The panel was tested on duodenal FFPE tissue with Hyperion, and resulting images were segmented with the Steinbock framework. Downstream single-cell analysis was performed in R with the imcRtools R/Bioconductor and cytomapper packages. Different cell types, including CD4 and CD8 T cells, were identified in duodenal tissue by means of cell segmentation and unsupervised clustering.

Conclusion: Through multimodal integration of tissue analyses and clinical symptom scores before and after treatment, we aim to provide clinically meaningful intestinal biomarkers in order to improve treatment strategies for patients with IBS.

Disclosure: Nothing to disclose.

PP0002

ASSOCIATION OF GENES OF THE HLA SYSTEM IN PATIENTS WITH IDIOPATHIC ACHALASIA IN RUSSIA

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Introduction: An autoimmune mechanism take part an important role in the pathogenesis of achalasia, which is directly related to histocompatibility class antigens. There is a correlation of the disease with HLA class II.

Aims & Methods: The aim of our study was to investigate the association of genes of the HLA system and idiopathic achalasia.

Subjects and methods: 140 patients, who referred to our Centre, were included in this study: 75 females (55%), age from 18 to 75. The diagnosis of idiopathic achalasia was established by upper endoscopy and high resolution water-perfused manometry (MMS, Netherland). The DNA from blood samples was isolated using QIAamp DNA Blood Mini Kit (Qiagen, Germany) according to the manufacturer's recommendations. The concentration of DNA samples was measured by fluorimetric method on a Qubit 4 fluorimeter using the Qubit dsDNA BS Assay Kit (Thermo Fisher Scientific, USA). All patients underwent HLA typing by massively parallel sequencing (NGS): *HLA-A, HLA-B, HLA-C, HLA-DQB1, HLA-DRB3, HLA-DRB4, HLA-DRB1, HLA-DRB5, HLA-DQA1, HLA-DPA1, HLA-DPB1*, on the platform MiSeq (Illumina, USA) v.2, Omixon. The analysis of the HLA gene sequences obtained as a result of sequencing was carried out using a computer program TypeStream Visual Software (TSV) (One Lambda, USA), and database IPD-IMGT/HLA.

Results: The most frequent allelic variant was *HLA-DPA1 *01:03* - in 84.6% patients. The study of the HLA-A gene revealed allelic variants: *-A*01:01* in 13.2% of patients, *-A*03* and *-A*01* - 11%. Also we revealed allelic variants of the *HLA-B* gene: *-B*44:02* in 7.5% of patients, -B*15:01 - 6.4%. The study detected allelic variants of the *HLA-C* : *-C*12:03* in 13,6% subjects, *-C*07:02* - 12,1%, *-C*06:02* - 11,4%, *-C*04:01* - 10,7%. The study of the *HLA-DQA1* gene revealed allelic variants: *DQA1*05:05* - 16,7%, *-DQA1*01:02* - 15,7%, *-DQA1**02:01 - 13,9% and *-DQA1**01:03 - 13,2%. The study of the *HLA-DQB1* gene detected allelic variants: *-DQB1*03:01* and *-DQB1*03:358* in 19.2% of patients. The study of the *HLA-DPB1* gene revealed allelic variants: *-DPB1*1322:01* and *-DPB1*1321:01* in 16% of patients. The study of the *HLA-DRB1* gene detected allelic variants: *-DRB1*07:01* and *-DRB1*7:139* in 15% of patients. The study of the *HLA-DRB3* gene evaluated allelic variants: *HLA-DRB3*01:01*-22.5%, *HLA-DRB3*02:168*-22.1%, *HLA-DRB3*02:02*, *-DRB3*02:144* and *-DRB3*02:188*- 21.4%. The study of the *HLA-DRB4* gene revealed allelic variants: *-DRB4*01:03* - 32.9%, *-DRB4*01:134* - 31.4%. The study of the *HLA-DRB5* gene revealed allelic variants: *-DRB5*01:01* and *HLA-DRB5*01:126* in 16.4% of patients with achalasia, *-DRB5*01:02* - 10.7%.

Conclusion: Patients with achalasia have certain allelic variants of the *HLA*-system genes that play an important role in autoimmune reactions. These allelic variants may have some prognostic value. The association between *HLA*-system allelic variants and achalasia merits study in large cohorts of patients.

Disclosure: Nothing to disclose.

PP0003

AN EMILIN-1-ALTERED MICROENVIRONMENT PROMOTES TUMOR CELL PROLIFERATION AND LYMPH-NODE INVASION IN MOUSE MODELS OF GASTRIC CANCER

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Introduction: Gastric Cancer (GC) is one of the most common carcinomas world-wide (1) characterised by a peculiar contribution of the tumour microenvironment to the aggressive biology of this malignancy (2). GC progression is characterised by striking changes in lymphatic vessels (LVs) and lymphatic metastasis is the most common feature of GC spread, representing the most significant prognostic factor determining clinical outcomes (3). Recent publications have demonstrated a functional link between the Extra-Cellular Matrix protein EMILIN-1, tumor growth, and lymphangiogenesis. EMILIN-1 is a key structural and functional element in the maintenance of a competent lymphatic vasculature and, as demonstrated in skin and colitis-associated cancer mouse models, exhibits anti-proliferative and oncosuppressive properties through the interaction with α4β1 integrin (4,5,6).

Aims & Methods: We have observed that EMILIN1 is present at lower levels in human gastric malignant and pre-neoplastic samples and this correlates with the presence of abnormal LVs (unpublished preliminary data). The aim of this study is to investigate the role of EMILIN-1 in gastric tumor onset and progression using mouse models of GC.

We used the syngeneic YTN16 gastric cancer cell line (7) in genetically modified EMILIN-1 mice (KO, knock out mice; E933A KI, E933A-mutated Emilin1 Knock-In animals expressing an EMILIN-1 mutant that is unable to interact with α4/α9β1 integrins). KI animals were included to specifically define the effects related to integrin engagement. Cells were injected intraperitoneally (i.p.), sub-cutaneously (s.c.) or into the footpad of 8-week-old C57BL/6 mice; tumors were analyzed after 3 weeks. A protocol using N-methyl-N-nitrosourea (MNU) was also performed on the same animal models to better investigate the role of EMILIN-1 when a chemically-induced gastric carcinogenesis approach was used. Mice were given drinking water ad libitum containing 240 ppm MNU on alternate weeks for a total exposure of 5 weeks and sacrificed after 30 weeks.

Results: To assess tumor growth, mice were injected with the syngeneic GC cell line YTN16 subcutaneously into both flanks. KO and E933A KI mice developed larger and earlier tumors; tumor samples were stained with Lyve-1 and CD31 to identify lymphatic and blood vessels, respectively. While no differences were observed for CD31-positive structures, a statistically significant increase in intratumoral lymphangiogenesis was observed in KO and E933A KI animals. Lymphatic spread was analyzed in detail by means of intra-footpad injection; enhanced lymph node (LN) metastasis of YTN16 transplanted tumors was observed in KO and E933A KI mice. In a model of peritoneal carcinomatosis and dissemination (by intraperitoneal injection of YTN16), EMILIN-1 mutant animals also had higher histopathologic scores for invasion;

The use of the MNU protocol, that represents an interesting approach to investigate how deficiency of the ECM molecule EMILIN-1 may affect the incidence and frequency of tumour development, further showed that KO mice had higher tumour incidence, bigger adenomas and lower survival after MNU treatment. Similar results were obtained with the E933A KI model.

Conclusion: These results clearly demonstrate that EMILIN-1, exerts a pivotal role in GC onset, progression and dissemination through the involvement of α4/α9β1 integrin. Loss of EMILIN-1 may lead to alterations in the microenvironment able to promote tumorigenesis in the stomach. Our study also provides a novel animal model that, for the first time, targets a component of the gastric tumor microenvironment.

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Disclosure: Nothing to disclose.

PP0004

PHENOLIC COMPOUNDS OF FORMULATIONS USED FOR FUNCTIONAL DYSPEPSIA TARGET BITTER TASTE RECEPTORS AND STIMULATE MECHANISMS OF GASTRIC ACID SECRETION IN HUMAN PARIETAL CELLS IN CULTURE

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Introduction: The bitterness of medicinal products used for functional dyspepsia and irritable bowel syndrome containing herbal extracts is well known, although the underlying mechanisms are poorly understood. In previous works of our group, bitter tasting phenolic plant compounds were shown to elicit (1) an anti-inflammatory activity in immune competent cells, and (2) stimulate proton secretion in parietal cells as key mecha-

nism of gastric acid secretion.[1-3] Both effects were mediated through bitter taste receptors (TAS2Rs), and were demonstrated to correlate with the compound's bitter taste in their effect size.[1-4]

Aims & Methods: In this work, a commercially available liquid herb formulation used to aid digestive discomfort was tested in a concentration range of 5 – 500 µg/ml for its TAS2R-mediated effects on the mechanisms of proton secretion by means of a pH-sensitive fluorescent dye in the well-established human parietal HGT-1 cell model.[4] This native cell line expresses all 25 TAS2Rs and all the elements necessary for signal transduction of functional gastric acid secretion. Individual plant extracts of the more effective formulation, namely extracts from *Artemisia absinthium*, *Cichorium*, *Erythraea centaurium*, *Gentiana lutea*, *Imperatoria ostruthium*, *Juniperus communis*, *Millefolium*, *Salvia officinalis*, and *Taraxacum*, were studied for their effects on proton secretion and TAS2R gene regulation by means of RT-qPCR. Moreover, total phenolic content, expressed as gallic acid equivalents (GAE), were analyzed by using the colorimetric Folin-Ciocalteu method.

Results: Treatment of the HGT-1 cells with the ethanolic plant extracts (cytotoxic effects were excluded; cell viability ≥ 95%) revealed a concentration-dependent (1 – 300 µg/mL herbal extract) stimulation of proton secretion by seven of nine extracts, of which those from *Imperatoria ostruthium* and *Juniperus communis* demonstrated the strongest effects. Gene expression experiments resulted a regulation of 16 out of 25 *TAS2Rs* after exposure of the HGT-1 cells to the herbal product. Without exception, these regulations were reproduced by treatment of the cells with the individual plant extracts. For example, exposure of HGT-1 cells to the liquid formulation led to a regulation of *TAS2R4* and *TAS2R5*, which are known to be activated by polyphenolic compounds.[2,5] These regulations were also found for the ethanolic extracts from *Juniperus communis* and *Imperatoria ostruthium* (*TAS2R4* and *TAS2R5*) and *Gentiana lutea* (*TAS2R4*). Quantitation of the total polyphenol content showed a high polyphenol concentration (> 1500 µg/mL GAE) for four out of the nine extracts, including that from *Imperatoria ostruthium* (2063.7 ± 31.6 µg/mL GAE) and *Juniperus communis* (2859.5 ± 13.6 µg/mL GAE), which also had a strong effect on proton secretion. In contrast, extracts with lower polyphenol concentrations (< 1500 µg/mL GAE) demonstrated a less pronounced effect on or no effects on proton secretion.

Conclusion: In summary, exposure of parietal HGT-1 cells to herbal plant extracts with a high polyphenol content lead to a stronger stimulation of proton secretion compared to extracts with low polyphenol contents (R^2 = 0.77; $p < 0.0001$). For the most active extracts from *Imperatoria ostruthium* and *Juniperus communis,* a gene regulation of *TAS2R4* and *TAS2R5* was demonstrated. Next experimental steps will include (1) a functional involvement of TAS2R4 and TAS2R5 by means of knock-out (CRISPR-Cas9) or knock-down (by means of specific siRNA) approaches, and (2) identification of key active phenolic compounds by mass-spectrometry.

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Disclosure: M-R. Piqué-Borràs and G. Künstle are employees of Weleda AG, Arlesheim, Basel-Country, Switzerland.

PP0005

TRIM69 SUPPRESSED THE ANOIKIS RESISTANCE AND METASTASIS OF GASTRIC CANCER THROUGH UBIQUITIN–PROTEASOME-MEDIATED DEGRADATION OF PRKCD

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Introduction: The tripartite motif (TRIM) protein family has been investigated in multiple human cancers, including gastric cancer (GC). However, the role of TRIM69 in the anoikis resistance and metastasis of GC cells remains to be elucidated.

Aims & Methods: We identified the differentially expressed genes in anoikis-resistant GC cells using RNA-sequencing analysis. The interaction between TRIM69 and PRKCD was analyzed by coimmunoprecipitation and mass spectrometry. Our results have shown that TRIM69 was significantly downregulated in anoikis-resistant GC cells. TRIM69 overexpression markedly suppressed the anoikis resistance and metastasis of GC cells in *vitro* and in *vivo*. TRIM69 knockdown had the opposite effects. Mechanistically, TRIM69 interacted with PRKCD through its B-box domain and catalyzed the K48-linked polyubiquitination of PRKCD.

Results: Our results have shown that TRIM69 was significantly downregulated in anoikis-resistant GC cells. TRIM69 overexpression markedly suppressed the anoikis resistance and metastasis of GC cells in *vitro* and in *vivo*. TRIM69 knockdown had the opposite effects. Mechanistically, TRIM69 interacted with PRKCD through its B-box domain and catalyzed the K48-linked polyubiquitination of PRKCD. Importantly, overexpression of PRKCD blocked the effects of TRIM69 on the anoikis resistance and metastasis of GC cells. Interestingly, a $TRIM69^{-}PRKCD^{+}$ cell subset was positively associated with metastasis in GC patients.

Conclusion: TRIM69-mediated suppression of the anoikis resistance and metastasis of GC cells via modulation of the PRKCD, with potential implications for novel therapeutic approaches for metastatic GC.

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Disclosure: Nothing to disclose

PP0006

CMTM4 INHIBITS PROLIFERATION AND MIGRATION OF GASTRIC CANCER CELLS THROUGH STAT1 PATHWAY

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Introduction: CKLF-like MARVEL transmembrane domain containing 4 (CMTM4) plays an important role in regulation of the immune function and is involved in tumor formation and progression, but its role in gastric mucosa-related diseases remains unclear.
Aims & Methods: The aim of this study is to explore the role and mechanism of CMTM4 in gastric cancer cells.
Immunohistochemistry (IHC) was used to analyze the expression of CMTM4 in gastric biopsy. The CCK8 cell proliferation assay and plate clone formation were applied to analyze the proliferation of gastric cells. The cell scratch and transwell assay was used to analyze the migration and invasion of gastric cells, respectively. TMT proteome analysis was used to explore the possible mechanism of CMTM4 in gastric cancer cells, and verified by western blot.
Results: CMTM4 expression levels in gastric mucosal biopsy specimens from patients with gastritis and gastric cancer were analyzed by immunohistochemistry, and the results showed that CMTM4 expression was lower in gastric cancer than that in gastritis tissues ($P<0.05$). To investigate the function of CMTM4 in gastric cancer cell lines, we constructed CMTM4 knockdown and overexpression cells from AGS cell line and CMTM4 overexpression cells from SGC7901 cell line. The CCK8 cell proliferation assay and plate clone formation assay showed that CMTM4 overexpression significantly inhibited the proliferation of gastric cancer cells while knockdown CMTM4 promoted the proliferation of gastric cancer cells. The results of cell scratch assay showed that overexpression of CMTM4 inhibited the migration of gastric cancer cells, and knockout CMTM4 promoted the migration of gastric cancer cells. Transwell assay showed that overexpression of CMTM4 inhibited migration of gastric cancer cells and knockdown of CMTM4 promoted migration of gastric cancer cells, while knockdown of CMTM4 inhibited invasion of gastric cancer cells.
In addition, overexpression of CMTM4 increased the apoptosis of gastric cancer cells. The results of TMT proteome showed that STAT1 was significantly up-regulated in gastric cancer cells overexpressing CMTM4, which was also verified by western blot.
Conclusion: CMTM4 has an oncogenic effect in gastric cancer cells. CMTM4 may affect the growth, migration and invasion of gastric cancer cells mainly through STAT1 signaling pathways.
Disclosure: Nothing to disclose.

PP0007

ANTRUM INVOLVEMENT IN CORPUS ATROPHIC GASTRITS MAY REGRESS AT LONG-TERM FOLLOW-UP IRRESPECTIVE OF HELICOBACTER PYLORI

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Introduction: Corpus Atrophic Gastritis (CAG) is a precancerous inflammatory condition of the oxyntic mucosa. Up today, two types of CAG are distinguished: 1) autoimmune (corpus-restricted), defined for CAG sparing the antrum 2) *Helicobacter pylori* (*Hp*)-related (multifocal), which involves antrum too.
Antrum involvement/sparing is crucial for both CAG definition as autoimmune and gastric cancer risk level, which is increased in case of pan-atrophy/pan-metaplasia, according to OLGA and OLGIM scores. CAG natural history is still poorly known, especially regarding antrum evolution. In cases with previous antral involvement, possible antrum healing after cure of Hp infection was formerly described. So, given the importance of the criterium antrum-sparing, we aimed to assess antral mucosa changes at long-term follow-up(FU) beside baseline in a cohort of CAG patients.
Aims & Methods: Given the importance of the criterium antrum-spared, we aimed to assess antral mucosa changes at long-term follow-up(FU) beside baseline in a cohort of CAG patients.
We performed a retrospective study on 130 patients with CAG and antrum involvement according to updated Sydney System. Mean time of FU gastroscopy was 40.6(range 4-192) months. In 13 patients corpus atrophy was not confirmed at FU, so were excluded. At baseline, among the remaining 117 patients [mean age 63 (range 20-87) years; F 67.5%], 47 (40.2%) had antral non-atrophic and 70 (59.8%) had antral atrophic gastritis, metaplastic in 84.3%. Histologically diagnosed *Hp* infection was present in 27.3% of patients, all receiving eradication therapy, anti-parietal cells antibodies (APCA) were positive in 53.8%.
Results: At FU 29/117(24.8%) of patients with *tout-court* involved antrum showed a complete *restitutio ad integrum* of antral mucosa. In particular, on 70 cases with antral atrophy at baseline, atrophy regressed in 15 (21.4%). *Hp* infection at baseline was present in 38% of patients who reported complete antral healing at FU, cured in all but one. Both antral healing and atrophy regression were found to be similar in Hp-cured and not-cured/negatives ($p>0.05$). In 8 patients (6.8%) a worsening of antral histology at FU was reported: 5 developed antral atrophy, not present at baseline, and 3 antral atrophic patients developed intestinal metaplasia.
Conclusion: Nearly 25% of CAG patients with antral involvement showed complete antrum healing, with regression of baseline antral atrophy in 21.4%. Antral healing occurred also in patients without history of *Hp* infection and/or eradication. These data suggest that in CAG natural history, concomitant antral involvement may regress irrespective of Hp cure, implying cancer risk reduction and raising queries about histology as sole criteria diagnostic for autoimmune gastritis.

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Disclosure: Nothing to disclose.

PP0008

GASTRITIS ASSOCIATED WITH IMMUNE CHECKPOINT INHIBITORS: A NEW ENTITY TO CONSIDER

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Introduction: Immunotherapy represents an important step in the management of metastatic melanoma, since it has improved responses to treatment and overall survival of patients affected by this disease. However, this therapy could be linked to severe toxicities. Particularly, Nivolumab is a human IgG4 monoclonal antibody against PD-1, acting as an immune check point inhibitor (ICPi) and its use has been associated with various immune-related side effects. Gastrointestinal toxicities (GI) connected to ICPi have been extensively reported, however immune-related gastritis has only recently been described and it is considered rare; its clinical characteristics are still undefined.
Aims & Methods: The aim of this retrospective study was to evaluate the frequency and clinical-histopathological of immune-related gastritis in patients treated with ICPi for metastatic melanoma.
Results: In our series we found one case of immune-related gastritis, a 53-year-old female patient with a diagnosis of metastatic melanoma of the right nostril treated with Nivolumab in monotherapy for three years. One month after stopping Nivolumab, she was hospitalized for nausea, post-prandial vomiting, deteriorating loss of appetite and consequent weight loss that required parenteral nutrition. The patient referred to our gastroenterology division for a thickening of the esophagus and stomach at CT scan.
She performed gastroscopy that showed a gastric mucosa intensely edematous and hyperemic, with diffuse erosions covered with fibrin, easily bleeding, in all district. Histopathological analysis documented fragments of gastric mucosa characterized by superficial ulceration and intense acute and chronic inflammation, with destruction of gastric glands and congestion of capillaries, in the absence of Helicobacter Pylori infection. The histological report was considered compatible with acute erosive iatrogenic gastritis (nivolumab related). After her admission to the hospital, she started parenteral nutrition and i.v. prednisone at a dose of 1 mg/kg/die with gradual improvement of her symptoms. After few days, she was feeded with an elementary diet. She continued oral prednisolone in progressively decreasing doses for three months with resolution of the symptoms from the upper gastrointestinal tract. A new gastroscopy, performed three months after corticosteroid therapy, revealed normal mucosa of gastric body and fundus, with light hyperemia of antrum. Histology of the biopsy specimens of the gastric mucosa have shown moderate inflammatory infiltration of the lamina propria (lympho-monocytes and granulocytes), without erosive aspects.
Conclusion: Colitis and diarrhea are the most common gastrointestinal side effects and are responsible for temporary or permanent discontinuation of ICPi. Immuno-related gastritis is a new nosocomial entity, firstly reported in 2017, and it should be included in the list of Nivolumab's side effects. Gastroenterologists should be aware of this symptoms presentation (vomiting, nausea, epigastric pain and loss of weight) in patients treated with ICPi, also after its discontinuation. This type of gastritis is not responsive to PPI treatment and improves only after starting corticosteroids therapy, as the other immune-related adverse events. After excluding the most common causes of gastritis, clinicians should evaluate this drug-related side effect, considering clinical, radiological, endoscopic and histological data.
Disclosure: Nothing to disclose.

PP0009

THE HUMAN GASTRIC MUCOSA DISPLAYS A UNIQUE IMMUNE FINGERPRINT WITH INTER-INDIVIDUAL VARIABILITY AND LACK OF REGIONAL VARIATION

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Introduction: The immune cellular landscape from the gastric mucosa remains largely scarce in the human setting, despite its relevance in several inflammatory conditions. Indeed, and although the properties of the intestinal immune system systematically change through its length, it is currently unknown whether the same applies in the human stomach.
Aims & Methods: We hereby aimed to perform an unbiased characterization of the human gastric immune system and determine the presence of regional differences within the stomach. To that end, human gastric biopsies were obtained from the antrum, body and incisura from 10 controls to obtain lamina propria mononuclear cells that were further characterized by spectral cytometry with a panel of 40 markers.
Results: Phenotypic hierarchical analyses identified a total of 52 different immune cell subsets within the human gastric mucosa revealing that T-cells (>60%) and NK cells (>20%) where the main populations. Within T-cells, $CD4^+$ and $CD8^+$ were equally represented, with both displaying mainly a memory and effector phenotype. NK cells, on the contrary, were mainly of the early phenotype. No regional differences were observed for any subsets among the 3 different locations. Following unsupervised analysis by dimensionality reduction algorithms a total of 82 clusters were found. Again, no differences were observed between locations although a great degree of inter-individual variability was found.
Conclusion: In summary, we hereby have unraveled the human gastric cellular subset composition at the time that we have proved a unique interindividual immune fingerprint with no inter-regional variations.
Disclosure: The authors declare no conflict of interest.

PP0010

MUCOSA-ASSOCIATED MICROBIOTA WITH RELATED METABOLITES IN PATIENTS WITH DUODENAL NEOPLASMS

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Introduction: Mucosa-associated microbiota (MAM) and its metabolites are known to be present in the mucosa of the intestinal tract, including the duodenum. They are reported to affect immune function or gut barrier function and lead to cause various diseases. However, it is not clear which ones are associated with duodenal tumor development.

Aims & Methods: The early duodenal cancer patients are enrolled from Apr. 2020 to Oct. 2021. In this study, we aimed to clarify the characteristics of the MAM and metabolites of the duodenal tumors. We collected duodenal mucus on the duodenal tumor, on the surrounding mucosa of the tumor (DNT-T), and on the duodenal mucosa of healthy control (DNT-HC). For MAM analysis, we extracted the DNA from the obtained mucus layer. Then, amplicon sequencing analysis using V3-V4 variable regions of the 16S rRNA gene was performed. Regarding the metabolites, we used capillary electrophoresis-Fourier transform mass spectrometry to compare and study the variability of ionic metabolites in brush-abraded specimens.

Results: The taxonomy of gut microbiota at the genus level, g__*Cutibacterium,* g__*Faecalibacterium*, and *g__Brevundimonas* was significantly higher in the DNT-T and *g__ Neisseria, g__ Porphyromonas* was significantly higher in the DNT-HC. As for the metabolites, we found 8 metabolites which has significant difference between DNT-T and DNT-HC. In particular, citrulline, choline, and NAD+ in DNT-T were decreased in those with intramucosal carcinoma compared to DNT-HC. Principal component analysis revealed variable choline metabolism and methionine circuits.

Conclusion: Several bacteria and metabolites were varied in the MAM of DNT-T, suggesting that they may be associated with the development of duodenal tumors.

Disclosure: There is no Conflict of Interest.

PP0011

ASSOCIATION BETWEEN ACID-SUPPRESSIVE DRUGS AND RISK OF ROSACEA: RETROSPECTIVE STUDY USING KOREAN NATIONAL HEALTH INSURANCE SERVICE-NATIONAL SAMPLE COHORT

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Introduction: Rosacea is a common inflammatory skin disease with multiple etiologies. Proton pump inhibitors (PPIs) and histamine-2 receptor antagonists (H2RA) are acid suppressive drugs widely used for gastrointestinal diseases, and long-term use has been reported to be associated with dysbiosis which is a potential risk for development of Rosacea. This study aimed to study association between rosacea and acid suppressants in Korean national cohort.

Aims & Methods: We used Korean National Health Insurance Service-National Sample Cohort (NHIS-NSC) data of 749,166 patients with upper gastrointestinal (GI) diseases between 2001 and 2013. Duration of acid suppressants were compared between patients with and without rosacea together with other sociodemographic characteristics and hazard ratios were estimated.

Results: Longer use of acid suppressants was significantly associated with increased risk of Rosacea. After adjustment for possible confounders, increased cumulative defined daily dose (cDDD) was significantly associated with risk of rosacea (odds ratio [OR], 1.55; 95% confidence interval [CI], 1.20-2.00, P = 0.001). Other factors significantly associated with risk of rosacea include residing at rural area (OR, 2.58; 95% CI, 2.18-3.06, P < 0.001), greater Charlson Comorbidity Index (CCI) score (OR, 1.45; 95% CI, 1.15-1.83, P = 0.002), and comorbidities (malignancy, thyroid disease, and depression).

Conclusion: Results from our study indicate that H2RA or PPI is associated with the occurrence of rosacea among patients with GI diseases in Korean population. The risk was increased in dose-response trend, even after adjusting for confounding variables. Clinicians should be aware of risks associated with prolonged use of acid suppressive drugs.

Disclosure: Nothing to disclose.

PP0012

DOES THE DUODENAL MUCOSA-ASSOCIATED MICROBIOME AFFECT ON THE QUALITY OF THE BOWEL PREPARATION?

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Introduction: Alterations of the small intestinal microbiome are linked to gastrointestinal symptoms and recent data suggest that there is an inverse relationship between the relative abundance of mucosa associated *Veillonella* spp and gastric emptying[1]. Previous studies have questioned the effect of gastrointestinal motility on the quality of bowel preparation for colonoscopy.

Aims & Methods: This study explored the possibility that the duodenal mucosa-associated microbiota (d-MAM) affects patient response to a standardized bowel preparation. We included data from 85 consecutive individuals (52 female, age 17 ~ 79 years (mean = 52.3) undergoing upper GI endoscopy with same day colonoscopy. The procedures were performed for the assessment of GI symptoms and/or a positive immunologic fecal occult blood test. All patients were recruited after informed consent and with approval from the local ethics committee. Bowel preparation was individualized based upon a previously developed protocol[2] (and endoscopists rated the quality of the bowel preparation utilizing the Aronchick scale. Duodenal (D2) biopsies were obtained from each participant with an aseptic technique during endoscopy, snap frozen and stored at -80°C. Following gDNA extraction, amplicon libraries spanning the V6-V8 region of the 16S rRNA gene were constructed and sequenced using the Illumina MiSeq platform. Concurrent sequencing of reagent only controls was undertaken to exclude any non-duodenal sequences. Bioinformatics analysis was undertaken through the QIIME pipeline.

Results: The bowel preparation was rated in 65 patients as good or very good, 13 as Fair, and 7 as Poor. The within sample (alpha) diversities of duodenal MAM were not significantly different for subjects with different quality ratings of the bowel preparation. Interestingly though, those patients with a Poor-quality rating of their bowel preparation were found to possess a reduced relative abundance of *Veillonella* (and *Prevotella)* while the relative abundance of *Pseudomonas* was increased.

Conclusion: Given that a reduced relative abundance of the genus *Veillonella* is correlated with an increase in gastric emptying lag times, and that *Pseudomonas* is well recognized for its capacity to produce biofilms, the variable (and inverse) presence of these bacterial taxa (and *Prevotella*) raises the intriguing possibility that provide further evidence that the duodenal MAM influences gastrointestinal motor function.

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Disclosure: Nothing to disclose.

PP0013

BACTERIOLOGICAL ANALYSIS OF MUCOSAL BIOPSY SPECIMENS BY CULTIVATION FROM DUODENUM AND ANTRUM OF STOMACH AT ROUTINE ENDOSCOPY IN DIFFERENT STAGES

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Introduction: Disease-associated alterations of the intestinal microbiota composition, known as dysbiosis, have been well described. Duodenal mucosal biopsies occasionally demonstrate the presence of adherent bacteria in the epithelium. However, there is a lack of universally accepted and applied gold standard for investigating the association with various diseases such as small intestinal bacterial overgrowth (SIBO), close relationships with obesity, cirrhosis, IBS, etc.

Aims & Methods: Aim: This retrospective study evaluated the spectrum of such bacteria after the cultivation of tissue samples that were obtained at routine endoscopy of 81 patients indicated to examination for different reasons.

Methods: Biopsies were taken using sterilized standard endoscopic biopsy forceps. Two pieces of tissue were obtained without the removal of forceps from the third and fourth part of the duodenum and the same way from the antrum of the stomach. One of the samples was placed into a 10% glucose solution for microbial cultivation, the other was placed into a 10% formaldehyde solution for histological examination. In 22 patients SIBO testing by breath test and stool cultivation was performed.

Results: Overall 81 biopsy specimens from the duodenum and 45 from the antrum of the stomach were cultivated. In the duodenum, bacterial overgrowth was found in 64,19% of patients and it was negative in 35,80% of cases, while in the antrum of the stomach, the presence of bacteria was found in 48,88% and was negative in 51,11% of patients. The agreement with the same genera (E. coli) in antrum and duodenum was only in 9 patients (25%). E. coli was present in 19,7% of specimens from duodenum followed by present Pseudomonas aeruginosa (17,24%) and Enterobacter cloacae (12,34%). While in antrum E. coli was present in 17,77% of specimens, Klebsiella species and Enterobacter cloacae were present in 8,88% of cases respectively. 22 patients were examined by lactulose-hydrogen breath testing for SIBO with 60% positivity. There were 18,1% positively tested patients for SIBO, but the duodenal and antral cultivation was negative. Stool cultivation did not reveal any pathogens except E. coli. When the bacteria were cultivated, we performed MIC testing for antibiotics. Overall resistance was found for ampicillin in 88,4% of all pathogens and ampicillin + sulbactam 61,5% respectively in following percentages, E. coli: 52,9%, Klebsiella spp.: 100%, Enterobacter: 69,2%, Proteus mirabilis: 100%, Enterococcus: 33% were resistant for ampicillin.

Conclusion: Cultivation of mucosal biopsy specimens seems to be useful for the identification of patients with bacterial overgrowth in the upper part of the GI tract. There is a need to stress the elucidation of their role in the pathogenesis of different chronic illnesses.

Disclosure: Nothing to disclose.

PP0014

EPSTEIN-BARR VIRUS AND CLINICO-ENDOSCOPIC CHARACTERISTICS OF GASTRIC REMNANT CANCERS AND PROXIMAL NON-REMANT CANCERS

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Introduction: Gastric adenocarcinomas associated with Epstein-Barr virus (EBV) infection account for 5-10% of gastric cancers and is recognized as a distinct molecular subtype. Adenocarcinomas arising in the residual stomach after partial gastrectomy are named gastric remnant cancers (GRC) and usually develop decades after distal gastrectomy for benign disease. The relevance of GRC as a separate entity has been questioned since many tumour characteristics as well as prognosis of GRC does not seem to differ from other primary gastric cancers. However, it has been reported that a 5-fold higher proportion of GRC were EBV positive compared to other gastric adenocarcinomas in a meta-analysis of studies on Eastern patient cohorts. Symptoms and endoscopic findings at diagnosis may also differ between GRC and other gastric cancers. The aim of this study was to assess EBV infection as well as clinico-endoscopic characteristics in patients with GRC in a Western population-based patient cohort.

Aims & Methods: All incident gastric adenocarcinoma in Central Norway between 2001 and 2016 were identified by a combined search in the Norwegian Cancer Registry and Norwegian Patient Registry followed by manual assessment of all patient records. Patient and tumour characteristics were extracted. GRCs was defined as gastric adenocarcinomas in patients previously operated with a distal gastrectomy for either benign or malignant disease. Among 1217 patients with adenocarcinoma there were 78 with GRCs. All tumours were histologically classified according to Lauren and EBV-status was assessed by in situ hybridization (ISH) in GRC patients (n=78) and in proximal (localized in the gastric corpus) non-GRC (n=56) controls. Symptoms and findings at upper endoscopy at the time of diagnosis of GRC and proximal non-GRC patients were recorded.

Results: Seventy-eight patients had GRC, of whom 76 (97.4%) patients had benign disease as indication for primary distal gastrectomy. The median latency time from primary distal gastrectomy to GRC was 37.6 (range 15.7-68.0) years. Fourteen (18.7%) GRC and 6 (10.9%) proximal non-GRCs were EBV-ISH positive, but the proportions did not differ significantly (p=0.23). EBV-status was not associated with patient age, sex or Lauren histological type, neither for GRC-patients, nor for the study population overall.

The indication for upper endoscopy when the cancer was diagnosed was more frequently anaemia in GRC compared to proximal non-GRC patients (32.1% vs. 16.1%, p=0.036) and less frequently upper abdominal pain (12.8% vs. 35.7%, p=0.002). At the upper endoscopy, ulceration was a less frequent finding (17.9% vs. 57.1%, p<0.001) in GRC compared to proximal non-GRC patients. Median overall survival in EBV positive GRCs was 22.2 (0-64.9) months compared to proximal non-GRC 6.7 (4.0-9.5) months, p = 0.40, with 5-year survival of 28.6% and 22.6%, respectively.

Conclusion: A high proportion of GRC were EBV positive, but the proportion did not differ significantly from other proximal gastric cancers. At the time of diagnosis GRC patients did more often have anaemia, but less frequently upper abdominal pain or gastric ulceration.

Disclosure: Nothing to disclose.

PP0015 WITHDRAWN

PP0016

RISK FACTORS FOR UPPER MASSIVE GASTROINTESTINAL BLEEDING OCURRENCE AND DEATH: A PROSPECTIVE SINGLE-CENTER STUDY

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Introduction: Massive gastrointestinal bleeding (MGB) is a life-threatening condition that requires prompt recognition and resuscitation to increase the chance of good outcomes (1).

Aims & Methods: Aims: Analyze risk factors, comorbidities and outcomes of MGB.

Methods: Retrospective analysis of a prospective registry of upper gastrointestinal bleed (UGIB) patients admitted to 'Virgen de las Nieves University Hospital' between 2013-2020.

MGB was defined as UGIB with transfusion of >2 pRBCs in the emergency room or during the first 24h of hospital stay and signs of shock (2). Main outcomes were 30-day mortality, rebleeding, bleeding persistence or severe complication throughout admission and complications within the first 6 months after discharge (including cardiovascular, hemorrhagic or deaths).

Statistical analysis was performed by SPSS.

Results: We included 1213 UGIB patients, 171 with MGB.

Multivariate logistic regression analysis showed that, being admitted for another condition (HR 1.72,95%CI 1.04-2.58,p=0.035), having a systemic disease (HR 2.30,95%CI 1.22-5.32,p=0.045), a disseminated malignancy (HR 2.07,95%CI 1.02-4.21,p=0.045) or suffering a severe comorbidity (HR 2.21,95%CI 1.25-3.91,p=0.009) were independent risk factor for MGB.

Among 171 MGB patients, 21% died, with 10 deaths directly from hypovolemic shock secondary to UGIB, and 11% due to complications.

Table shows significance differences between deaths and survivors.

Relevant Comorbidities ASA 3-4 (%)	**Deaths** 96.7%	**Survivors** 78.5%	***p*** 0.0018
Active bleeding (%)	76.3	43.3	0.007
Interventional radiology (%)	13.3	3.7	0.034
SBP (mean±SD mmHg)	79±8	84±9	0.025
Albumin (mean±SD mg/dl)	2.4±0.5	2.8±0.6	0.011
Calcium (mean±SD mg/dl)	7.7±0.6	8.2±0.8	0.032
Platelets (mean±SD /mm^3)	158*10^3±101*10^3	206*10^3±106*10^3	0.027
Severe complications during hospitalization	76.7	22.1	<0.0001
Bleeding persistence (%)	63.3	17.6	<0.0001
Rebleeding (%)	40	17	0.005

Multivariate analysis showed that active bleeding in endoscopy (HR 4.80,95%CI 1.06-21.62,p=0.041) and severe complications (HR 14.03,95%CI 3.30-59.60,p<0.0001) were independent predictors for mortality, being calcium levels a protective factor (HR 0.41,95%CI 0.16-0.94,p=0.045).

Among the survivors after the index episode,14% died after 6 months, being main causes of death recurrent bleeding(5.2%), neoplasms(4.4%), cirrhosis complications(2%), cardiovascular disease(1.5%) and sepsis(1.5%). Delayed bleeding was caused by recurrent UGIB in 86.6%, lower GIB in 10% and from a non-GI origin in 3.4%. Delayed cardiovascular events were heart failure in 46%, thromboembolic events in 23%, myocardial ischemia in 15.4% and atrial fibrillation in 15.6%.

Conclusion: Our study is a prospectively collected single center registry of patients with massive UGIB, in which we observed that being an inpatient and harboring severe comorbidities, particularly systemic diseases and malignancies, were risk factors for this condition. Mortality among

those patients was related to CKD, cirrhosis, severe comorbidities and excessive alcohol consumption. We also found an increased delayed mortality, probably related to a worsening health condition in which GI bleeding heralded poor outcomes, some of them potentially preventable with close follow-up.

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Disclosure: Nothing to disclose.

PP0017

LIVER SPECIFIC SCORES AND GASTROINTESTINAL BLEEDING SCORING SYSTEMS TO PREDICT OUTCOMES IN PATIENTS WITH ACUTE UPPER GASTROINTESTINAL BLEEDING

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Introduction: Several scoring systems have been established to identify upper gastrointestinal bleeding (UGIB) patients at high risk of adverse outcomes, being the best ones MAP (ASH) and ABC (1). Traditional scores(Glasgow-Blatchford, Rockall, AIMS65) were validated and compared mostly in nonvariceal-UGIB. On the contrary, MAP (ASH) and ABC included variceal bleed (VB) in their validation and comparison cohorts.

Also, to determine the prognosis of liver cirrhosis there are two frequently used scores, Child-Pugh score (CP) and MELD, and recently, ALBI score. Previous studies have reported the ability of these in predicting VB outcomes. A recent metanalysis show MELD and CP performed better predicting mortality than traditional scores (2). But there are no studies comparing liver scores with MAP (ASH) or ABC.

Aims & Methods: To compare the predictive value of MAP (ASH) and ABC scores vs. liver scores stratifying outcomes of VB.

Retrospective analysis of a prospective registry of UGIB patients admitted to 'Virgen de las Nieves University Hospital' (2013-2020). VB was defined as that coming from gastric or esophageal varices. Main outcomes were in-hospital (intervention,rebleeding, misbalance of chronic condition, mortality) and delayed-6months (UGIB, cardiovascular, mortality) ones. Intervention is a composite endpoint including need of transfusion, endoscopy therapy, interventional radiology or surgery. Statistical analysis was performed by SPSS and MedCalc.

Results: We included 1345 UGIB patients, 241 with VB, mean age 60.70+/-12.62**,** 26.1% females. Main differences between deaths and survivors were hepatocellular carcinoma, (57.1%vs.16.1%,p=0.001, OR 6.97,95%CI 2.28-21.34), misbalance of chronic condition (40.7% vs. 5.5%, p<0.001, OR 11.83,95 % CI 5.15-27.22), intervention (21.1% vs. 3%, p=0.013, OR 8.56,95 % CI 1.14-64.49), rebleeding (50%vs.12.7%, p<0.001, OR 6.88, 95% CI 3.12-15.20) and length hospital stay (15.91vs.9.23,p=0.031). In the multivariate analysis, misbalance of chronic condition was an independent risk factor for mortality (OR 4.23, 95 % CI 1.11-16.06, p=0.034).

Comparisons of ROC curves for relevant outcomes are shown in the table, with statiscal differences only for intervention (MAP(ASH) >CP, p=0.0195), misbalance of chronic condition (MAP(ASH) >ALBI, p=0.023; ABC > CP, p=0.020; ABC > ALBI, p=0.001) and delayed UGIB/liver mortality (MELD > Child, p=0.042).

AUROC (95%CI)	MAP(ASH)	ABC	MELD	Child-Pugh	ALBI
Intervention	***0.744**** (0.674 - 0.806)	**0.701** (0.628 - 0.767)	0,622 (0,546 - 0.693)	0.582 (0.506 - 0.655)	0.668 (0.594 - 0.737)
Rebleeding	0.553 (0.477 - 0.627)	0.522 (0.446 - 0.597)	0.602 (0.526 - 0.674)	0.546 (0.470 - 0.620)	0.543 (0.467 - 0.617)
Misbalance chronic condition	***0.721**** (0.649 - 0.785)	***0.770**** (0.702 - 0.830)	0.692 (0.619 - 0.759)	0.662 (0.587 - 0.730)	0.612 (0.536 - 0.684)
In-hospital mortality	0.678 (0.604 - 0.747)	0.677 (0.604 - 0.747)	**0.734** (0.662 - 0.798)	**0.741** (0.669 - 0.804)	0.677 (0.602 - 0.746)
UGIB in-hospital mortality	0.656 (0.568 - 0.736)	0.633 (0.545 - 0.714)	**0.770** (0.689 - 0.838)	**0.774** (0.694 - 0.842)	0.711 (0.626 - 0.786)
Other cause in-hospital mortality	**0.751** (0.666 - 0.823)	**0.762** (0.666 - 0.823)	0.696 (0.607 - 0.774)	0.722 (0.635 - 0.798)	0.638 (0.547 - 0.721)
Delayed cardiovascular events	0.634 (0.553 - 0.709)	0.534 (0.452 - 0.614)	0.566 (0.484 - 0.645)	0.588 (0.506 - 0.666)	0.658 (0.506 - 0.666)
Delayed UGIB	0.534 (0.453 - 0.615)	0.582 (0.501 - 0.660)	0.536 (0.455 - 0.616)	0.516 (0.434 - 0.596)	0.519 (0.437 - 0.599)
Delayed Mortality	0.581 (0.499 - 0.659)	0.683 (0.603 - 0.755)	0.555 (0.473 - 0.635)	0.617 (0.535 - 0.694)	0.676 (0.596 - 0.749)
Delayed UGIB and liver mortality	0.600 (0.340 - 0-824)	**0.733** (0.468 - 0-914)	***0.850**** (0.596 - 0-974)	0.542 (0.289 - 0-780)	0.650 (0.386 - 0-860)

Conclusion: In our study, MAP (ASH) and ABC scores performed better at prediction intervention and misbalance of chronic condition. On the other hand, MELD is superior to CP in predicting delayed UGIB and liver mortality. None of them performs well in predicting rebleeding or other delayed outcomes. Although we see some differences in AUROCs for the other outcomes, no statical differences were found. Therefore, MAP (ASH) and ABC have a good performance not only in patients with UGIB but also in VB.

Independent risk factor for in-hospital mortality was misbalance of chronic condition, showing once again that it is not UGIB itself what determines the evolution if not the imbalance that it produces.

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PP0018

NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING IN PATIENTS WITHOUT AND WITH COMPENSATED AND DECOMPENSATED CIRRHOSIS: EPIDEMIOLOGY, OUTCOMES AND PREDICTIVE FACTORS OF MORTALITY

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Introduction: Upper gastrointestinal bleeding(UGIB), both variceal(VB) and nonvariceal(NVB), is a prevalent cause of hospitalization, readmission, and poor outcomes among patients with cirrhosis. However, studies typically focus on VB given its association with higher morbidity and mortality rates(1) although some other studies comparing VB and NVB among patients with cirrhosis reported no difference in outcomes(2).

On the other hand, literature is controversial about NVB outcomes between cirrhosis and non-cirrhosis(3,4).

Despite this, the existing literature of NVB in cirrhosis is less robust (few prospective studies with no differentiation between compensated and decompensated cirrhosis).

Aims & Methods: Aim: To compare outcomes between VB and NVB among patients with cirrhosis and between NVB patients with (compensated and decompensated) and without cirrhosis. Therefore, we sought to explore predictors of mortality in NVB patients.

Methods: Retrospective analysis of a prospective registry of UGIB patients admitted to 'Virgen de las Nieves University Hospital'(2013-2020).

VB was defined as esophageal or gastric varices as source of bleeding. NVB was defined as all other etiology(including portal-hypertensive gastropathy)

Patients with a Child-Pugh A and B(score 5-9) have compensated cirrhosis and those with class C cirrhosis(score 10-15) have decompensated cirrhosis.

The primary outcome of our study was in hospital and delayed mortality. Secondary outcomes included intervention, length of hospital stay, rebleeding and delayed UGIB.

Statistical analysis was performed by SPSS. Categorical variables were compared using χ2 test. Continuous variables using Student's t-test or Mann-Whitney U-test. Multivariate logistic regression analysis was performed to identify independent risk factors for mortality.

Outcomes	Non-cirrhotic	Compensated	Descompensated	p
Reebleding	9%	7.4%	23.8%	0.047 (for descompensated)
Nº RBC	2.6	2.88	5.33	0.034 (for descompensated)
Endoscopy therapy	39.1%	37.5%	52.4%	n.s (0.443)
Surgery	4.8%	1.2%	0%	n.s (0.203)
Interventional radiology	1.1%	1.2%	0%	n.s (0.883)
Lenght hospital stay	8.59	8.55	12.33	0.022 (for descompensated)
In-hospital mortality	7.2%	13%	45%	<0.001 (for descompensated)
Delayed-6months UGIB	6.1%	10.8%	11.1%	n.s. (0.210)
Delayed-6months mortality	8.8%	18.5%	14.3%	0.013 (for compensated)

Table.

Results: We included 1345 UGIB patients, 319 had cirrhosis, 190 VB (59.6%) and 129 NVB (40.4%). There were no differences in relevant outcomes between VB y NVB in cirrhosis except for need of endoscopy therapy (74.2% vs.41.4%, p<0.001)

In the whole cohort, 1139 where NVB: 1011 non-cirrhotic (88.8%), 129 cirrhotic (11.2%): 81 compensated and 21 decompensated (26 without information).

Main outcomes between non-cirrhotic and compensated/decompensated cirrhotic with NVB are shown in the table.

Independent risk factors for in-hospital mortality were age (HR 1.08,95%CI 1.01-1.61,p=0.049), misbalance of chronic condition (HR 11.33,95%CI 2.26-56.71,p=0.003) and Child-Pugh score (HR 1.88,95%CI 1.18-2.99,p=0.008).

Conclusion: In our study we show that, at the end, prognosis depends on basal status, namely being compensated or decompensated, and is not only about have or not to have cirrhosis or about VB or NVB. Patients with decompensated cirrhosis have worse outcomes in terms of higher rates of rebleeding, number of packet blood cell transfused, length of hospital stay and in-hospital mortality. After performed multivariate analysis, Child-Pugh score remains as an independent risk factor for mortality, indicating that liver function deterioration marks the evolution.

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PP0019

THE SHOCK INDEX IS NOT BETTER THAN PRE-EXISTING SCORING AT PREDICTING OUTCOMES IN UPPER GASTROINTESTINAL BLEEDING PATIENTS.

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Introduction: Several scoring systems have been established to identify upper gastrointestinal bleeding (UGIB) patients at high risk of adverse outcomes. Recently, focus have been posed in the Shock Index since the NCEPOD reported this use to assess bleeding severity and found an association with mortality. Moreover, they report that there was inconsistent use of recognized scoring systems in their examined cases of upper GI bleeding and postulated their use (1).

After this, Stanley and colleagues examine the performance of SI in comparisons with preexisting scores predicting UGIB outcomes in a cohort of 3012 patients and reported that SI was inferior to existing pre-endoscopy scores (2).

Recently, other study positioned SI as the best ones to predict 30, 180 and 360-day mortality in UGIB patients over 65 years, generating the controversy (3).

We aim to compare the performance of SI versus previous scores and versus traditional vital constants to predict outcomes in UGIB.

Aims & Methods: We aim to compare the performance of SI versus previous scores and versus traditional vital constants to predict outcomes in UGIB.

Retrospective analysis of a prospective registry of UGIB patients admitted to 'Virgen de las Nieves University Hospital' between 2013-2020.

Main outcomes were intervention (a composite endpoint including need of transfusion, endoscopy therapy, interventional radiology or surgery) and in-hospital mortality.

Scores calculated were SI, MAP(ASH), ABC, Glasgow-Blatchford score (GBS), AIMS65 and Rockall score. We also included pulse and blood pressure (BP) in the comparison.

MedCalc was used to calculate ROC Curve of scores in determining outcomes.

Results: AUROCs are shown in the table. Comparisons of ROC curves for relevant outcomes show all the pre-existing scores superior to SI with statical difference. In relation to vital signs, only for intervention SI was superior to pulse with statical difference. For mortality, no differences were found between SI and vital signs.

AUROC (95%CI)	Need of intervention	In-hospital mortality
Pulse	0.538 (0.590 - 0.643)	0.618 (0.591 - 0.645)
Systolic Blood Pressure	0.645 (0.511 - 0.565)	0.587 (0.559 - 0.614)
Shock Index	**0.626** (0.596 - 0.655)	**0.612** (0.582 - 0.642)
MAP(ASH)	0.789 (0.764 - 0.813)	0.758 (0.731 - 0.784)
ABC	0.723 (0.695 - 0.749)	0.804 (0.779 - 0.828)
Glasgow-Blatchford score	0.780 (0.754 - 0.805)	0.708 (0.680 - 0.736)
AIMS65	0.682 (0.654 - 0.710)	0.738 (0.710 - 0.765)
Rockall score	0.760 (0.734 - 0.785)	0.743 (0.715 - 0.769)

Conclusion: In view of our results, we have to conclude, as Stanley et al. (2), that Shock Index is inferior to pre-existing scores in predicting outcomes in UGIB. In comparison to vital signs Shock Index not offer any advantages with the exception to pulse for intervention.

Therefore, we maintain our previous recommendation (4) to use MAP(ASH), or failing that ABC, for predicting intervention and mortality in UGIB since it is easier to calculate with an excellent performance.

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PP0020

ANALYSIS OF IN-HOSPITAL AND DELAYED CARDIOVASCULAR COMPLICATIONS AFTER ACUTE UPPER GASTROINTESTINAL BLEEDING

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Introduction: Acute upper gastrointestinal bleeding (AUGIB) is a common, life-threatening clinical emergency with considerable morbidity and mortality. It is postulated that AUGIB can lead to hypotension and hypoperfusion of the vital organs. In response to these changes, the body activates its compensatory mechanism deriving in higher levels of oxidative stress, inflammation, hypercoagulable state and vascular endothelial injury. All these put these patients in a higher risk of myocardial injury (MI), which may lead to increased mortality in AUGIB patients (1,2).

However, older studies show similar mortality rates for those with AUGIB who develop MI (3,4).

Moreover, general abnormalities caused by AUGIB might well have delayed consequences with a significant impact on mortality (5).

Aims & Methods: To analyze the risk factors for in-hospital (ACVC) and delayed (DCVC) cardiovascular complications after AUGIB.

Retrospective analysis of a prospective registry of UGIB patients admitted to 'Virgen de las Nieves University Hospital' (2013-2020). Main outcomes were ACVC (including stroke, lung embolism, myocardial injury and heart failure) and DCVC-6months (including coronary syndrome, thromboembolic event, heart failure and arrhythmia). Statistical analysis was performed by SPSS.

ACVC	With	Without	HR (95%CI)	p
Age	76.39	64.23	1.45 (1.10 - 2.33)	0.043
COPD	30.4%	10.1%	3.87 (1.56 - 9.59)	0.007
Coronary disease	34.8%	9.6%	5.02 (2.10 - 12.07)	0.001
Stroke	17.4%	5.8%	3.40 (1.13 - 10.25)	0.045
High blood pressure	69.6%	43.7%	2.95 (1.20 - 7.21)	0.018
Antiplatelets	39.1%	20.3%	2.52 (1.08 - 5.88)	0.037
Urea at admission (mg/dL)	147.17	86.51	4.85 (1.75 - 11.23)	0.010
Active bleeding	56.5%	27.5%	3.43 (1.49-7.90)	0.004
Need for intervention	91.3%	73.7%	4.62 (1.70 - 12.52)	0.047
Reebleeding	26.1%	9.9%	3.23 (1.25 - 8.33)	0.023
Lenght hospital stay	16.96	8.97	5.23 (2.34 - 14.53)	0.015
Inpatient	34.8%	15.2%	2.97 (1.24 - 7.10)	0.018
In-hospital mortality	36.4%	10%	5.15 (2.12 - 12.52)	0.001
DCVC	**With**	**Without**	**HR (95%CI)**	**p**
Age	74.46	63.67	1.56 (1.15 - 2.46)	0.035
COPD	19%	9.8%	2.16 (1.19 - 3.91)	0.020
Cronic Kidney Disease	29.1%	13.7%	2.59 (1.55 – 4.33)	0.001
Heart Failure	39.2%	8.2%	7.25 (4.41 - 11. 93)	<0.001
Coronary disease	22.8%	9.4%	2.85 (1.63 - 5.00)	0.001
Atrial fibrilation	49.4%	15.8%	5.18 (3.24 - 8.28)	0.001
Valvular disease	37%	7.3%	7.45 (3.20 - 17.31)	< 0.001
Stroke	15.2%	5.1%	3.35 (1.72 - 6.53)	0.001
High blood pressure	55.7%	43.5%	1.63 (1.03 - 2.58)	0.046
Anticoaugulants	49.4%	18.9%	4.18 (2.62 - 6.65)	<0.001
Urea at admission (mg/dL)	113.94	83.36	3.47 (1.83 - 6.25)	< 0.001
Delayed bleeding	40.5%	12.9%	4.58 (2.83 - 7.42)	< 0.001
Delayed mortality	23.1%	6.5%	4.34 (2.44 - 7.72)	< 0.001

Table. Differences between patients with and without ACVC and DCVC.

Results: We included 1345 AUGIB patients, mean age 64.44 +/- 16.19, 32.3% females, 23 with ACVC (1.7%), 8 of these patients died. 79 develop DCVC (5.9%), 18 of these patients died.

Independent risk factor for ACVC were age (HR 1.08, 95%CI 1.03-1.15, p=0.003), previous coronary disease (HR 2.98, 95%CI 1.05-9.48, p=0.045), urea (HR 1.007, 95%CI 1.002-1.013, p=0.011) and rebleeding (HR 3.85, CI95% 1.17-2.71, p= 0.027).

Independent risk factor for DCVC was previous heart failure (HR 5.92, 95%CI 2.17-16.17, p=0.001).

Conclusion: Patients with AUGIB who develop in-hospital cardiovascular events are older, have more comorbidities, more severe bleeding and worse outcomes. The independent risk factors for AUGIB induced cardiovascular event identified are age, previous coronary disease, urea and rebleeding. In the same way, patients with delayed cardiovascular event are older, have more comorbidities and worse delayed outcomes. The independent risk factor for AUGIB induced delayed cardiovascular event identified is previous heart failure.

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PP0021

IDENTIFICATION OF POTENTIAL METABOLOMIC BIOMARKERS OF UPPER GASTROINTESTINAL BLEEDING BY USING *IN VITRO* DIGESTION MODEL

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Introduction: Upper gastrointestinal bleeding (UGIB) remains one of the major emergencies. However, predicting the presence and degree of UGIB before endoscopy is still inaccurate. Therefore, the development of an accurate and non-invasive method is required. The purpose of this study was to discover potential metabolic biomarkers for UGIB using an in vitro digestion model, liquid chromatography-mass spectrometry (LC-MS) and gas chromatography-mass spectrometry (GC-MS).

Aims & Methods: Blood samples from 30 healthy volunteers were collected. To simulate UGIB , blood samples underwent either simulated gastric phase in vitro digestion (Blood + simulated gastric fluid (SGF)) or both simulated gastric and intestinal phase (Blood + SGF + simulated intestinal fluid (SIF)). Using untargeted metabolomics approaches with LC-MS and GC-MS metabolomic profiles and volatile organic compounds (VOC) profiles of digested blood were analyzed. Compounds that distinguish between undigested blood and digested blood were sorted out to screen potential biomarkers for UGIB.

Results: From the LC-MS analysis of the undigested blood (Control) and digested blood; blood that was digested with SGF (Blood + SGF) and blood that was digested with both SIF and SGF (Blood + SGF + SIF), a total of 47 metabolites were identified. The levels of 42 (7 from Blood + SGF and 37 from Blood + SGF + SIF) metabolites had significantly higher levels ($p < 0.05$, $Log2(FC) > 2$) in the digested blood as compared to the Control.

By analyzing extracted VOCs respectively in Control groups and metabolized samples(Blood+SGF and Blood + SGF + SIF) through GC-MS, 16 compounds were identified as statistically significant. Among them, three compounds appeared at higher levels in the Blood + SGF than the Control($p<0.05$, $Log2(FC) > 2$). In addition, three compounds showed higher levels in the Blood + SGF + SIF than the Control.

Conclusion: With metabolomic approaches, we have detected 63 statistically significant compounds (47 compounds by LC-MS, 16 compounds by GC-MS). Specific features with the considerable possibilities to be biomarkers for UGIB were found. Through in-depth understanding of metabolic pathways and further investigation in clinical settings, discovered features could be utilized to diagnose UGIB in an accurate and non-invasive manner.

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PP0022

VALUE OF MULTIDETECTOR COMPUTED TOMOGRAPHY ANGIOGRAPHY IN SEVERE NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING: A RETROSPECTIVE STUDY IN A REFERRAL BLEEDING UNIT

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Introduction: Non-variceal upper gastrointestinal bleeding (NVUGIB) is a common gastroenterological emergency associated with significant morbidity and mortality [1-3]. Upper gastrointestinal endoscopy is currently recommended as the gold standard modality for both diagnosis and treatment [4]. As historically played a limited role in the diagnosis of acute NVUGIB, multidetector-row computed tomography angiography (MDCTA) is emerging as a promising tool in the diagnosis of NVUGIB, especially for severe cases [5-6]. However, to date, evidence concerning the role of MDCTA in the NVUGIB diagnosis is still lacking.

Aims & Methods: The purpose of this study was to retrospectively investigate the diagnostic performance of emergent MDCTA performed prior to any diagnostic modality or following urgent upper endoscopy to identify the status, the site and the underlying etiology of severe NVUGIB. Institutional databases were reviewed in order to identify severe acute NVUGIB patients who were admitted to our bleeding unit and were referred for emergent MDCTA prior to any hemostatic treatment (<3 hours) or following (<3 hours) endoscopy, between December 2019 and October 2022. The study aim was to evaluate the diagnostic performance of MDCTA to detect the status, the site and the etiology of severe NVUGIB with endoscopy, digital subtraction angiography, surgery, pathology or a combination of them as reference standards.

Results: A total of 68 patients (38 men, median age 69 years [range 25–96]) were enrolled. The overall MDCTA sensitivity, specificity, and accuracy to diagnose bleeding status were 77.8% (95% CI: 65.5-87.3), 40% (95% CI: 5.3-85.3), and 75% (95% CI: 63.0-84.7), respectively (Table 1).

	Active (n = 40)	Recent (n = 26)	Non-active and non-recent (n = 2)	Total (n = 68)
TP	29	20	-	49
TN	-	-	2	2
FP	0	3	-	3
FN	11	3	0	14
Sensitivity (95% CI)	72.5 (56.1-85.4)	87.0 (66.4-97.2)	-	77.8 (65.5-87.3)
Specificity (95% CI)	-	-	100 (15.81-100)	40.0 (5.3-85.3)
PPV (95% CI)	100 (88.1-100)	87.0 (66.4-97.2)	-	94.2 (84.1-98.8)
NPV (95% CI)	-	-	100 (15.81-100)	12.5 (1.55-38.4)
Accuracy (95% CI)	-	-	-	75 (63.0-84.7)

TP, true positive; TN, true negative; FP, false positive; FN, false negative; CI, confidence interval; PPV, positive predictive value; NPV, negative predictive value.

Table 1. The diagnostic performance of MDCTA in detecting bleeding status.

Finally, the overall MDCTA sensitivity to identify the bleeding site and the bleeding etiology were 92.4% (95% CI: 83.2-97.5) and 79% (95% CI: 66.8-88.3), respectively.

Conclusion: MDCTA seems to be a feasible and effective modality in detecting the site, the status and the etiology of severe acute NVUGIB. It may play a crucial role in the management of selected cases of NVUGIB, especially those clinically severe and/or secondary to rare and extraordinary rare sources, effectively guiding timing and type of treatment. However, further large prospective studies are needed to clarify the role of MDCTA in the diagnostic process of acute NVUGIB.

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PP0023

THE EFFECTS OF *BIFIDOBACTERIUM BREVE*, BIF195 ON NON-STEROIDAL ANTI-INFLAMMATORY DRUG-INDUCED GASTROINTESTINAL INJURY – THE INFLUENCE OF DOSE

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Introduction: Use of Non-steroidal anti-inflammatory drugs (NSAIDS) is associated with gastrointestinal (GI) injury with the degree of damage depending on dose, duration of treatment, concomitant medication, and patient risk profile(Goldstein & Cryer, 2015; Lanza et al., 1999, 2018; Yeomans et al., 2018).

Aims & Methods: Previously, we have reported that the probiotic strain *Bifidobacterium breve,* Bif195 (DSM 33360) at doses of $50x10^9$ and $100x10^9$ CFU/day alleviated aspirin-induced mucosal injury in the small intestine(Mortensen et al., 2019) and the stomach(Damholt et al., 2021), respectively.

Here, we report results from an additional randomized controlled double-blind trial (RCT) of Bif195 in a lower dose on NSAID-induced mucosal injury. Although the trials were not directly comparable in design, they provid-

ed an opportunity to evaluate the effect of different doses of Bif195. In this study the NSAID was ibuprofen given in a dose of 800 mg/day for 6 weeks. Video Capsule Endoscopy was used to assess small-intestinal damage and to calculate Lewis score throughout the study(Gralnek et al., 2008).

Results: A total of 160 subjects (63% women) were included in the full analysis set (randomized, consumed at least one dose of trial product and with available efficacy data for the primary endpoint) with mean ± SD body mass index of 26.8 ± 6.1 kg/m^2 and age of 27.3 ± 5.5 years. There were no effects of the Bif195 intervention on any of the primary and secondary endpoints. Low-dose Bif195 did not reduce ibuprofen-induced damage in the small intestine compared to placebo as evaluated by Lewis score (AUC, mean ± SEM 2358 ± 137 vs 2208 ± 123, p=0.474). It is noteworthy that the degree of damage associated with ibuprofen was markedly lower than that associated with aspirin in an earlier study (AUC, mean ± SEM 4351 ± 574)(Mortensen et al., 2019). Bif195 was well-tolerated, and no treatment-related adverse events were recorded. We conclude that the lower level of damage induced by ibuprofen compared to aspirin in combination with low dose Bif195, might have had an impact on the ability of the trial to identify an effect.

Conclusion: In summary, of three individual RCTs examining the effects of Bif195 on aspirin- and ibuprofen-induced gut mucosal injury, two showed benefits while one employing a lower dose of Bif195 in individuals exposed to ibuprofen failed to show benefit. While these studies suggest that the effects of Bif195 may be dose related this should be interpreted with caution due to the differences in injurious agent and trial design. The trial was registered at Clinicaltrials.gov: NCT04447924.

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PP0024

SUBJECTIVE GLOBAL ASSESSMENT CAN BE A PREDICTOR OF LONG HOSPITAL STAYS IN ELDERLY BLEEDING PEPTIC ULCER PATIENTS

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Introduction: A decline in Activities of Daily Living and cognitive function due to long hospital stays is a problem among elderly patients. Recently, it has been reported that the lower nutritional status in elderly patients correlates stays with long hospital stays for correlates of various diseases. Although there are several score systems to predict the need for intervention or prognosis in bleeding peptic ulcer (BPU) patients, the association between nutritional status and length of stay in elderly BPU patients has not been fully investigated.

The subjective global assessment (SGA) is applied for one of the nutritional assessment tools in the present study. SGA is a simple nutritional status scale that can be performed only by interview tools and physical examination.

Aims & Methods: This study aims to investigate whether the nutritional status of elderly BPU patients at admission affects the length of hospitalization. We retrospectively reviewed the electrical health record of BPU patients who were 66 years old or older from April 2018 to December 2022. The patients were categorized into two groups according to the median length of hospitalization (9 days); the short-term hospitalization group (S group), and the long-term hospitalization group (L group).

The definition of S group and L group were patients 9 days or less of the length of hospitalization, and 10 days or more of the length of hospitalization respectively.

The univariate analysis evaluated the following factors: age, sex, albumin level (ALB), body mass index (BMI), and SGA. Multiple logistic regression analysis was performed, where the presence of long hospital stays were the objective variable, and age, gender, ALB, BMI, and SGA as explanatory variables. ALB, BMI, and SGA were based on data from the first day of admission by the BPU. SGA was calculated by trained nurses on the first day of admission. Fisher's exact test was used for gender in the comparison of the S and L groups. Logistic regression analysis was used to analyze the data for continuous variables.

Multivariate logistic regression analysis using all variables was constructed to calculate odds ratios (ORs) and 95% confidence intervals (CI). All tests were two-sided, and P<0.05 was considered to be statistically significant.

Results: Of the 111 patients, 63 were in the S group and 48 in the L group. The median length of hospital stay (range) was 7 (3-9) days in the S group and 15 (10-76) days in the L group. The median age (range) was 78 (66-93) years old in the S group and 81 (66-95) years old in the L group. The male/female ratio was 39/24 for the S group and 26/22 for the L group.

The median (range) of nutritional status as S/L group was ALB(mg/dL): 3.2(1.8-4.1)/2.8(1.8-4.2), BMI kg/m^2: 22.33(13.56-46.6)/21.04(14.7-30.7), SGA: 11(6-14)/9(4-14).In univariate analysis, older age (p=0.0190), ALB (p=0.0019), and SGA (p=0.0002) were significantly associated with long hospital stays.

In multivariate analysis, only SGA (odds ratio 0.69, 95% Cl 0.55-0.87, p=0.0014) was associated with longer hospital stays, whereas ALB (odds ratio 0.44, 95% Cl 0.19-1.04, p=0.0556) and BMI(odds ratio 1.05, 95% Cl 0.95-1.16, p=0.3412) were not associated with longer hospital stays.

Conclusion: SGA can be a useful predictor of long hospital stay in elderly BPU patients.

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PP0025

SHORT STAY UNITS IN THE TREATMENT OF NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING

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Introduction: Emergency department overcrowding is an important health problem all over the world, because it increases the risk of mortality. The causes of overcrowding are different like aging population and increase in chronic diseases. Several solutions have been proposed, such as the establishment of the short stay unit for conditions that can't be managed at home, but require treatment or hospitalation for up to 72 hours. Several studies show how short stay Unit can significantly reduce hospital length of stay or reduce mortality for certain conditions, such as chronic obstructive pulmonary disease or heart failure, head injury or pyelonephritis. Among the pathologies proposed for short stay unit are non-variceal upper gastro-intestinal bleeding but currently there are no studies addressing the safety and efficacy of short stay unit in the management of non-variceal upper gastrointestinal bleeding.
Aims & Methods: Aim of our study is evaluate the efficacy of short stay unit in decreasing the requirement of hospitalization, hospital length of stay, hospital readmission and mortality in non-variceal upper gastrointestinal bleeding, compared with admission to the regular ward. This was a retrospective, single-centre observational study. Medical records of patients who presented to the Emergency Department with non-variceal upper gastrointestinal bleeding, April 1, 2021, and September 30, 2022, were analysed. The study population includes patients aged >18 years, of either sex, presenting to the Emergency Department acute blood loss from the upper gastro-intestinal tract.
The population was divided into two groups: patients admitted to an ordinary inpatient ward (control) and patients treated at short stay unit (intervention). Clinical and medical history data were assembled for both groups.
The hospital length of stay was the primary outcome.
Secondary outcomes were time to endoscopy, number of blood units transfused, readmission to the hospital at 30 days and in-hospital mortality.
Results: The analysis included 120 patients with a mean age of 70 years, 54% of whom were men. Sixty patients admitted to SSU. Patients admitted to the medical ward had a higher mean age and a higher likelihood of having a history of cerebrovascular disease or active cancer. The Glasgow-Blatchford score, used to assess bleeding risk, mortality and hospital readmission, were similar in the two groups of study. Multivariate analysis, after adjustment for confoundersit, establish that the only factor independently associated with reduced time in hospital (LOS) was admission to short stay unit ($p<0.0001$).
Admission to short stay unit was independently and significantly associated with shorter time to endoscopy ($p<0.001$). The only other factor associated with a shorter time to endoscopy was creatinine level ($p=0.05$), while home treatment with proton pump inhibitors was associated with a longer time to endoscopy. Hospital length of stay, time to endoscopy, number of patients of requiring transfusions and number of units of blood transfused were significantly lower in patients admitted to short stay unit, than in the control group.
Conclusion: The results of the study show that management of non-variceal upper gastrointestinal bleeding in short stay unit can significantly reduce the time required for endoscopy, the hospital length of stay and number of transfused blood units, without increasing mortality and hospital readmission. Treatment of non-variceal in short stay unit may help to reduce emergency department overcrowding, but multicentred randomized controlled trials are needed to confirm these data.
Disclosure: Nothing to disclose.

PP0026

EARLY VERSUS DELAYED NUTRITION IN PATIENTS AFTER UPPER GASTROINTESTINAL BLEEDING: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction: Despite lack of evidence, patients are kept nil by mouth for 48 to 96 hours after upper gastrointestinal bleeding (UGIB) due to fear of rebleeding. However, many trials have demonstrated the benefits of early nutrition after UGIB. We conducted a meta-analysis of randomized controlled trials to evaluate the safety and outcomes of early nutrition compared to delayed nutrition after UGIB.
Aims & Methods: The protocol was registered on PROSPERO in advance (CRD42022372306). Five databases (PubMed, Embase, CENTRAL, Scopus, and Web of Science) were searched on the 10th of November 2022 to identify randomized controlled trials that met our eligibility criteria. In-hospital and 30-day outcomes were pooled separately. Mortality rate, rebleeding rate, and length of hospital stay were the primary outcomes. The pooled risk ratio (RR), mean difference (MD), and the corresponding 95% confidence interval (CI) were calculated using a random effects model.
Results: A total of 10 trials with 1,051 patients were included in the analysis. Comparing the two groups, 7-day mortality showed no significant difference (RR=1.23, CI: 0.72 - 2.10), while there was a clear tendency for a decrease in 30-day mortality in the early nutrition group (RR=0.57, CI: 0.31 – 1.04). As for 7-day and 30-day rebleeding, there was no statistically

significant difference between the two groups (RR=1.05, CI: 0.63 – 1.74 and RR=1.16, CI: 0.59 – 2.26, respectively). In addition, our analysis showed that the early nutrition group needed a reduced length of hospital stay compared to the delayed nutrition group (MD= - 1.22, CI: -2.43 to -0.01).

Conclusion: Compared with delayed nutrition, early nutrition appears to be a safe intervention and could reduce the length of hospital stay without increasing the risk of complications regarding rebleeding or mortality after upper gastrointestinal bleeding.

Disclosure: Nothing to disclose.

PP0027

CHARACTERISTICS AND PROGNOSIS OF UPPER GASTROINTESTINAL BLEEDING OCCURRING IN PATIENTS ON PROTON PUMP INHIBITORS: POST-HOC ANALYSIS OF A FRENCH PROSPECTIVE MULTICENTER STUDY

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Introduction: In the context of proper proton pump inhibitors (PPI) use, over-prescription is commonly criticized. Conversely, few studies have assessed the consequences of not prescribing PPIs in patients with a recognized indication for prophylactic treatment.

This study aims to compare, in a cohort of patients with upper gastrointestinal bleeding (UGB), those with and without PPI at bleeding onset and in particular patients who are considered at high risk for UGB.

Aims & Methods: We undertook a post-hoc analysis of data from a prospective multicenter observational study (1) conducted in 46 French medical centers, which included all consecutive UGB cases that occurred between November 2017 and October 2018. Data about patients' demographics, clinical, endoscopic and prognostic features were collected.

First, we explored bleeding etiology in patients with and without PPI at the time of bleeding. Then, we calculated the rate of prophylactic PPI prescription in patients having an UGB related to peptic ulcer disease (PUD) and notably in those considered at higher risk of bleeding according to international guidelines (2, 3).

In patients who had peptic ulcer bleeding, we compared those with and without PPI upon bleeding onset, in terms of baseline demographics and bleeding severity. We then analyzed the predictors of severe UGB defined by a Glasgow Blatchford score (GBS)≥11. We included PPI prophylaxis in our analysis to determine its role in reducing bleeding severity.

Results: A total of 2,498 patients with UGB were included, of whom 777 (31%) were on PPI at the time of bleeding. UGB related to PUD was significantly less prevalent in patients with PPI than in those without PPI (28% vs 46%, respectively; p< 0.0001).

No difference was observed in the frequency of bleeding related to portal hypertension nor to esophagitis between the two groups (P=0.64 and 0.26, respectively) whereas hemorrhagic angiodysplasias were more common in the group with PPI (p<0.0001).

Of the 893 patients who had UGB related to PUD, only 21.5% were on PPI. These patients, compared to those without PPI, were older (74 vs 69 years; p<0.0001) and had more comorbidities (defined by a Charlson score≥3) (p<0.0001), notably at cardiovascular level. Ulcer was more likely to be located in the stomach in patients with PPI and in the duodenum in those without PPI (p=0.002). Helicobacter Pylori prevalence and Forrest classification were comparable in both groups (p=0.11 and 0.18, respectively). There was no statistically significant difference in terms of severity measured by mean GBS, blood transfusions or 6-week mortality and rebleeding rates (p>0.05).

In patients at high risk for UGB, we noted an under-prescription of PPI prophylaxis (Table 1). Independent predictors for severe bleeding according to multivariate analysis were the following: age≥65years (p=0.001), in-hospital bleeding (p=0.012), Charlson score≥3 (p<0.0001) and dual anti-platelets use (p=0.031). The absence of PPI prophylaxis did not affect bleeding severity (p=0.5).

	PUD-related UGB	High Risk patients	PPI-prescription rate
NSAIDS	112	74	20%
AP	312	122	35%
OAC	178	89	34%
Dual-AP	46	16	50%
OAC+AP	50	7	29%

NSAIDS: non-steroidal anti-inflammatory drugs, AP: anti-platelets, OAC: oral anti-coagulants, PUD: peptic ulcer disease, UGB: upper gastrointestinal bleeding, PPI: proton pump inhibitor, * Risk stratification according to European Society of Cardiologist (2) and American college of Gastroenterology guidelines (3).

*Table 1: PPI prescription rates in high risk patients**

Conclusion: In this cohort of patients with UGB, peptic ulcer bleeding occurred less frequently in patients on PPI. However, PPI treatment did not affect bleeding severity which was mainly determined by patients' age and comorbidities. Most importantly, we noted a significant under-prescription of prophylactic PPI in high-risk groups having a well-recognized indication for gastric protection. This finding must be highlighted when discussing proper prescribing practices.

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PP0028

META-ANALYSIS AND SYSTEMATIC REVIEW OF THE ENDOSCOPIC ULTRASOUND-GUIDED VARICEAL OBTURATION IN PATIENTS WITH ADVANCED LIVER CIRRHOSIS AND VARICEAL BLEEDING

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Introduction: Variceal bleeding is a common and life-threatening complication of liver cirrhosis, with endoscopic therapy being an important treatment modality [1].

There are several endoscopic techniques available for the management of variceal bleeding, including band ligation, sclerotherapy, tissue adhesives, and endoscopic ultrasound-guided variceal obturation (EUS-VO) [2].

Aims & Methods: This meta-analysis aimed to compare the efficacy and safety of different endoscopic modalities for the prevention and management of variceal bleeding in patients with liver cirrhosis. A systematic literature search was conducted in several databases, including PubMed, Embase, and Cochrane Library, from inception to September 2022.

Randomized controlled trials, cohort studies, and case-control studies that compared different endoscopic modalities for the management of variceal bleeding in patients with liver cirrhosis were included.

The primary outcomes of interest were initial hemostasis rates, rebleeding rates, and adverse events.

Results: A total of 15 studies (n = 1,742) met the inclusion criteria and were included in the meta-analysis. The pooled results showed that band ligation was associated with lower rebleeding rates compared to sclerotherapy (OR 0.59, 95% CI 0.44-0.79, p = 0.001), while sclerotherapy was associated with a higher risk of adverse events (OR 3.21, 95% CI 1.69-6.11, p < 0.001).

Tissue adhesives, such as N-butyl-2-cyanoacrylate, were associated with higher initial hemostasis rates compared to other endoscopic therapies (OR 1.82, 95% CI 1.30-2.55, p = 0.001) and lower rebleeding rates (OR 0.39, 95% CI 0.20-0.77, p = 0.006). EUS-VO was associated with higher initial hemostasis rates (OR 1.93, 95% CI 1.08-3.43, p = 0.027) and lower rebleeding rates (OR 0.43, 95% CI 0.26-0.71, p = 0.001) compared to traditional endoscopic therapies.

Conclusion: Our meta-analysis suggests that band ligation and tissue adhesives may be superior to sclerotherapy for the prevention and management of variceal bleeding in patients with liver cirrhosis. EUS-VO may be a promising alternative to traditional endoscopic therapies, although further studies are needed to confirm its efficacy and safety. The choice of endoscopic technique should be individualized based on patient factors and physician expertise.

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Disclosure: Nothing to disclose.

PP0029

MANAGEMENT OF DELAYED BLEEDING OF UPPER GASTROINTESTINAL ENDOSCOPIC SUBMUCOSAL TUNNELING PROCEDURES: A RETROSPECTIVE SINGLE-CENTER ANALYSIS AND BRIEF META-ANALYSIS

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Introduction: Delayed bleeding is a rare but important major adverse event (mAE) after endoscopic submucosal tunneling procedures (ESTP), which is scarcely reported.

We aimed to characterize the clinical characteristics of delayed bleeding and provide better management of this mAE.

Aims & Methods: From August 2010 to October 2022, we reviewed 3,852 patients with achalasia receiving peroral endoscopic myotomy (POEM) and 1,937 patients with upper GI tumors receiving submucosal tunneling endoscopic resection (STER). Among these, records of 22 patients (15 POEM, 7 STER) with delayed bleeding were collected. Clinical characteristics, treatment, and outcomes of delayed bleeding were analyzed.

Results: The mean age was 43.6 years. Ten patients (45.5%) were intratunnel bleeding, seven (31.8%) were intratunnel bleeding accompanied by mucosal bleeding, and 5 (22.7%) were mucosal bleeding.

The most common accompanied symptoms were hematemesis, fever, and melena. The most common accompanied mAEs were fistula, pulmonary inflammation, and pleural effusion with atelectasis. The mean duration from ESTP to endoscopic intervention was 5.3±4.9 days. Active bleeding was identified in 21 patients (95.5%).

The bleeding was successfully controlled by electrocoagulation (19 cases), endoscopic clipping (6 cases), and Sengstaken-Blakemore tube insertion (3 cases) and no patient required surgical intervention. The mean hemostatic procedure duration was 61.8±45.8 minutes. The mean post-bleeding hospital stay was 10.0±6.2 days.

A brief meta-analysis of previous studies showed the pooled estimate delayed bleeding rare after POEM, STER, and G-POEM was 0.4%.

Conclusion: Delayed bleeding is uncommon and could be effectively managed by timely emergency endoscopic procedures without requiring subsequent surgical interventions.

Disclosure: Nothing to disclose.

PP0030

RESTRICTIVE TRANSFUSION IS NON-INFERIOR TO LIBERAL TRANSFUSION IN UPPER GASTROINTESTINAL BLEEDING: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

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Introduction: Starting the blood supplementation at a higher haemoglobin threshold (Hgb <90-100 g/L) in upper gastrointestinal bleeding (UGIB) can lead to severe consequences due to volume overload. Previous studies have already shown the benefits of restrictive transfusion (Hgb <70-80 g/L). However, the optimal transfusion threshold and how restrictive transfusion affects short- and long-term outcomes after UGIB remained unanswered.

Aims & Methods: We aimed to assess the efficacy and safety of restrictive compared to liberal transfusion strategies in the GIB population, assessing the source of bleeding and transfusion thresholds separately. We searched PubMed, CENTRAL, Embase, and Web of Science for randomised controlled trials on 15.01.2022 without restrictions. Studies comparing lower to higher RBC transfusion thresholds after GIB were eligible. We used the random effect model and calculated pooled mean differences (MD), risk ratios (RR) and proportions with 95% confidence intervals (CI) to calculate the overall effect size.

Results: The search yielded 3955 hits. All seven eligible studies reported on the upper GIB population. Restrictive transfusion did not increase the in-hospital- (RR:0.94; CI:0.46,1.94) and 30-day mortality (RR:0.68; CI:0.48,0.97). In-hospital- and 28 to 45-day rebleeding rate was also not higher with the restrictive modality (RR:0.67; CI:0.30,1.50; RR:0.75; CI:0.49,1.16, respectively). Results of individual studies showed a lower rate of transfusion reactions and post-transfusion intervention if the transfusion was started at a lower threshold. A haemoglobin threshold >80g/L may result in a higher untoward outcome rate.

Conclusion: In summary, restrictive transfusion proved non-inferior to liberal transfusion regarding all investigated clinical endpoints. The optimal restrictive transfusion threshold should be further investigated.

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Disclosure: Nothing to disclose.

PP0031

CHARACTERISTICS OF GASTROINTESTINAL BLEEDING OCCURRING IN PATIENTS ON ANTITHROMBOTIC THERAPY

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Introduction: Gastrointestinal (GI) hemorrhage remains the most common emergency in digestive endoscopy. However, its management is often tricky given the different etiopathogenic and clinical profiles associated with it. There is a tendency to believe that GI bleeding is often more detrimental in patients on anti-platelet aggregation and/or anticoagulation because of the altered physiological hemostasis and the risk of flare-up of the underlying disease justifying their use.

Aims & Methods: The aim of our study was to investigate the epidemiological, clinical profile and outcomes of gastrointestinal bleeding occurring in this particular context. We conducted a retrospective comparative study including patients hospitalized for GI bleeding between 2015 and 2023. Patients were divided into two groups according to whether they were on antithrombotic therapy (platelet and/or oral anticoagulation) (G1) or not (G2).

We have excluded patients with portal hypertension related bleeding and patients with inherited *blood disorders*. Clinico-biological, therapeutic data and outcomes were collected and compared between the two groups.

Results: Of the 91 patients enrolled with a sex-ratio of 1.84, 52 were on anti-platelet agents and/or oral anticoagulants. The mean age was significantly higher in patients under anti-thrombotic treatment (G1: 70 vs G2: 56 years, p<0.0001). The two groups were comparable in terms of gender, systolic blood pressure, hemoglobin levels.

However, G1 patient showed higher levels of CRP (G1: 38.8 vs G2: 25.86 mg/dl, p=0.04) and plasma urea (G1: 12,8 vs G2: 9,3 mmol/l, p=0.02). The main cause of bleeding in both groups was peptic ulcer disease.

Nevertheless, lower GI bleeding was significantly more frequent in the first group (p=0.03), with the main etiology in this context being diverticular hemorrhage (p=0.01). There was no significant difference in the number of red blood cells (RBCs) transfused, the time taken to perform GI endoscopy, the use of a particular endoscopic hemostasis technique and the number of sessions required to control the bleeding between the two groups.

Patients under anti-thrombotic therapy were significantly more likely to be explored by colonoscopy (p=0.01), to have longer mean hospital stay (G1: 8 vs G2: 5 days, p=0.03), without any increase in hemodynamic disorders or infectious complications.

Similarly, there was no increase in the need for catecholamines, intensive care unit admission or in mortality rates noted in G1 patients (p >0.05). Finally, the rate of distant bleeding recurrence was slightly similar in the two groups (G1: 13,4 vs G2: 17,9 %, p> 0.05)

Conclusion: Although the occurrence of digestive bleeding is a severe adverse event in patients undergoing antithrombotic therapy due to a precarious underlying condition, there were no major differences regarding outcomes when compared with patients without anti-thrombotic therapy.

This reflects a better knowledge of the guidelines regulating the use of these drugs with a better assessment of the bleeding/clotting balance and the improvement of endoscopic hemostasis management.
Disclosure: Nothing to disclose.

PP0032

COMPARISON OF HEMOCLIP AND HOT FORCEPS IN NON-VARICEAL BLEEDING OF THE UPPER GASTROINTESTINAL SYSTEM: EFFICACY AND COST ANALYSIS

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Introduction: Upper gastrointestinal bleeding (UGIB) is one of the most common emergencies experienced by physicians. Peptic ulcer disease is the most common cause of UGIB, being responsible for 31% to 67% of all cases. Available endoscopic techniques for the treatment of UGIB include epinephrine injection treatment, thermal coagulation, hemostatic clips, fibrin sealant, argon plasma coagulation, and a combination of epinephrine injection with another treatment modality. However, there is no clear evidence as to which method is best and should constitute the modality of choice.
Our aim was to compare the efficacy of hot forceps (HF) versus hemoclips (HC) in patients with non-variceal upper gastrointestinal bleeding (UGIB).
Aims & Methods: We conducted a retrospective study between June 2017 and June 2019. Primary hemostasis rates, recurrent bleeding, emergency surgery requirements, transfusion requirements, 30-day mortality, bleeding-related deaths, duration of hospital stay, and cost were compared between the two groups.
In all cases, diluted adrenaline (1:10.000) was injected into four quadrants of the ulcer and/or lesion before HF or HC. The dose of epinephrine was decided at the endoscopist's discretion but did not exceed 2.5 mL in any location, or a total dosage of 10 mL.
Electrocautery coagulation was performed using monopolar single-use HF with the following settings: 80W, effect 4, and soft coagulation mode.
The electrocautery current was applied for 1 to 2 seconds by gently touching the four sites immediately surrounding the ulcer with the closed tip of the hemostatic forceps.
The center of the vessel was subsequently coagulated, as described above. A device with an arm length of 7.5 mm and a jaw angle of 135° was employed in endoscopic HC therapy. This was applied using a rotatable clip-fixing device and repeated until hemostasis was achieved. HC, argon plasma coagulation, and sclerotherapy with polidocanol modalities were used when hemostasis could not be achieved by HF, respectively.
Results: A total of 217 consecutive patients underwent endoscopy for preliminary diagnosis of UGIB between June 2017 and June 2019. Of those, 115 patients were excluded due to causes other than peptic ulcer disease or no need for therapeutic intervention. The remaining 102 patients were divided between HF (n=65) and HC (n=37) groups. Demographic data of the patients are presented in Table-1.
The initial hemostasis success rates were 96.6% (57/65) in the HF group and 91.7% (33/37) in the HC group (p= 0.277). The incidence of early recurrent bleeding was 2.0% (2/65) in the HF group and 2.7% (1/37) in the HC group (p=0,154). HF is also found to be much more cost-effective than HC ($113.6 in the HC group vs $17.9 in the HF group, p=0.001).
No significant differences were observed between the groups regarding duration of hospital stay, mortality, or surgery requirements (p> 0.05). Detailed information about procedure-related parameters is presented in Table-2.
Conclusion: In this retrospective analysis, our findings showed that HF may be superior to HC in terms of cost, and procedure time in non-variceal UGIB patients. Prospective studies with larger cohorts are needed to support these findings.
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Disclosure: Nothing to disclose.

PP0033

MITIGATING THE NEED FOR PATIENT TRANSPORT BY TREATING UPPER GASTROINTESTINAL BLEEDINGS IN ICU-SETTINGS WITH A SINGLE-USE THERAPEUTIC GASTROSCOPE

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Introduction: Globally healthcare systems and healthcare professionals (HCP) are under increasing pressure, in particular due to the growing shortage of healthcare workers.[1]
Reducing the intra-hospital patient transportation could potentially free up HCP resources**.** Intra-hospital transport can further be associated to patient risks due to unexpected events during the transfer[2] specifically, transportation of clinical ill patients which have been significantly correlated with adverse events.[3]
Additionally, nurses perceive intra-hospital transport as a cause of stress and increased workload.[4]
When transferring critical patients there are several parameters to consider, the electromedical equipment, stability condition and the short time to extract information of the patient to continue with a safe and suitable transfer.[5]
The current study investigates the potential benefits of having single-use therapeutical gastroscopes, needed equipment and utilities available in the intensive care unit (ICU), to treat ICU admitted patients presenting an upper gastrointestinal bleed (UGIB).
Aims & Methods: Between January 2021 and October 2022, an anonymous survey was distributed across 8 countries (Australia, France, Germany, Italy, Spain, United Kingdom, United States of America and Japan). The survey was distributed through M3 Global Research. The main target of the survey were gastroenterologists and gastrointestinal surgeons, from public hospitals, public university hospitals, private hospitals, private clinics, screening centers and ambulatory surgery centers (ASC). Data was collected through Survey Exact and analyzed in Excel.
Results: 341 answers from gastrointestinal surgeons and gastroenterologists were collected. 3% of ICU patients present an UGIB during admission. Presently, 45% of patients with UGIB are treated in the ICU, 24% of patients are currently transported to the operating room (OR) and 31% to the endoscopy unit (EU). The average time used transporting patients from the ICU is 21min and 22min to the OR and EU, respectively. 5 to 6 HCP are needed to transport an UGIB patient from ICU to OR/EU.

Physicians assumed that 46% CI [42.1;49.9%] of currently transported ICU patients could avoid being transported if single-use therapeutical gastroscopes were available in the ICU and the UGIB management was equally efficient in the ICU as in the OR or EU, meaning 75% of UGIB patients could be managed in the ICU compared to current handling.

Conclusion: The risk and resources associated to intra hospital transport of critical ill patients with UGIB could be reduced in 46% if therapeutical gastroscopes, needed equipment and utilities are available in the ICU.

Thereafter, the portability and availability of the single-use therapeutical gastroscope in this scenario, could allow faster attention to the patient in need, free up time, workload and stress of HCP and other staff which are currently involved in the transport and handling of patients with UGIB from ICU.

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Disclosure: Study started by Ambu. Authors currently working for Ambu.

PP0034

ACUTE UPPER GASTROINTESTINAL BLEEDING IN THE UK: PATIENT CHARACTERISTICS, DIAGNOSES, AND OUTCOMES IN THE 2022 UK AUDIT

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Introduction: The last UK audit of the management of acute upper gastrointestinal bleeding (AUGIB) was conducted in 2007.[1] We report patient characteristics, investigations, treatments, and clinical outcomes from an interim analysis of the 2022 UK audit.

Aims & Methods: Prospective multi-centre observational study of adults (≥16 years) presenting in or to UK hospitals with AUGIB between 3 May and 2 July 2022.

Results: Data on the first 2881 patients (median age 70yr) from 158 participating hospitals are reported. New admissions with AUGIB (n=2205) were younger than inpatients developing AUGIB (median age 68 vs 75 yrs, respectively) with fewer comorbidities (63% vs 79%, respectively). At presentation, 17%(490/2881) had chronic liver disease (CLD), 28% (n=815) a history of alcohol excess, 7% (n=294) were taking non-steroidal anti-inflammatory drugs (NSAID) and 44%(n=1268) antiplatelets or anticoagulants. 80% (n=2315) patients had an inpatient endoscopy; 32%(742/2315) had peptic ulcer disease (PUD), 9% (212/2315) had a variceal bleed, and 27% (622/2315) received endoscopic therapy.

Reasons for no endoscopy (n=566) were: 47%(n=265) not clinically indicated/25%(n=139) outpatient procedure /18%(n=102) not for active treatment /6%(n=37) self-discharged /0.5%(n=3) transferred to other hospital /5%(n=28) death. 9%(202/2315) had evidence of further bleeding after index endoscopy. 0.6%(n=19) underwent surgery, 3%(n=72) had interventional radiology (IR) and 47%(n=1367) were transfused ≥1 packed red blood cells (PRC); 4%(n=113) platelets; and 5%(n=137) fresh frozen plasma (FFP) for AUGIB. Median length of stay (LOS) was 5 days. In-hospital mortality was 8.2%(n=636); 5.3% in new admissions and 19% in inpatients. Comparisons with the full 2007 audit are presented in table 1.

	2007 (n=6750)	2022 (n=2881, interim results of first patients)
Median age	68 yr (IQR 49-81)	70 yr (IQR 54-81)
Any comorbidity	50%	66%
Medications		
NSAID	11%	7%
Antiplatelets	33%	21%
Anticoagulants	13%	29%
Other		
Alcohol excess	26%	28%
CLD	9%	17%
Inpatient endoscopy	74%	80%
PUD	36%	32%
Variceal bleed	11%	9%
Use of endoscopic therapy	24%	27%
Further bleeding after index endoscopy	13%	9%
Surgery	1.9%	0.6%
IR	1.2%	2.5%
Transfusion ≥1 unit		
PRC	43%	47%
Platelets	2.8%	4%
FFP	7%	5%
Median LOS	5 days (IQR 2-12)	5 days (IQR 3-10)
In-hospital mortality	10%	8.2%

Table 1.

Conclusion: Despite an older and more co-morbid population, there is an indication of reduced recurrent bleeding, need for surgery and in-hospital mortality for AUGIB since 2007. This improvement may correlate with improved management and better endoscopic therapy.

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Disclosure: Nothing to disclose.

PP0035

VARICEAL VS NON-VARICEAL ACUTE UPPER GASTROINTESTINAL BLEEDING: OUTCOMES IN THE 2022 UK AUDIT

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Introduction: Acute upper gastrointestinal bleeding (AUGIB) is a common medical emergency. We compare the characteristics and management of variceal vs non-variceal causes of AUGIB in the 2022 UK audit.

Aims & Methods: Prospective multi-centre observational study of adults (>16 years) presenting in or to UK hospitals with AUGIB between 3 May and 2 July 2022.

Results: In this interim analysis, endoscopy was performed for 2315 of the first 2881 patients and a cause identified in 1542. Those identified with varices (14%, 212/1542) were younger than those with non-variceal AUGIB (median age 57 vs 70 yr, respectively).

For varices, sites included: 87%(185/212) oesophageal; 18%(38/212) gastric; 3% (7/212) duodenal. 43% (92/212) were on non-selective beta-blocker prophylaxis on admission; 32%(68/212) had a history of previous AUGIB and 24% (50/212) were on a variceal band ligation programme. 69%(147/212) had stigmata of recent bleeding; 75%(160/212) received endotherapy: 62%(132/212) had variceal therapy (banding – 124, glue or thrombin injection – 11) and 6% (12/212) required a Sengstaken tube. 4% (8/212) underwent TIPSS and 58% (123/212) were discharged on a non-selective beta-blocker.

For those with non-variceal causes, findings included: 58%(777/1330) peptic ulcer disease; 26%(353/1330) oesophagitis; 5%(69/1330) portal hypertensive gastropathy; 7%(96/1330) malignancy and 28%(369/1330) others. 38% (506/1330) had stigmata of recent bleeding; 34% (447/1330) received endotherapy: 13% (176/1330) had a single modality and 20% (271/1330) ≥1 modality. Different modalities included: 23% (105/447) thermal device; 60% (270/447) adrenaline injection; 48% (215/447) haemostatic clips; 24% (109/447) haemostatic powders or gel; 14% (64/447) argon plasma coagulation and 8% (37/447) others .

Outcomes for patients with variceal vs non-variceal cause of bleeding are shown (Table 1).

Outcome	Variceal (n=212)	Non-variceal (n=1330)	p- value
Median age	57 (IQR 49-68)	70 (IQR 55-80)	<0.05
Pre-endoscopy treatment			
Proton pump inhibitors	69%	81%	<0.05
Terlipressin	61%	NA	-
Antibiotics	56%	NA	-
Intubation for endoscopy	30%	6%	<0.05
Transfer to HDU or ITU	16%	6%	<0.05
Endoscopy outcomes			
Stigmata of recent bleed	69%	38%	<0.05
Endotherapy	75%	34%	<0.05
Further bleeding after Index endoscopy	14%	9%	<0.05
IR	3.7%	2.8%	0.47
Surgery	0%	1%	0.14
Transfusion >1 unit			
Packed red cells	64%	54%	<0.05
Fresh frozen plasma	17%	4%	<0.05
Platelets	14%	3%	<0.05
Median LOS	7 days (IQR 4-12)	5 days (IQR 3-11)	<0.05
In-hospital mortality	9.4%	7.2%	0.25

Table 1.

Conclusion: Patients with variceal bleeding were younger, with higher therapeutic and transfusion requirements, re-bleeding rates and length of stay. Mortality was not significantly different to non-variceal bleeding.
Disclosure: Nothing to disclose.

PP0036

COMPARISON OF THREE SCORING SYSTEMS FOR RISK STRATIFICATION IN PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING

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Introduction: Upper gastrointestinal bleeding (UGIB) is one of the main potentially life-threatening emergencies encountered in gastroenterology that requires prompt management. For this reason, numerous prognostic scores have been developed to predict the level of risk in patients. However, there are few studies in the literature comparing these scores.
Aims & Methods: The main objective of this study was to compare the performance of the pre-endoscopic scores Glasgow-Blatchford Score (GBS), Rockall Score (pRS), and quick Sequential Organ Failure Assessment (qSOFA) in predicting the severity of UGIB according to predefined criteria. Methods: This is a retrospective descriptive and analytical study of 102 patients who presented with upper gastrointestinal bleeding at the International University Hospital Cheikh Khalifa over a period of 1 year between October 2021 and October 2022. Scores were calculated for each patient with complete medical records. The data was analyzed using the Jamovi 2.2.5 software. The accuracy of each risk score in predicting clinical criteria was evaluated by the area under the receiver operating characteristic curve (AUROC). A p-value less than 0.05 was considered statistically significant.
Results: The included patients had a mean age of 57.1 years with a slight female predominance (53.9%). GBS was found to be **more predictive** of the risk of admission to the Intensive care Unit (ICU) and the need for blood transfusion than pRS and qSOFA with an AUROC of 0.914 for these two criteria. GBS was also more predictive of the risk of therapeutic intervention (AUROC 0.882) compared to pRS (AUROC 0.788) and qSOFA (AUROC 0.676). Regarding endoscopic intervention, pRS and GBS were equally able to predict this criterion with moderate power (AUROC pRS 0.721) (AUROC GBS 0.747). qSOFA showed no significant performance, especially in its preferred domain of admission to the ICU (AUROC 0.735) (Table). None of the 3 scores was able to predict the need for surgical intervention.

	Variable	AUC (95% CI)	Cut-off value	Specificity	Sensitivity	PPV	NPV
Need for Intensive Care Unit	GBS	0,914	>10	81,82%	88,89%	72,73%	93,1%
	pRS	0,843	> 3	71,21%	86,11%	62%	90,38%
	qSOFA	0,735	> 1	80,3%	66,67%	64,86%	81,54%
Need for blood transfusion	GBS	0,914	> 10	85,25%	85,37%	79,55%	89,66%
	pRS	0,769	> 3	67,21%	67,21%	60%	78,85%
	qSOFA	0,687	> 1	78,69%	78,69%	64,86%	73,85%
Endoscopic intervention	GBS	0.747	> 8	60,00%	81,08%	53,57%	84,78%
	pRS	0.721	> 2	56,92%	86,49%	53,33%	88,1%
	qSOFA	0.615	> 1	72,31%	51,35%	51,35%	72,31%

Table: Comparison of AUC, sensitivity, specificity, PPV and NPV along with cut-off value of Glasgow-Blatchford Score, pre-Rockall, and Quick-Sofa scores to predict the clinical outcomes.

Conclusion: At the end of this study, the use of GBS and pRS in daily clinical practice in emergency departments is strongly recommended to predict the need for therapeutic intervention, hospitalization, or re-bleeding episodes. However, it would be interesting to study the usefulness of these prognostic scores, especially qSOFA, through larger prospective studies.
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Disclosure: Nothing to disclose.

PP0037

OPTIMAL THRESHOLD FOR RESTRICTIVE TRANSFUSION AFTER ACUTE GASTROINTESTINAL BLEEDING: INSIGHTS FROM THE HUNGARIAN GASTROINTESTINAL BLEEDING REGISTRY

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Introduction: Gastrointestinal bleeding is among the most common indications for red blood cell (RBC) transfusion. According to current guidelines, restrictive RBC transfusion initiated at a lower haemoglobin (Hgb) level (<70-80 g/L) is non-inferior to liberal strategy (<90-100 g/L) regarding mortality and rebleeding. Moreover, it results in a lower rate of adverse events and decreases hospital expenses. However, the published randomised controlled trials are not using a unified definition for the restrictive modality.

Aims & Methods: Our analysis aims to assess the efficacy of restrictive transfusion by comparing different Hgb thresholds. Patients enrolled in the Hungarian Gastrointestinal Bleeding Registry who received RBC transfusion during hospitalisation were found eligible. The transfused group was divided into subgroups based on their lowest Hgb level during hospitalisation: ≤60 g/L (group 1), 61-70 g/L (group 2), 71-80 g/L (group 3), ≥80 g/L (group 4). Patients with recurrent bleeding were excluded. The outcomes examined included in-hospital mortality, the need for surgical intervention, intensive care therapy, and length of hospital stay. When comparing the groups, group 2 was used as the reference. Adjusted odds ratios (aOR) were calculated using binominal logistic regression, while the ANOVA test was used to determine adjusted mean differences (MD) and the related 95% confidence intervals (CI).

The multivariate model included age >65 years, sex, ischemic heart disease, vascular disease, heart failure, chronic obstructive pulmonary disease, active malignancy, antithrombotic and anticoagulant treatment.

Results: Of 1019 patients with gastrointestinal bleeding, 575 (56.42%) were eligible for analysis. The lowest mortality rate was observed in group 3 (8.98%). However, there was no statistically significant difference in mortality odds when comparing transfusion at different Hgb levels to group 2 (1 vs 2: aOR: 0.64, CI: 0.24-1.70; 3 vs 2: aOR: 0.79, CI: 0.27-2.27; 2 vs 4: aOR: 0.50, CI: 0.10-2.48). Group 2 had the slightest need for surgical intervention (2.30%) compared to other groups.

There was a tendency towards increased odds of surgical intervention in group 1 compared to group 2 (aOR: 4.13, CI: 0.64-26.65). Furthermore, the odds of intensive care therapy were significantly increased in groups 1 and 4 compared to group 2 (1 vs 2: aOR: 6.37, CI: 1.37-29.53; 4 vs 2: aOR: 10.97, CI: 1.91-62.98). Compared to group 2, group 3 showed an increased tendency in the odds for intensive care unit admission (aOR: 4.83, CI: 0.97-24.07). There was no significant difference in the length of hospital stay among the groups.

Conclusion: Our findings support that haemoglobin levels between 61-70 g/L may be considered safe compared to lower (≤60 g/L) or higher (≥80 g/L) transfusion thresholds. Randomised controlled trials with extended follow-up periods are needed to validate our results.

Disclosure: Nothing to disclose.

PP0038

VALIDATION OF THE BEST-J SCORE, A PREDICTION MODEL FOR DELAYED BLEEDING AFTER GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION, IN A WESTERN CENTER

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Introduction: Endoscopic submucosal dissection (ESD) is widely implemented in Asia. BEST J-score is a clinically useful prediction model validated in 2021, based on this population, to stratify the risk of delayed bleeding (DB) after gastric ESD. Experience from the Western world is still scarce.

Aims & Methods: The aim of our study is to validate BEST-J score in a Western sample.

Retrospective analysis with a prospectively maintained database of all patients undergoing ESD at a Western tertiary center from June 2016 to December 2022.

Gastric ESD performed by a single operator were included in this study. BEST-J score was applied for all procedures, which comprised 10 variables (intake of warfarin, direct oral anticoagulant (DOAC), chronic kidney disease with haemodialysis, intake of P2Y12 receptor antagonist, aspirin, cilostazol, tumour size >30 mm, lower-third in tumour location, presence of multiple tumours and interruption of each kind of antithrombotic agents). The primary endpoint was to validate BEST-J score accuracy in predicting DB (up to 28 days after ESD).

Results: Of 477 ESD performed, a total of 252 ESD met the inclusion criteria; 56.5% were male, with a mean age of 68 years (SD 8 years). Of this, 30 patients (15.3%) were under anticoagulant therapy, 19 of them (63.3%) with DOAC. Antiplatelet agents were taken by 48 patients (19%). From these, 5 (2.0%) presented DB following ESD, with a median time to bleeding of 11 days.

According to BEST-J score, bleeding risk was low (0-1 points) in 205 procedures (81,3%), intermediate (2 points) in 18 (7.1%), high (3-4 points) in 26 (10.3%) and very high (≥5 points) in 3 (1.2%).

BEST-J score presented an acceptable accuracy predicting DB in our sample, with an AUC=0.777 (p=0.034, CI 95%, 0.58-0.975). The optimal cut-off value to predict DB was a BEST-J score ≥ 3, which matches the cut-off value for high-risk of bleeding in the original investigation. This value had a sensitivity of 60.0%, specificity of 88.7% and a negative predictive value of 99.1%.

Conclusion: The BEST-J score presents an acceptable accuracy for post-ESD bleeding and it is particularly useful in identifying low risk DB patients. Therefore, this model is a good clinical decision-making support tool in the Western population.

Disclosure: Nothing to disclose.

PP0039

PARTICULARITIES OF DIGESTIVE BLEEDING IN CARDIAC PATIENT

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Introduction: Gastrointestinal bleeding is a frequent reason for emergency room visits and one of the main digestive emergencies. Direct oral anticoagulants (DOACs), vitamin K antagonists (VKAs) and anti-platelet agents (APAs) frequently prescribed in cardiac patients increase the risk of Gastrointestinal bleeding.

The aim of our work is to study the characteristics of Gastrointestinal bleeding in the cardiac patient.

Aims & Methods: This is a prospective comparative and analytical study between April 2020 and August 2022. We included cardiac patients who presented with Gastrointestinal bleeding and benefited from endoscopic exploration within our training, which we compared with a control group of patients explored for Gastrointestinal bleeding without cardiac comorbidity.

We took into account age, sex, history, average length of hospital stay, need for transfusion and ICU stay, and outcome after the bleeding episode. SPSS 20.0 software was used for statistical analysis.

Results: 378 patients underwent endoscopic exploration for Gastrointestinal bleeding during this period, including (oesophago-gastro-duodenoscopy (EGD), colonoscopy and endoscopic videocapsule).

We collected 47 patients with underlying cardiac pathology and 331 non-cardiac patients. The mean age was 70.76 years [34-90]. The sex ratio was M/F=1.13.

18 patients (38.3%) had ischemic heart disease, 11 (23.4%) had arrhythmic heart disease, 8 (17%) had valvular heart disease, and 10 (21.27%) had heart disease of other etiologies.

14 patients (29.78%) were on anticoagulants alone, including 13 (92.86%) on VKA and 1 (7.14%) on DOAC, 13 (27.66%) were on anti-platelet agents alone, 12 (25.53%) were on anti-platelet agents in combination with ACs (11 VKAs and 1 DOAC), and 8 (17%) were on no treatment. 19 (79.16%) patients on VKAs were overdosed.

Cardiac patients had a higher risk of blood transfusion 51.06% (n=24) vs 28.7% (n=95) p= 0.002, as well as ICU stay 25.53% (n=12) vs 7.55% (n=25) p=0.00.

The average length of hospital stay was higher in cardiac patients: 6 days vs. 4 days in non-cardiac patients.

The risk of recurrence was higher in cardiac patients 17% (n=8) vs 4.83% (n=16) p=0.00, as well as mortality 4.25% (n=2) vs 1.2% (n=4) p=0.002.

Conclusion: The occurrence of Gastrointestinal bleeding is more severe in the cardiac subject due to the higher morbidity and mortality compared to non-cardiac patients, hence the interest in prompt and optimal management. Patients on VKAs are at the greatest risk of Gastrointestinal bleeding, especially in the event of overdose.

Disclosure: Nothing to disclose.

PP0040 WITHDRAWN

PP0041

EFFICACY OF TEGOPRAZAN IN PATIENTS WITH FUNCTIONAL DYSPEPSIA; A PROSPECTIVE, MULTICENTER, SINGLE-ARM STUDY

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Introduction: The acid-suppressive drug such as proton pump inhibitor (PPI) is one of treatment options for functional dyspepsia (FD). However, the efficacy of potassium-competitive acid blockers (P-CABs) for treating FD is not established.

This study aimed to assess the efficacy and safety of tegoprazan in patients with FD in a prospective, multicenter clinical trial.

Aims & Methods: Investigated FD was diagnosed using the Rome IV criteria. All patients received tegoprazan 50mg once daily for 8 weeks. Dyspeptic symptoms were assessed by a dyspepsia symptom questionnaire (5-point Likert scale, NDI-K, and GERD-HRQL). The main outcome was the rate of satisfactory relief of dyspeptic symptoms at 8weeks.

Results: A total of 173 patients were enrolled in this study. The rate of satisfactory relief of dyspeptic symptoms at 4 and 8weeks was 74.6% and 86.7%, respectively. The complete symptom relief rate at 4 and 8weeks was 15.0% and 24.9%, respectively.

The symptom resolution rate was significantly higher at 8weeks than at 4 weeks. (86.7% vs. 74.6%, p<0.001; 24.9% vs. 15.0%, p=0.003). The mean score of NDI-K and GERD-HRQL also significant decreased at 8weeks.

The efficacy was not influenced by subtypes of FD or *Helicobacter pylori* status. There was no serious adverse event or death during the study.

Conclusion: Tegoprazan 50mg once daily significantly provides satisfactory symptom relief for FD. (International clinical trial registry number: KCT0005600)

Disclosure: Nothing to disclose.

PP0042

IMPLEMENTATION OF A SMARTPHONE APP TO GUIDE OUTPATIENT CLINIC PATIENTS IN DISCONTINUING INAPPROPRIATE PPI USE: AN OPEN RANDOMIZED SUPERIORITY TRIAL

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Introduction: Proton pump inhibitors (PPIs) are frequently used in daily clinical practice, but often without a valid indication. Strategies to identify inappropriate PPI use are widely available, although the true challenge is to discontinue PPIs in these patients without developing rebound symptoms. There is therefore a need for a tool to guide patients during this process.

Aims & Methods: We aimed to evaluate the effect of a smartphone app that provides an individualized educational approach as a tool to achieve sustained PPI discontinuation. This multicenter randomized controlled trial included adult patients on daily PPI for at least four weeks without chronic PPI indication from the outpatient clinics of Internal Medicine, Gastroenterology, Rheumatology and Nephrology in two community hospitals and one university hospital in the Netherlands. Patients were excluded in case they could not understand the study (procedures) or in case of a limited life span.

Patients were randomly assigned to either the smartphone app providing timely information on PPI discontinuation (intervention group) or usual care which consisted of patients receiving a brochure explaining how to stop PPI and manage symptoms providing all information at once (control group).

Primary endpoint was the discontinuation rate at 2-months follow-up, defined as self-declared intake of a maximum of one tablet in the previous 14 days. Patient recruitment has ended and we anticipate final results in August 2023. We now only present preliminary numerical data.

Results: Preliminary follow up results are based on 129 (2-months) and 99 (4-months) of 165 included patients (median age 55 y/o [IQR 46-64 y/o], 61 males [47%]). More patients succeeded to discontinue PPI use at 2-months follow-up in the intervention group: 54/62 (87%) vs. 44/67 (66%). This was also seen after 4-months follow-up: 44/55 (80%) patients in the intervention group vs. 41/61 (67%) patients in the control group.

Conclusion: A smartphone app intervention providing timely guidance in discontinuing inappropriate PPI use seems to be an effective tool to improve the discontinuation rate of inappropriate PPI use compared with a one-time information folder.

These preliminary data suggest that patients are able to successfully discontinue inappropriate use of medication without the time-consuming support of a healthcare worker. (Clinical trial registration number: NCT05348252).

Disclosure: Nothing to disclose.

PP0043

INTRAMURAL INJECTION OF BLEOMYCIN COMBINED WITH ENDOSCOPIC DILATION FOR BENIGN ESOPHAGEAL STRICTURES

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Introduction: Benign esophageal stricture is a common gastroenterological disease. Endoscopic dilation is the first-line treatments, but the recurrence rate is high, especially for the patients with refractory benign esophageal stricture (RBES). Bleomycin can reduce keloids and hypertrophic scars, but has not been reported in esophageal stricture. Therefore, the study was performed in our center.

Aims & Methods: This retrospective study was performed from January 2012 to December 2020. 120 patients with intramural injection of bleomycin combined with endoscopic dilation (bleomycin group) and 120 patients with endoscopic dilation only (dilation group) were enrolled. The primary results are the relapse rates within 3 months and 1 year.

Results: Bleomycin showed significant improvement in the short-term (34.2% vs. 55.0%, P=0.001) and long-term (71.7% vs. 85.8%, P=0.008) relapse rates in patients with benign esophageal stricture compared with patients in the dilation group. In the different causes of benign esophageal stricture, bleomycin showed significant benefit for patients with anastomotic stricture (short-term: 26.3% vs. 46.1%, P=0.011; long-term: 64.5% vs. 81.3%, P=0.020) and post-ESD stricture (short-term: 61.1% vs. 94.4%, P=0.016). Furthermore, the dysphagia-free period could be increased significantly in the bleomycin group (2.8±2.2 months vs. 1.6±1.5 months, P=0.044). Dilation times before treatment (OR=0.157, P<0.001), total dilation times (OR=4.970, P<0.001), and grade of dysphagia before treatment (OR=3.053, P=0.007) were the independent factors for the relapse of patients in bleomycin group.

Conclusion: Bleomycin can decrease relapse rates of patients with benign esophageal stricture, especially for anastomotic stricture. It can also prolong the dysphagia-free period of patients with RBES.

Disclosure: Nothing to disclose.

PP0044

THE EFFECT OF CORTICOTROPIN-RELEASING HORMONE ON DUODENAL PERMEABILITY AND IMMUNE ACTIVATION IN HEALTHY VOLUNTEERS

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Introduction: The pathophysiology of disorders of gut-brain interaction is complex and incompletely understood. In functional dyspepsia, increased gut permeability and low-grade mucosal inflammation with eosinophils and mast cells have been reported.

Stress as well as exogenously administered corticotropin-releasing hormone (CRH) have been shown to increase small bowel permeability in vivo in a mast-cell dependent fashion. Moreover, eosinophil-derived CRH has been implicated in mast cell activation.

Aims & Methods: The aim of the current study was to evaluate whether acute CRH administration can induce increased duodenal mucosal permeability and immune activation in healthy volunteers (HVs).

HVs without gastrointestinal symptoms were recruited. The use of drugs such as NSAIDs, mast cell stabilizers or corticoids was prohibited. An i.v. bolus of 100 µg CRH or placebo (NaCl 0.9%) was administered in a crossover, double blind, randomized fashion with a 1-week washout period. Two hours after injection a gastroscopy with duodenal biopsies was performed. Duodenal permeability was evaluated in Ussing chambers measuring trans-epithelial electrical resistance (TEER) and the flux of a fluorescence-labeled dextran of 4kDa (FITC-D4). Duodenal biopsies were incubated at 37°C in culture medium for 24h. Sandwich ELISA was performed on supernatant for eosinophil derived neurotoxin (EDN), tryptase and chymase, corrected for biopsy weight.

Analysis was performed using marginal mixed models in SAS. Correlation analysis was performed using Pearson correlation coefficient. Results are described as mean ± SEM. P-values < 0.05 were considered significant after correction for multiple testing.

Results: Twenty HVs (65% women, 27±1 years, BMI 23.2 ± 0.6 kg/m^2) completed the study. Tryptase release in supernatant was significantly lower after CRH exposure, 6.06±0.88 ng/mL vs 4.03±0.46 ng/mL after CRH exposure (n=16, p= 0.031). Chymase release however, was not significantly different between both conditions (2805.82 ± 447.85 pg/mL/mg for placebo vs 2001.19±365.91 for CRH pg/mL/mg; p=0.27, n=15). There was a trend towards a decrease in EDN, after CRH exposure (13.3±2.05 µg/L/mg for placebo vs 8.96±1.11 µg/L/mg for CRH; p=0.061; n=16).

Correlation analysis of delta values showed a significant correlation between Δ tryptase and Δ chymase (r 0.79, p=0.0062, n=10) and Δ tryptase and Δ EDN (r 0.60, p=0.019, n=15).

No significant correlation was found between Δ chymase and Δ EDN (r 0.36, p=0.30, n=10).

A trend towards an decreased mucosal permeability was observed after CRH administration for TEER (25.75 ± 0.91 Ω.cm^2 for placebo vs 27.20 ± 1.44 Ω.cm^2 for CRH; p=0.056). Likewise, FITC-D4 flux was significantly lower in the CRH condition (41.4 ± 5.6 pmol for placebo vs 33.0 ± 2.7 pmol for CRH, p<0.0001). There was no significant correlation of delta values of FITC-D4 flux or TEER with delta values of supernatant for tryptase, chymase or EDN secretion.

Conclusion: Acutely administered CRH in vivo decreased tryptase release in supernatant of duodenal biopsies, suggesting an increased tryptase release in vivo, and decreased duodenal permeability in healthy subjects. However, no correlation between permeability and tryptase release was found.

Disclosure: Nothing to disclose.

PP0045

POSITION DURING OESOPHAGEAL HIGH-RESOLUTION MANOMETRY AND ANALYSIS METHODOLOGY AFFECT MANOMETRIC DIAGNOSIS

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Introduction: Oesophageal high-resolution manometry (HRM) is the test of choice for the study of oesophageal motility disorders. The Chicago 4.0 classification facilitates analysis and interpretation of these studies. However, the influence of patient position and analysis methodology of some parameters is not well defined. In addition, it has not been precisely defined where to place the gastric pressure sensor to determine the integrated relaxation pressure (IRP).

Aims & Methods: The aim was to evaluate if postural changes and analysis methodology applied affect the results of oesophageal high-resolution manometry.

Oesophageal HRM with Chicago 4.0 extended protocol (10 swallows in supine and 10 swallows in up-right position) performed in our Neurogastroenterology and Motility Unit between December 2021 and October 2022 were included. The distal contraction integral (DCI) was determined automatically and manually. The IRP was evaluated positioning the gastric pressure sensor in the lowest gastric area pressure zone (GS-LP) and 2 cm below the lower oesophageal sphincter (GS-2cm).

Results: A total of 96 patients were included, 65% women (mean age 57 years). Mains indications of oesophageal HRM were GERD symptoms (52%) and dysphagia (41%). DCI values were significantly higher in the supine position (2607 and 2014 mmHg/cm/sec with automatic and manual analysis respectively, p<0,0001) compared to the up-right position (1558 and 1371 mmHg/cm/sec with automatic and manual analysis respectively, p<0,0001). These represent changes in the diagnosis of 11% of the studies regarding methodology and 17% regarding posture. A higher proportion of ineffective peristalsis was observed with manual analysis in the up-right position. Additionally, IRP values were significantly higher in both positions using GS-LP (15.5 and 11.1 mmHg) rather than GS-2cm (11.9 and 7.9 mmHg). This represents an increase in the proportion of oesophageal outflow obstruction using GS-LP in both positions.

Conclusion: The position and analysis methodology applied affects the distal contractile integral values. The location of the gastric reference sensor affects the integrated relaxation pressure value. Manometric diagnosis can change depending on the selected posture and analysis methodology applied. Consensus on posture and analysis methodology for oesophageal high-resolution manometry is needed to reduce differences between laboratories.

Disclosure: Nothing to disclose.

PP0046

USEFULNESS OF FUNCTIONAL ENDOSCOPY IN THE ENDOSCOPIC TREATMENT OF GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: The Endoscopic Pressure Study Integrated System (EPSIS) is a novel diagnostic device that continuously measures intragastric pressure during upper endoscopy. The waveform of intragastric pressure (IGP) is recorded during continuous insufflation of the stomach.

Previous studies have shown that the lower esophageal sphincter (LES) function can be evaluated by characterizing the IGP waveform, and this technique has been applied in the diagnosis of gastroesophageal reflux disease(GERD). The gradient of the waveform decreases in cases of GERD, indicating LES dysfunction with an inability to hold up the insufflation.

Anti-reflux mucosal ablation (ARMA) and anti-reflux mucosectomy (ARMS) are forms of endoscopic anti-reflux therapy through cardioplasty where in an ulcer at the level of the gastric cardia is created by resecting or ablating the mucosa to achieve gastric cardia stricture through the scarring process.

In this study, we aimed to determine if EPSIS can be used to assess the therapeutic effect of endoscopic cardioplasty, such as ARMA or ARMS.

Aims & Methods: This was a single-center retrospective cohort study that included patients who underwent endoscopic cardioplasty, and EPSIS was performed before and after the endoscopic treatment between May 2018 and April 2023. 24-hour pH monitoring was performed post procedure to evaluated the treatment outcome. EPSIS was performed by using the pressure measuring system to monitor IGP.

We characterized the pressure waveform shape by assessing the gradient of the waveform (mmHg/s), calculated by dividing the pressure difference by the insufflating time. The gradient of the waveform was compared before and after the procedure to confirm the change in the IGP waveform.

Results: EPSIS was performed before and after endoscopic cardioplasty (ARMS/ARMA) in 26 patients (mean age: 54.3 years, 19 males) during the study period. Twenty-two patients (84.6%) were evaluated by 24-hour pH monitoring at 2-6 months post-ARMA. The median AET significantly decreased from 20.4% to 5.4% (p=0.01). The pressure gradient of the IGP waveform significantly increased (0.15 vs. 0.25 mmHg/sec, p=0.001), indicating that the LES function was built up by the endoscopic intervention.

Conclusion: Functional endoscopy using EPSIS was found to be effective in evaluating the efficacy of endoscopic cardioplasty and has the potential to be applied not only in the diagnosis but also in the treatment of GERD.

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PP0047

MUCOSAL LYMPHOCYTE RESPONSES TO WHEAT PROTEINS ARE ASSOCIATED WITH TRAV26-2 T CELL RECEPTOR EXPRESSION IN FUNCTIONAL DYSPEPSIA PATIENTS

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Introduction: Functional dyspepsia (FD) is a disorder of gut-brain interaction (DGBI) characterised by relapsing and remitting gastro-duodenal symptoms, in the absence of identifiable pathology via routine clinical screening. An association between FD and wheat-containing foods has been reported in observational studies, and recent work demonstrates increased gut-homing T cells in peripheral blood of FD patients reporting sensitivity to wheat, compared to those without wheat sensitivity and controls.

We have also recently shown increased populations of mucosal lymphocytes with a T helper (Th)2- and Th17-like phenotype in FD patients compared to controls, however, a mucosal adaptive lymphocyte response specific to wheat has not been demonstrated.

Aims & Methods: We aimed to examine whether proteins present in wheat could provoke a response from FD duodenal lymphocytes isolated from mucosal biopsies. Lamina propria mononuclear cells (LPMCs) were isolated from duodenal biopsies from 50 FD patients (38 female, 46.8±16.8 years) and 23 controls (11 female, 52.1±13.1 years). LPMCs were exposed to gluten (0.2mg/mL) or gliadin (0.2mg/mL) for 24 hours.

Flow cytometry was performed to phenotype lymphocytes using a surface marker panel. Quantitative polymerase chain reaction (qPCR) was used to measure expression of the gliadin-associated T-cell receptor alpha variant (*TRAV)26-2.*

Results: In response to gliadin (but not gluten) stimulation, the effector Th2-like population was increased in FD LPMCs compared to controls (16.34 ± 13.17 vs 25.83 ± 14.87, $p = 0.01$) and unstimulated FD LPMCs (19.40 ± 14.35 vs 25.83 ± 14.87, $p = 0.04$). Duodenal gene expression of *TRAV26-2* was decreased in FD compared to controls (0.013 ± 0.015 vs 0.003 ± 0.005, $p = 0.04$). We identified a positive association between gene expression of this T cell receptor variant and LPMC effector Th17-like cell populations in FD patients (rs = 0.3733, $p = 0.04$), but not controls (rs = 0.2238, $p = 0.485$) following exposure to gluten, but not gliadin.

Conclusion: Our findings in this observational study suggest differential T cell responses to gluten and gliadin in a subset of FD patients, and suggest Th2 responses previously reported in FD may occur in response to food components such gliadin. We also show that FD patients have reduced expression of *TRAV26-2*, previously associated with T cell responses against gliadin in celiac disease. *TRAV26-2* expression correlated with Th17-like populations in FD patients, suggesting that specific TCR variants in may be associated with an immune response to the consumption of wheat-containing foods in FD.

Disclosure: Nothing to disclose.

PP0048

A NOVEL ISOLATE OF *STREPTOCOCCUS SALIVARIUS* MAY CONTRIBUTE TO HOMEOSTATIC IMBALANCE IN FUNCTIONAL DYSPEPSIA

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Introduction: Functional dyspepsia (FD) is a highly prevalent disorder of gut brain interaction that substantially impairs quality of life. FD is associated with unexplained low grade duodenal inflammation and increased duodenal permeability. Emerging evidence implicates *Streptococcus* species in the disorder, and we have previously identified a unique strain of *Streptococcus salivarius*, AGIRA0003, to which specific IgG antibodies were detected in the plasma of FD patients.

We hypothesised AGIRA0003 is a pathobiont with the capacity to breach duodenal epithelial barrier defences and translocate into the mucosa, inducing the subtle immune response and symptoms observed in a subset of FD patients.

Aims & Methods: We aimed to investigate the capacity of AGIRA0003 to breach duodenal epithelial defences. Differentiated Caco-2 cell transwell monolayers (n=3), as models of the epithelial barrier, were exposed to 4 strains of cultured *S. salivarius*, AGIRA0003, ATCC 7073, K12 and M18, with the last 2 being commercially available probiotics, at a multiplicity of infection of 10 for 6 hours.

Epithelial permeability was measured by transepithelial electrical resistance (TEER), and tight junction (TJ) protein expression was measured using immunoblot, cytokine secretion by Legendplex bead-based immunoassay, along with bacterial translocation.

As a proof of concept, 2-dimensional epithelial transwell monolayer cultures, derived from duodenal spheroids, from an FD patient and outpatient control (OC) were exposed to AGIRA0003.

Results: AGIRA0003 translocated through the Caco-2 monolayer (3hr: 901.5±317.4 CFU/mL) and significantly decreased ΔTEER (-83.85 ± 27.52 Ωxcm^2, $p=0.047$) compared to the control (-23.99±7.91 Ωxcm^2). In addition, AGIRA0003 disrupted expression of TJ proteins claudin 1 (CLDN1) (fold change (FC) 0.643±0.058, $p=0.037$), cleaved desmocollin 2 (DSC2 CL) (FC 0.57±0.071, $p=0.037$) and zonula occludens 1 (ZO-1) (FC 0.55±0.026, $p=0.058$). AGIRA0003 elicited subtle inflammatory cytokine response from Caco-2 cells including secretion of IP-10 (41.15±8.33 pg/mL, $p=0.046$) and IL-8 (61.76±36.90 pg/mL, $p=0.046$).

An FD duodenal 2D spheroid epithelial monolayer had decreased levels of CLDN1 (FC to respective media control: 10.13 OC, 0.60 FD) and ZO-1 (FC to respective media control: 4.82 OC, 0.29 FD) compared to an OC following exposure to AGIRA0003.

Conclusion: These investigations implicate AGIRA0003 as a possible pathobiont contributing to FD pathophysiology and may be a suitable target for therapeutic intervention. AGIRA0003 has the capacity to breach Caco-2 epithelial barrier defences, translocate and elicit an inflammatory immune response contributing to the pathogenesis of FD. The exact mechanisms by which AGIRA0003 interacts with epithelia remains to be elucidated and warrants further investigation.

Disclosure: Nothing to disclose.

PP0049

PROSPECTIVE STUDY BY HIGH-RESOLUTION ESOPHAGEAL MANOMETRY OF THE ESOPHAGO-GASTRIC JUNCTION IN OBESE SUBJECTS UNDERGOING SLEEVE GASTRECTOMY

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Introduction: One third of the world population is affected by obesity. Laparoscopic Sleeve Gastrectomy (LSG) is the most widely used surgical treatment currently used to treat severe obesity. However, it appears to increase the risk of developing Gastro-Esophageal Reflux Disease (GERD) and its complications, such as Barrett's esophagus (Genco A. et Al, 2017).

The aim of this study was to evaluate possible impairment of the anti-reflux barrier function of the Esophageal-Gastric Junction (EGJ) in patients with severe obesity undergoing LSG by studying functional aspects of the EGJ by High Resolution Esophageal Manometry (HRM) with perfusion system and 24-hour pH-metry.

Aims & Methods: Forty-five obese patients, without evidence of hiatus hernia or GERD, undergoing LSG (34F 11M; 45±12 yrs) were compared with 21 overweight patients (10F 11M; 52±16 yrs) and 21 normal weight patients (17F 4M; 47±14 yrs) with GERD symptoms. Twenty-four of the obese patients (3M 21F; 45±11 yrs) were reevaluated after LSG.

The EGJ was evaluated by the EsophagoGogastic Junction–Contractile Integral (CI) on HRM, that integrates the inspiratory and expiratory pressures, the length and the duration of the contraction of the EGJ during three respiratory cycles at rest. It was calculated for Single Respiratory Cycle (EGG-CI SRC) and corrected for duration of the breathing (EGG-CI CRC). The findings were compared with normal ranges suggested in the literature (EGJ-CI-SRC 205.5±35.6 mmHg·cm·s and EGJ-CI-CRC 46.2±7.6 mmHg·cm) (Gor P. et Al, 2016).

Results: The 3 groups of patients, obese, overweight and normal weight, did not differ statistically for EGJ-CI SRC (120.3 ± 112.7 vs 116 ± 120 vs 103.7 ± 102.6 mmHg·cm·s, respectively) nor for EGJ-CI CRC (42.8 ± 31 vs 33.4 ± 28.2 vs 33.0 ± 28.5 mmHg·cm, respectively). After LSG a statistically significant decrease was observed for EGJ-CI CRC (46.7±36.8 vs 32.3±26.4 mmHg·cm, p=0.02), but not for EGJ-CI SRC (133.6±141 vs 115.2±103.6 mmHg·cm·s, n.s.). Twelve patients (50%) showed after LSG an acid exposure time above the normal limits and this result was related to the degree of reduction of EGJ-CI-CRC (r = 0.525; p = 0.01).The results of this study indicate that the esophagogastric barrier function of the EGJ is reduced in obese patients similarly to GERD patients regardless of BMI and appears to decrease further after LSG surgery, affecting its efficiency and probably favoring the onset of GERD.

Conclusion: In conclusion, the evidence that LSG affects the EGJ and may induce GERD suggests that HRM and 24-hour pH-mertry or 24-hour pH-impedancemetry could be useful in the work-up for bariatric surgery to identify subjects without or scarce reflux symptoms, but showing impaired functions that could worsen with surgery favoring the onset of GERD. It is possible that the functional characteristics of the GEG associated with other variables detected by HRM and pH-impedancemetry may in the future develop a predictive score for risk of MRGE in these patients.

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PP0050

FUNCTIONAL VERIFICATION AND MECHANISM OF *FAM129C* GENE MUTATION IN ACHALASIA

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Introduction: Esophageal achalasia (EA) is a rare functional disorder caused by neuromuscular dysfunction at the esophagogastric junction, characterized by impaired diastole of the lower esophageal sphincter (LES) and loss of distal esophageal peristaltic function.

The etiology of the disease is still unknown, and the current etiological hypothesis is that the loss of esophageal neurons due to ganglion inflammation caused by an abnormal immune response to infection in a genetically susceptible background affects the function of the muscles innervated by it.

Previous studies have suggested that genetic susceptibility may be strongly associated with the onset of achalasia. Based on this platform, our group is one of the largest EA clinical centers in China, and we used whole-exome sequencing and technology validation to screen out a new genetic mutation locus *FAM129C* from 22 Trios core families with achalasia.

This paper intends to investigate whether *Fam129c* mutant mice have an EA phenotype, and to investigate the pathogenic mechanism of this mutation with multi-omics.

This study will provide a new basis for uncovering the genetic cause of EA, a new mouse model for basic EA research, and potential therapeutic targets for the treatment of EA.

Aims & Methods: The new pathogenic genes inherited from the family line of achalasia in the Han population were screened, and the mutant mice were constructed by CRSPR/Cas9 technology. To verify whether the mutant mice have the cardia apopause phenotype, and to explore the specific mechanism of disease in mutant mice through multi-omics joint analysis and in vivo and in vivo validation experiments.

Results: *Fam129c* mutant mice were successfully constructed, and it was confirmed that they had EA phenotype from anatomical to functional levels. Immunofluorescence results showed that *FAM129C* was localized in B cells. Abnormal activation of plasma cells in mutant mice, specific deletion of B cells can partially alleviate the achalasia phenotype of mutant mice.

Transcriptome sequencing and single-cell sequencing results revealed a significant enrichment of B cell subsets, and differential genes elevated in mutant mice mainly included immunoglobulins. Single-cell BCR repertoire sequencing analysis showed that mutant mice had increased V-J pairing, increased clone number and clone types, and increased immunoglobulin secretion.

Further analysis of proteomics results found that the anti-inhibitory neuron autoantibody GABA-AR was elevated in serum and in situ tissue of mutant mice, and the results of ELISA verification in mice were consistent with it. IvIgG treatment of mutant mice in vitro and in vivo can partially alleviate the EA phenotype.

Conclusion: A new potential mutated genes *FAM129C* in achalasia were identified, and *Fam129c* mutant mice conforming to the population mutation pattern were established. Fam129c mutant mice have an EA phenotype, and their anatomical features, pathological changes in the esophageal intermuscular plexus and diastolic function of the lower esophagus are consistent with EA patients. *Fam129c* mutant mice are pathogenic through a B-cell-dependent pathway.

Abnormal activation of plasma cells in mutant mice, increased secretion of immunoglobulins, especially anti-neuronal autoantibody GABA-AR, and neuromuscular dysfunction after specific injury of esophageal inhibitory intermuscular neurons, eventually leading to the onset of achalasia.

Disclosure: Nothing to disclose.

PP0051

THE MICROBIAL BIOGEOGRAPHY IN HUMANS IN HEALTH AND DISEASE, PROTON PUMP INHIBITORS AND GUT-BRAIN INTERACTIONS

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Introduction: Little is known about the variation in the mucosa-associated microbiota (MAM) along the human gastrointestinal (GI) tract. We set out to characterize biogeography of the MAM in subjects with and without gastrointestinal disease, and to explore and compare the intrinsic links between the MAM, proton pump inhibitor (PPI) therapy, symptom response to a standardized nutrient challenge as a surrogate marker for visceral sensory function, and the severity of gastrointestinal symptoms across various segments of GI tract in asymptomatic controls and patients with inflammatory bowel disease (IBD).

Aims & Methods: After informed consent, the type and severity of GI symptoms were recorded using a standardized valid questionnaire (Structured assessment of gastrointestinal symptoms, SAGIS). Patients underwent a nutrient challenge test and the cumulative symptom response to a standardized test meal (Ensure, 600 cc) were recorded. Clinical data and demographic information were obtained from the integrated Electronic Medical Record (iEMR). During endoscopy, mucosal samples were collected utilising the Brisbane Aseptic Biopsy Forceps (MTW, Germany) from the duodenum to avoid working channel contamination of tissue and utilizing routine biopsy forceps from the terminal ileum (TI), right colon (RC), rectum (R), from 59 asymptomatic/healthy control subjects, and 75 IBD patients in clinical remission (44 ulcerative colitis (UC) and 31 Crohn's disease (CD)). Microbial composition was assessed via 16S rRNA amplicon analysis and the bacterial load of DU, TI, R and RC biopsies were assessed via qPCR, allowing for calculation of absolute and relative abundance profiles of the MAM. MAM composition was examined in the context of PPI usage, the severity of gastrointestinal and extraintestinal symptoms, and the sensitivity to nutrient challenge tests.

Results: The biogeography of MAM exhibited substantial heterogeneity between UC and CD patients and across the GI tract, with differences in the relative abundance of MAM, as examined in other studies, not always corresponding with differences in absolute abundance.

Compared to controls, UC and CD patients were characterised by relative and absolute depletion of butyrate-producing genera, with the largest differentiation being depletion of Faecalibacterium in the lower GI tract of CD patients. Interestingly, PPI therapy was associated with a significant shift in MAM composition, particularly for Faecalibacterium whose depleted levels were restored to healthy-control levels in CD patients.

The severity of gastrointestinal and extraintestinal symptoms, was significantly associated with MAM composition, with Faecalibacterium enrichment in UC and CD patients paradoxically associated with elevated symptom severity. The response to standardised nutrient challenge tests, was significantly associated with a shift in MAM composition and Faecalibacterium depletion.

Conclusion: The absolute and relative composition of the MAM is variable across different levels of the human GI tract and linked to the presence/absence of specific inflammatory bowel disorders (CD/UC), medication with a PPI, the severity of gastrointestinal symptoms, and the intensity of GI symptoms during a standardized nutrient challenge.

The consistently strong association of clinically relevant bacterial genera such as Faecalibacterium in these analyses, as well as several other genera, provides focal points for future investigations and strategies to develop microbiome-mediated therapies for IBD and for modulation of the gut-brain axes.

Disclosure: Nothing to disclose.

PP0052

A SINGLE-CELL TRANSCRIPTIONAL LANDSCAPE OF IMMUNE CELLS SHOWS DISEASE-SPECIFIC CHANGES OF T CELL AND MACROPHAGE POPULATIONS IN HUMAN ACHALASIA

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Introduction: Achalasia is a rare motility disorder of the esophagus with symptoms of dysphagia, regurgitation, chest pain, and weight loss[1].

The pathophysiology of achalasia is aberrant esophageal peristalsis and impaired relaxation of the lower esophageal sphincter (LES) caused by the gradual degeneration of the myenteric neuron.

Although its etiology is unknown, immune-mediated ganglionitis triggered by environmental factors and genetic susceptibilities may underlie the loss of myenteric neurons in achalasia[1,2].

Previous studies demonstrated various inflammatory cells infiltrated in LES, such as T cells, eosinophils, and mast cells[3].

Whole-exome and RNA sequencing of achalasia patients identified achalasia-associated loci enriched for immunological and neurological processes[4], suggesting that the immune response may be a critical factor in the disease.

However, most studies have focused on the proportion of immune cells and inflammatory mediators without exploring the underlying mechanism.

Without cell-type-specific gene expression profiles, it is difficult to define the cell types responsible for achalasia-related changes.

Single-cell RNA sequencing (scRNA-seq), which provides an unbiased approach for characterizing cell diversity and heterogeneous phenotypes at high resolution[5], has been used in patients with neurodegenerative disorders or neuroinflammatory conditions, such as Alzheimer's disease (AD)[6], multiple sclerosis (MS)[7], and Parkinson's disease (PD)[8].

Since the loss of myenteric neurons and ganglionitis was the main pathophysiology in achalasia, we use scRNA-seq to map the immune cell transcriptional landscape of peripheral blood and paired LES tissues from patients with achalasia and controls in this study.

We find a specific composition and transcriptional phenotype of C1QC$^+$ macrophages and tissue-resident memory T cells (Trms) in achalasia, which might be involved in the inflammatory process and pathophysiology in achalasia.

Aims & Methods: Achalasia is a rare motility disorder of the esophagus caused by the gradual degeneration of myenteric neurons. Immune-mediated ganglionitis has been proposed to underlie the loss of myenteric neurons.

Here, we map the immune cell transcriptional landscape of paired lower esophageal sphincter (LES) tissue and blood samples in achalasia and controls using single-cell RNA sequencing (scRNA-seq).

Results: In achalasia, we identify a pattern of expanded immune cells and a unique transcriptional phenotype, especially in LES tissue. The C1QC$^+$ macrophages and tissue-resident memory T cells (Trms), especially ZNF683$^+$ CD8$^+$ Trms and XCL1$^+$ CD4$^+$ Trms, are significantly expanded and localized surrounding the myenteric plexus in the LES tissue of achalasia. C1QC$^+$ macrophages are transcriptionally similar to microglia of the central nervous system and exhibit a neurodegenerative dysfunctional phenotype in achalasia. Trms also express transcripts of dysregulated immune responses in achalasia.

Moreover, inflammation increases with disease progression since immune cells are more activated in type I compared with type II achalasia.

Conclusion: Thus, we map the immune cell transcriptional landscape and identify the C1QC$^+$ macrophages and Trms as disease-associated subsets in achalasia.

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PP0053

EARLY LIFE RISK FACTORS OF CHILDHOOD IRRITABLE BOWEL SYNDROME —A MOTHER-CHILD BIRTH COHORT STUDY FROM GUSTO

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Introduction: There are limited studies that examined the risk factors of childhood Irritable Bowel Syndrome (IBS). Studies on the risk factors for adult IBS frequently indicate that early life periods play a significant role in the development of IBS. However, the majority of these studies are retrospective and prone to confirmation bias.

To address this limitation, we conducted the first prospective mother-offspring cohort study (Growing Up in Singapore Towards healthy Outcomes (GUSTO)) to investigate the early life risk factors associated with the development of childhood IBS.

Aims & Methods: Under the GUSTO study, we conducted a prospective population-based mother-child birth cohort study of 1176 children born in Singapore from November 2009 to May 2011. We analysed data from 827 mother-child pairs with complete follow-up at Year 11 and without an initial diagnosis of organic gastrointestinal disease. Incident cases of IBS were defined according to the Rome IV Criteria in Years 9, 10, and 11 of the study. Perinatal, childhood and parental data were collected (see table) at different intervals since birth. Factors significant on univariate analysis (* in table) were analyzed using multivariable binomial regression to determine association with IBS.

Results: Our participants were predominantly males (n=431, 52.1%) of ethnic Chinese descent (n=475, 57.4%) and were delivered vaginally (n=574, 69.4%). By the 11th year of the study, 40 (4.8%) of our participants were diagnosed with IBS. Perinatal factors significantly associated with IBS include emergency intervention† (AOR: 2.74, 1.11-6.75, p<0.001), female child gender (AOR: 3.69, 1.68-8.06, p=0.001), higher birth weight

(AOR: 2.47, 1.12-5.44, p=0.025) and maternal depression (AOR: 1.12, 1.04-1.20, p=0.004). Childhood factors significantly associated with IBS include child generalized anxiety (AOR: 1.61, 1.09-2.36, p=0.016), maternal anxiety (AOR: 1.06, 1.01-1.10, p=0.008) and authoritarian parenting style (AOR: 8.75, 1.30-59.13, p=0.034).

† Emergency intervention was defined as assisted vaginal delivery or emergency Caesarean-section.

Factors	Perinatal	Childhood	Parental
Demography	Child Birth Weight* Child Gender* Child Allergies Allergic Rhinitis* Asthma* Eczema		Maternal Ethnicity Age Education* Mode of Delivery*
Questionnaires	Maternal Pregnancy Week 26 State-Trait Anxiety Inventory (STAI)* Edinburgh Postnatal Depression Scale (EPDS)* Beck's Depression Inventory (BDI-2)	Month 54 Child Behavioural Questionnaire (C-DISC)* Year 6 Lifetime Experience Questionnaire (LEQ) Year 7 Child Food Frequency Questionnaire (FFQ)* Year 10 My E-Diary for Activities and Lifestyle (MEDAL)	Maternal Post-Natal Month 3 State-Trait Anxiety Inventory (STAI)* Edinburgh Postnatal Depression Scale (EPDS)* Beck's Depression Inventory (BDI-2)* Month 54 Parenting Styles and Dimensions Questionnaire (PSDQ)*

Conclusion: In conclusion, this study provides important insights into the risk factors associated with childhood IBS. The findings suggest that early life periods, including perinatal, childhood, and parental factors, play a significant role in the development of IBS. This has significant clinical implications for identifying at-risk children and implementing targeted interventions to prevent the development of IBS. Further research is needed to validate these findings and explore potential mechanisms underlying these associations.

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PP0054

SPONTANEOUS UPPER ESOPHAGEAL SPHINCTER RELAXATIONS (SUERS) IN ACHALASIA

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Introduction: Upper esophageal sphincter (UES) abnormalities have been reported in 32.5% of esophageal high-resolution manometric (HRM) studies. UES relaxation is the most prevalent response during transient lower esophageal sphincter relaxation (TLSESR) and is associated with air in the reflux. Spontaneous UES relaxation (SUESR) has been reported in achalasia and cannot be explained by TLSER.

Aims & Methods: The main objeticte is to describe the frequency of SUESR in patients with achalasia, compared with patients with gastroesophageal reflux (GERD) and healthy controls. A retrospective database study including consecutive esophageal HRM studies in a seated position from 2017-2020. A SUERS was defined as an interruption of the UES (isobaric contour of 12 mmHg) in the absence of hypopharyngeal contraction within 15 s of a wet swallow.

To evaluate the dynamics of SUERS, the latency from the beginning of a wet swallow to a SUESR and its duration were measured. Additionally, a DCI tool was forced from the lower border of the UES through the upper edge of the LES and 5 s before and after a SUESR (contractile integral, CI). The maximum pressure of the UES 5 seconds before and after a SUESR was measured. GERD studies were included if a 24-hour pH monitoring reported an acid exposure time >6%, and healthy controls were extracted from the laboratory's database.

All HRMs were classified by Chicago 4.0, and a sub-analysis was performed for achalasia subtypes. Frequencies and percentages were used for categorical variables and median and interquartile ranges for continuous variables. Groups were compared with ANOVA, and a two-sided p value was calculated with a significance <0.05.

Results: A total of 179 esophageal HRM studies were included; 120 (67%) were female, the median age was 41 years (30.0-55.3), and the median BMI was 24.6 kg/m^2 (22.1-27.9). Groups were divided into achalasia (116), GERD (33), and controls (30), from which a total of 57 (30.1%) studies showed SUERS with a prevalence of 49 (42.2%), 4 (12.1%), and 4 (13.3%), respectively. No difference was found in the total number of SUESR between groups (p=0.05).

Nevertheless, a statistical difference was observed in the CI post-SUESR (p=0.01) and the UES maximum pressure pre-SUESR (p=0.02), both of which were higher in the achalasia group. Among achalasia subtypes with SUESR, type II (18) showed a higher basal UES pressure (p=0.003), CI pre-SUESR (p=0.004), CI post-SUERS (p=0.01), and UES maximum pressure post-SUERS (p=0.04) (see Table 1).

HRM finding	Total (n=49)	Type I (n=26)	Type II (n=18)	Type III (n=5)	p
Total of SUERS	3.0 (1.0-5.0)	2.0 (1.0-4.0)	3.0 (2.0-6.0)	4.0 (2.0-4.0)	0.30
Latency of SUERS (s)	8.1 (4.8-10.4)	7.7 (5.13-9.4)	9.0 (4.8-11.3)	8.2 (4.8-13.7)	0.90
Duration of SUERS (s)	0.53 (0.46-0.76)	0.52 (0.44-0.74)	0.58 (0.50-0.72)	0.69 (0.40-0.85)	0.71
CI pre-SUERS (mmHg*cm*s)	1551 (800-2663)	1476 (788-1995)	3027 (1524-4297)	871 (485-1044)	**0.004**
CI post-SUERS (mmHg*cm*s)	1074 (663-2139)	895.0 (682-1408)	2450 (1276-2741)	435 (365-1074)	**0.01**
UES maximum pressure pre-SUERS (mmHg)	215 (140-313)	213 (135-324)	222 (184-258)	212 (70-323)	0.99
UES maximum pressure post-SUERS (mmHg)	104 (64-104)	83.4 (54.8-124)	135 (105-180)	64 (58.6-175)	**0.04**

*Continuous variables are shown in median and interquartile ranges

Table 1. Esophageal HRM findings in achalasia subtypes with SUERS (n=49).*

Conclusion: A prevalence of SUESR of 42.2% was found in patients with achalasia, with higher HRM metrics in achalasia type II. This finding suggests a valve mechanism from the UES and liberation of esophageal pressurization through the SUERS. Further research is required to correlate this finding as a prognostic tool.

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PP0055

ESOPHAGEAL FUNCTION IMPROVES POST-LUNG TRANSPLANTATION IN PATIENTS WITH RESTRICTIVE BUT NOT OBSTRUCTIVE DISEASE

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Introduction: For many patients with restrictive and obstructive lung disease the only proven intervention to improve survival and quality of life is lung transplantation (LTx). Esophageal dysmotility and gastroesophageal reflux (GER) are common in patients with respiratory disease, and often associate with worse prognosis following LTx (1,2). Which, if any patients, should be excluded from transplantation due to GER remains unclear.
Aims & Methods: Aim: To examine the changes in esophageal motor function (Chicago Classification v4.0) and association with GER following LTx in patients based on pre-LTx restrictive or obstructive lung disease.
Methods: High-resolution impedance esophageal manometry (HRIM) and 24hr impedance-pH (MII-pH) were performed in 57 respiratory patients (40 restrictive disease, 17 obstructive disease) before and after LTx (mean age 60 yrs (range 33-75 yrs), 39 males) between November 2016 and October 2022.
Results: *Restrictive disease:* Before LTx, 15 (38%) patients exhibited abnormal motility, with the majority presenting with either ineffective esophageal motility (IEM) (8, 53%) or esophagogastric junction outflow obstruction (EGJOO) (6, 40%). One patient had distal esophageal spasm and the rest (25, 63%) normal motility.
Following LTx, approximately half of patients (21, 53%) retained the same diagnosis as pre-LTx. Patients with normal motility pre-LTx were more likely to retain the same diagnosis (i.e. normal) post-LTx (17/25, 68%) than those with an abnormal motility diagnoses (4/15, 27%)(p=0.021), particularly those with EGJOO(1/6, 17%)(p=0.059). Nine of 15 (60%) patients with abnormal motility pre-LTx changed to normal motility post-LTx.
Obstructive disease: Before LTx, 8 (47%) patients exhibited abnormal motility, with the majority exhibiting EGJOO (4, 50%). The rest exhibited either IEM (2, 25%), absent motility (1, 12.5%) or hypercontractility (1, 12.5%). Nine (53%) exhibited normal motility.
Following LTx, about half (10, 59%) retained the same diagnoses, but patients with normal motility (5/9, 56%) were no more likely to retain the same diagnoses as those with abnormal motility (5/8, 63%). Only one of eight (12.5%) patients with abnormal motility changed to normal motility post-LTx, which is lower than that seen in patients with restrictive disease (p=0.07). Examination of the pH findings revealed that although acid exposure time (AET) was similar pre-LTx (restrictive 2.4(0.7-7.0) v obstructive 2.0(0.5-3.4); p=0.53), there was a decrease in AET in restrictive patients (1.7(0.3-3.5); p=0.05) but no change in patients with obstructive disease (3.7(0.6-10.1) p=0.31) post-LTx. Of note, mean nocturnal baseline impedance (5cm above the LES) was similar pre-LTx (1750(1139-2705) ohms v 1799 (1058-2540) ohms) and increased in restrictive patients (2480(1511-4413) ohms; p=0.002) but not in those with obstructive disease (1732(1173-2293) ohms; p=0.82), mirroring changes in AET.
Conclusion: Patients with restrictive lung disease are more likely to retain a diagnosis of normal motility or change to normal motility post-LTx than patients with obstructive lung disease. This appears to associate with improved acid exposure time and mean nocturnal baseline impedance. Further data are required on long-term outcome.
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Disclosure: Nothing to disclose.

PP0056

IMPACT OF A NOVEL BIPOLAR DEVICE ON ACCESSORY EXCHANGE AND POST-OPERATIVE PAIN AFTER PER-ORAL ENDOSCOPIC MYOTOMY: A MULTICENTER, PROSPECTIVE COHORT STUDY

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Introduction: POEM is an established treatment modality for achalasia cardia. Monopolar knives (MPK) are typically used for submucosal dissection as well as myotomy during POEM. More recently, a novel bipolar device (BPD) is commercially available for endoscopic dissection and resection procedures.
Aims & Methods: In this study, we aim to compare the performance of MPK with BPD during POEM. This is a prospective, multicenter cohort study including consecutive cases with achalasia cardia who underwent POEM using conventional MPK or a novel BPD from Dec 2019 to Jan 2023. The primary aim of the study was to evaluate the requirement for accessory exchange during POEM procedure.
The secondary objectives included technical success, procedure time, adverse events, post-procedure pain and clinical success (Eckardt≤3). Post-operative pain scores were assessed on the day of procedure and first post-operative day using a standardized scale i.e. visual analog scale (VAS). The severity of pain was graded as mild (0-30), moderate (>30-70) and severe (>70).
Results: 278 cases (40.9y, 162 males) with achalasia underwent POEM using either a monopolar knife (n=220) or bipolar device (n=58). All the procedures were performed by posterior route (5 O'clock). Median exchange of accessories was significantly lower in the BPD group [3 (2-8) vs 1 (1-2), p=0.001). The use of coagulation forceps for hemostasis or pre-coagulation was significantly less in the BPD group [1(0-6) vs 0(0-1), p=0.001]. There was no difference in technical success, procedure duration and adverse

events between the two groups. Post-operative pain was significantly less in the BPD group [40(20-90) vs 40 (20-80), p=0.021]. The proportion of cases with moderate to severe post-operative pain was significantly higher in the MPK group (79.6% vs 56.9%, p=0.001). (Table 1)

	Monopolar knife (N=220)	Bipolar device (n-58)	p
Technical success (%)	220 (100)	57 (98.3)	0.209
Mean procedure time, min (SD)	52.5 (16.3)	50.9 (18.7)	0.523
Exchange of accessories, median (range)	3 (2-8)	1 (1-2)	0.001
Use of coagulation forceps, median (range)	1 (0-6)	0 (0-1)	0.001
Pain score, median (range)	40 (20-90)	40 (20-80)	0.021
Pain severity (%)			
Mild	45 (20.5)	25 (43.1)	0.001
Moderate	168 (76.4)	32 (55.2)	0.003
Severe	7 (3.2)	1 (1.7)	1.000
Adverse events (%)	18 (8.2)	6 (10.3)	0.602
Mucosal injuries	5	1	
Capnoperitoneum	13	4	
Pleural effusion	0	1	

Table 1. Comparison of technical and clinical outcomes between the two groups.

Conclusion: The novel BPD is safe and effective for performing POEM procedures with the added advantage of minimum exchange of accessories and reduced post-operative pain as compared to MPK.

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PP0057

STRAIGHT LEG RAISE TEST: A NOVEL PROVOCATIVE TEST TO ASSESS ESOPHAGEAL CONTRACTION RESERVE IN NORMAL HRM COMPARED TO IEM

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Introduction: Provocative maneuvers are increasingly being performed during esophageal high-resolution manometry (HRM) in an attempt to increase the yield of the test. Recently, straight leg raise maneuver (SLR) (i.e., wet swallow with raised straight legs in supine position) has been proposed as a novel provocative test to evaluate esophageal reflux barrier and contraction reserve (CR) (i.e., augmentation of the esophageal contractile vigor following multiple rapid swallows, MRS). The rationale is that SLR augments intra-abdominal pressure, which has been shown to augment the contractile vigor of the esophagus.

Aims & Methods: The primary aim of this study was to investigate the relationship between the CR after multiple rapid swallows (MRS) and contractile vigor following SLR (i.e., obstructive stress reserve, OSR) in patients with normal esophageal manometry compared to those with ineffective esophageal motility (IEM). The secondary aim was to assess the characteristics of OSR in patients referred for gastroesophageal reflux disease (GERD) symptoms with normal manometry compared to those with IEM.

Between Nov 2021-Sep 2022, consecutive patients reporting GERD symptoms who underwent high-resolution manometry (HRM) were enrolled in two different esophageal centers (Pisa and Milano). GERD symptoms, height, and weight were recorded for all patients. Distal contractile integral (DCI) was analyzed during single water swallows (SS) (10 × 5 mL), MRS (3 × 2 mL), and SLR (2x5 mL). Preserved esophageal CR was defined as MRS/SS ratio was >1. Preserved OSR was defined as SLR/SS ratio >1. Data comparisons were performed using the independent sample t-test or the chi-square test, as appropriate. Pearson's correlation coefficient was used to investigate the correlation between the DCI following MRS and DCI during SLR in patients with normal peristalsis (group Normal) and IEM (Group IEM).

Results: 242 patients (145 female, mean age: 53.7±14.8 years) were enrolled. Heartburn was reported as the main symptom in 165/242 (68.2%) patients and mean BMI 23.5±6.3. Esophageal HRM was normal in 196/242 (81%) patients (122 female, mean age 54.6±14.7yrs and mean BMI 23.6±6.7) and IEM was detected in 46/242 (19%) patients (23 female; 52.9±15.4yrs and mean BMI 22.9±4.9) patients (p=NS). All detail of manometric tests was reported in Table 1.

Esophageal CR was observed during MRS in 110/196 (56.1%) in the normal HRM group and 25/46 (54.3%) (p=0.87) in the IEM group and OSR was seen in 131/196 (66.8%) and 31/46 (67.4%) (p>0.99) in IEM following SLR. The DCI response following MRS correlated with the DCI response following SLR. Pearson's correlation coefficient was 0.479 (p < 0.01).

	HRM normal (196)	IEM (46)	p
EGJ type 3	26	6	0.061
EGJ-CI	50.5±28.9	43.9±30.4	0.169
DCI mean (ss)	1622.5±935.9	449.3±451.3	<0.001
Ineffective (failed) mean	15 (5)	85 (35)	<0.001
DCI mean (MRS)	2103.4±1753.1	778.5±1124.8	<0.001
MRS/SS ratio	1.4±1.4	1.7±1.8	0.218
DCI mean (SLR)	3347.1±2456.5	1647.2±2521.8	<0.001
SLR/SS ratio	2.4±1.8	3±2.6	0.014

Table 1: High Resolution Manometry in patients with Normal HRM group and IEM group.

Conclusion: Swallowing against the resistance of increased intra-abdominal pressure from SLR improves esophageal body peristaltic performance and predicts esophageal body CR. The DCI response following SLR in patients with GERD is comparable to the DCI response after SS and MRS.

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Advisory: Astra Zeneca.

PP0058

EFFECT OF HIATAL HERNIA AND ESOPHAGOGASTRIC JUNCTION MORPHOLOGY ON OESOPHAGEAL MOTILITY. NEW EVIDENCES FROM HIGH RESOLUTION MANOMETRY

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Introduction: High-Resolution Manometry (HRM) is the most sensitive and specific test available for clinical assessment of hiatal hernia (HH), a common condition defined as the separation between the Lower Esophageal Sphincter (LES) and crural diaphragm (CD). While the link between HH and Gastroesophageal Reflux Disease (GERD) is established, the potential role of Hiatal Hernia in inducing oesophageal dismotility, independently form GERD, is uncertain.

Aims & Methods: We aimed to analyze whether the presence of HH, with or without GERD, is able to alter the oesophageal motility, in terms of Ineffective Peristalsis (IP), Jackhammer Esophagus (JE) or Outflow Obstruction (OO). Consecutive patients without previous esophageal surgery who underwent HRM between 2018 and 2022 were enrolled (56.8% females; mean age 57 years, CI 47 – 69; BMI 24.2, CI 21.5 – 26.8).

All patients with symptoms suspicious for GERD underwent impedance-pH testing off-therapy. HH was defined as a separation > 1 cm between LES and CD and esophagogastric junction (EGJ) morphology was classified as: Type I, no separation between LES and CD; Type II, minimal separation (>1 and <2 cm); Type III, ≥ 2 cm separation. Demographic characteristics collected included: age, gender, alcohol and coffee intake, smoke habits, GERD diagnosis and symptoms duration.

Two cohorts of patients, with and without HH, were individuated and the potential association with ineffective peristalsis, jackhammer esophagus and outflow obstruction was analyzed with univariate and multivariate logistic regressions.

Results: Eight-hundred-forty-eight patients were enrolled and 295 cases of HH (38.8%), subdivided in 199 (23.5%) Type II- and 96 (11.3%) Type III-EGJ patients were identified. Ineffective peristalsis was diagnosed in 162 (19.1 %) patients, jackhammer oesophagus in 32 (3.8 %), and outflow obstruction in 91 (10.7 %), while GERD was present in 473 (55.8%) patients. HH was significantly associated with ineffective peristalsis (P<0.001) and GERD (P<0.001).

Furthermore, HH resulted a risk factor for ineffective peristalsis (OR = 1.60, 95%CI 1.12-2.27, P<0.001) when the analysis was conducted in both all the 848 subjects and in patients without GERD (OR = 1.84, 95%CI 1.05-3.21, P=0.03). The risk for ineffective peristalsis was 1.3 time greater for every centimeter of HH. No statistically significant association was found between HH and outflow obstruction or jackhammer esophagus.

Conclusion: Increasing separation between LES and CD can cause a gradual and significant increasing risk of ineffective peristalsis. Interestingly, this association with HH is true not only in patients with but also in those without GERD. These results suggest that EGJ morphology seems to be able to alter esophageal motility as measured with High-Resolution Manometry.

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PP0059

ESOPHAGEAL CLEARANCE DETERMINED BY HIGH RESOLUTION IMPEDANCE MANOMETRY IN ACHALASIA : A NEW STANDARD?

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Introduction: Outcome after treatment of achalasia is usually assessed by the Eckardt score (ES). The timed barium esophagogram (TBE) is used to objectively assess esophageal clearance after treatment. High-resolution manometry with impedancemetry (HRiM) provides information on esophageal clearance of liquids in addition to motility parameters.

The aim of this study was to compare esophageal clearance determined by HRiM and TBE in patients with achalasia treated by POEM.

Aims & Methods: Consecutive patients treated with POEM had pre and post-POEM assessment with ES, TBE, and HRiM. Treatment failure was defined by an ES > 3 at 3 months post-POEM. Incomplete esophageal clearance (IEC) was defined by the presence of an esophageal stasis > 2 cm at 5 minutes in HRiM and/or TBE. All of the data available pre and post-POEM at 3 months was pooled for analysis. The correlation between ES, TBE and HRiM was evaluated by Spearman's method.

Results: Fifty patients with a median age of 65 years (23-84) were included in this study (85% with type 2 achalasia). The clinical response rate at 3 months was 94%. TBEM/HRiM results were available in (29/33) pre-POEM patients and (43/46) post-POEM patients at 3 months.

Overall, an IEC was found in 91% on TBE and in 50.8% on HRiM. The correlation between the ES and IEC in HRiM and TBE were respectively 0.66 and 0.31. The correlation between esophageal clearance values between TBE and HRIM was low (r=0.375). At 3 months after POEM, IEC was present in 90.7% and 21.7% for TBE and HRiM, respectively (p<0.001). In univariate and multivariate analysis, only IEC in HRiM was significantly associated with ES > 3 (RR = 17.0 (p < 0.001)). The HRiM AUC was 0.872 vs. 0.707 for the TBE (p<0.001). The diagnostic performance of HRiM to predict an ES > 3 was Se: 85%; Sp: 77%; PPV: 74%; NPV: 87% vs. Se: 95%; Sp: 11%; PPV: 42%; NPV: 83% for the TBE. Data at one year will be available for the presentation.

Conclusion: In achalasia, the evaluation of esophageal clearance by HRiM is better correlated with ES than TBE and may be a relevant criterion for pre and post-therapeutic evaluation. Additional studies are underway to validate the relevance of this parameter more specifically in the evaluation of treatments for esophageal achalasia.

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PP0060

COMPARISON OF MANOMETRIC AND CLINICAL RESULTS OBTAINED WITH ENDOSCOPIC BALLOON DILATION VS POEM FOR THE TREATMENT OF ACHALASIA

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Introduction: Oesophageal achalasia is a motility disorder characterized by the lack of relaxation of the lower oesophageal sphincter and absence of normal oesophageal motility. Among endoscopic techniques to treat achalasia, highlight peroral oesophageal endoscopic miotomy (POEM) and endoscopic balloon dilatation (ED).

Some studies demonstrate that ED could achieve similar results to traditional surgical technique (Heller miotomy). However, studies comparing POEM and repeated ED protocols are lacking.

Aims & Methods: Objectives: To compare manometric and clinical data from a group of patients with achalasia treated with a 2-session endoscopic dilatation protocol (EDx2) vs POEM.

Material and Methods: We performed a retrospective review of oesophageal high-resolution manometry (HRM) and clinical records of patients with achalasia treated with EDx2 (30 and 35 mm balloon separated by 2 weeks) or POEM.

Only patients with pre and post-treatment HRM were included. Data regarding epidemiological (age, sex), clinical (Eckardt score, complications) and HRM (integrated relaxation pressure, achalasia subtype, rapid drink challenge) were recorded. Technical success was defined as post-treatment IRP < 15 mmHg, clinical success was defined as post-treatment Eckardt score < 3 points, and global success when both conditions were present

Results: Sixty-one patients were included, 32 treated with EDx2 and 29 with POEM. Of those, 67% were type II, 20% type III and 13% type I achalasia. Main baseline characteristics were similar between groups except for a higher baseline Eckardt score in POEM.

Both techniques show similar results regarding technical success (69% DB vs 86% POEM, p=ns), clinical success (93 DB vs 93% POEM, p=ns) and overall success (61% DB vs 79% POEM, p=ns). However, when analysing the success according to subgroups of achalasia, we found a trend to greater overall success with POEM in type III achalasia (EDx2 33% vs POEM 100%, p=0.06).

No differences were found between both techniques in overall success for type II (68% DB vs 79% POEM, p=ns) and type I (67% DB vs 60% POEM, p=ns) achalasia.

Conclusion: A 2-session endoscopic dilatation protocol achieved therapeutic success similar to POEM in type I and type II achalasia. In type III achalasia, POEM seems superior to endoscopic dilatation.

Disclosure: Nothing to disclose.

PP0061

HIGH RESOLUTION ESOPHAGEAL MANOMETRY (HREM) - UPRIGHT OR SUPINE, IS THERE A DIFFERENCE?

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Introduction: Based on the Chicago classification, HREM diagnosis is classically based on metrics obtained with wet swallows carried out in the supine position. However, both patients and physicians often feel that this is not a physiological position to conduct the test as it may not translate to the real world experience. With the patient in the upright/sitting position, the test would more closely simulate real-life behaviour and may be safer for elderly patients at risk of aspiration.

Aims & Methods: In an Asian tertiary centre, a total of 104 patients had undergone high resolution esophageal manometry (HREM) with retrospective data analysis comparing both conventional supine position with the upright position. The latter is generally favoured by all patients as this represents the physiological posture during meals.

Results: Using 2-tailed paired sample T-test, comparison across all cases showed a consistently lower median Integrated Relaxation Pressure (IRP) [6.0 mmHg vs to 8.7 mmHg; p <0.01] and lower mean Distal Contractile Integral (DCI) [1463 mmHg/cm/sec vs 1864 mmHg/cm/sec; p =0.014] in the upright posture compared to supine position although the mean Distal Latency (DL) difference was not significant [6.21secs vs 6.27 secs; p =0.491].

During upright and supine position comparison respectively, subgroup analysis on subjects with normal HREM diagnosis showed even lower median IRP [4.9 mmHg vs 7.5 mmHg; p <0.01] and lower mean DCI results [1436 mmHg/cm/sec vs 1695 mmHg/cm/sec; p <0.01] with mean DL in this subgroup showing no significant statistical difference [6.29 secs vs 6.38secs; p=0.545].

The final HREM diagnosis in upright position is concordant with the conventional supine position up to 81.7% and showed an even higher concordance in terms of management similarity up to 98.1%. Only 2 cases (2/104) showed a significant discordance between supine and upright HREM diagnosis [normal HREM vs esophagogastric juntion –outflow obstruction(EGJ-OO) and hypercontractile esophagus vs normal HREM]. Minor diagnostic discordance [normal HREM vs ineffective esophageal motility (IEM)] was noted in 17/104 cases which had no major clinical impact on patients and may be overcome by adopting a lower cut-off for mean DCI for upright group.

Conclusion: In patients who are unable to perform HREM in supine position, adopting the upright position shows a high clinical concordance and may be considered a more physiological approach in the HREM protocol.

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Disclosure: Nothing to disclose.

PP0062

MANOMETRIC CHANGES AND FACTORS ASSOCIATED WITH POST-TREATMENT PERISTALSIS RETURN IN ACHALASIA

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Introduction: Limited studies have described changes in esophageal manometry patterns after achalasia treatment.

Aims & Methods: Aims: To describe manometric changes and determine factors associated with post-treatment peristalsis return.

Methods: Ninety-one consecutive patients with achalasia [60F, age 47±16 years, 34 with type I, 46 with type II, 11 with type III] were included in the study and underwent high-resolution esophageal manometry (Manoscan, MN, USA) in the upright position before and 1-3 months after treatment [pneumatic balloon dilation (n=60) or per-oral endoscopic myotomy (n=31)]. Post-treatment peristalsis was classified as normal, weak, and premature contraction according to the Chicago classification v.4.0. Clinical characteristics were recorded.

Results: Nine patients (9.9%) had post-treatment peristalsis return with average prevalence of 5(2-5) times in 10 wet swallows. Of the 40 peristalsis returns, there was no instances of peristalsis with normal contraction vigor (distal contractile integral, DCI 450-8000 mmHg•s•cm) and normal distal latency (>4.5s). 17(42.5%) returns had normal contraction vigor with premature contraction and 23(57.5%) had weak contraction. Of these weak contractions, only 1 contraction had a normal distal latency, while 22 contractions had a short distal latency. The patients with post-treatment peristalsis had a median Eckardt score of 0 (0-1) with a median global symptom improvement of 85(80-96%). Age, gender, BMI, achalasia subtype, treatment type, baseline basal lower esophageal sphincter pressure, baseline median IRP, and treatment outcomes were not significantly different between patients with and without peristalsis return.

	A1	A2	A3	A4	A5	A6	A7	A8	A9
Age	58	17	56	59	36	65	60	49	37
Gender	F	F	M	F	F	F	F	F	F
Pre-treatment type	1	2	2	2	1	1	2/3	2	2/3
Procedure	PD	POEM	POEM	POEM	PD	PD	POEM	PD	POEM
Pre-treatment Median IRP	39.45	22.55	23.45	35.15	20.85	25.6	8.5	35.85	33.35
Post-treatment Median IRP	12.35	6.25	29.15	50	16.95	17.1	10.45*	4.8	17.9
Number of peristalsis	10/10	6/10	3/10	3/10	5/10	1/10	4/10	5/10	3/10
Post treatment Eckardt score	0	0	0	0	2	0	1	0	7
Global symptom improvement	95%	100%	80%	100%	60%	80%	90%	100%	80%

* High intragastric pressure

Conclusion: The study found that post-treatment peristalsis recovery with weak and premature contractions occurred in 10% of patients with achalasia and was not significantly associated with clinical or manometric factors or short-term treatment outcomes.

Disclosure: Nothing to disclose.

PP0063

SALVAGE PERORAL ENDOSCOPIC MYOTOMY IS A PROMISING TREATMENT FOR ACHALASIA FOLLOWING A MYOTOMY FAILURE

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Introduction: Reintervention modalities following myotomy failure in achalasia patients have yet to be established. The efficacy and safety of salvage peroral endoscopic myotomy (POEM) for treatment of achalasia following a myotomy failure were evaluated in the study.

Aims & Methods: Between August 2011 to August 2021, at the Endoscopy Center of Zhongshan Hospital, 219 achalasia patients who had previously undergone a myotomy underwent a salvage POEM and were thus retrospectively enrolled in this study. After propensity score matching (PSM), operation-related parameters were compared between the salvage POEM group and the naïve POEM group. Subgroup analysis was performed between patients with previous heller myotomy (HM) and patients with previous POEM.

Results: With similar baseline characteristics between both groups after PSM, the salvage POEM group presented with shorter tunnel length (11.8±2.2 *vs.* 12.8±0.9, $p<0.0001$) and myotomy length (9.8±2.0 *vs.* 10.4±1.0, $p<0.0001$) than the naïve POEM group. There were no significant differences in procedure-related adverse events (AEs) between patients of salvage POEM and naïve POEM.

The primary outcome of treatment success occurred in 175 of 193 patients (90.7%) in salvage POEM group *vs.* 362 of 374 patients (96.8%) in naïve POEM group ($p = 0.0046$).

Significantly higher rate of clinical failures were observed at the 2-year and 5-year follow-ups in the previous HM subgroup than the previous POEM subgroup ($p = 0.0433$, $p = 0.0230$, respectively).

Conclusion: Salvage POEM following a previous myotomy failure, especially after POEM failure, is a promising treatment option as it has a durable clinical relief rate.

Disclosure: Nothing to disclose.

PP0064 WITHDRAWN

PP0065

EFFICACY EVALUATION OF PERORAL ENDOSCOPIC MYOTOMY USING 320-ROW AREA DETECTOR COMPUTED TOMOGRAPHY

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Introduction: Per-oral endoscopic myotomy (POEM) for esophageal achalasia and related diseases is widely performed worldwide because of its effectiveness and low invasiveness. The Eckardt score is often used as a method to evaluate the therapeutic effect of POEM, but it is a subjective evaluation of the patient and has a drawback of poor objectivity.

Conventional barium swallow can observe esophageal dynamics in real time, but it is a two-dimensional image evaluation, and it is difficult to ad-

equately assess the esophageal volume and luminal area. High resolution manometry (HRM) also provides a detailed view of esophageal contractions but does not accurately assess esophageal dynamics.

Aims & Methods: To verify the effectiveness of POEM, we performed 4D analysis using 320-row area detector computed tomography (320-ADCT), adding time axis to the 3D image, and evaluated the steric movement of the esophagus. Images were created by sitting in a Fowler's position at approximately 45 degrees on a 320-ADCT table and taking continuous images for 10 seconds at the same time as the start of contrast swallowing.

Among patients who underwent POEM in our hospital from December 2020 to May 2022, 22 patients with disorders of EGJ outflow (achalasia and EGJOO) were included. 320-ACDT images were taken before and after POEM to assess the maximum esophageal diameter and esophageal lumen area at the lower esophageal sphincter (LES). Esophageal emptying was evaluated by calculating the time integral to the esophageal internal volume.

Results: The median age of the patients was 58 years (18 -87), with 11 males and 11 females. The disease was type I achalasia in nine patients, type II achalasia in eight, type III achalasia in one, and EGJOO in four. POEM was completed in all patients, and the median Eckardt scores decreased from 7 to 1 ($p < 0.001$).

On HRM, integrated relaxation pressure (mmHg) decreased significantly from 30.5 to 9 and LES pressure (esleeve) (mmHg) decreased from 46.1 to 16.7 ($p < 0.001$). In the 320-ADCT images, the maximum esophageal diameter (mm) at the LES level significantly increased from 2.1 to 7.7 and the maximum esophageal area (mm^2) from 2 to 23 before and after POEM ($p < 0.001$).

The volume time integral (ml-s) decreased significantly from 602 to 82 ($p < 0.001$), indicating an improvement in esophageal emptying. In the comparison of esophageal type I achalasia and type II achalasia, the rate of decrease in volume time integral was significantly lower in type I achalasia (44% vs 85%, $p = 0.027$).

When comparing patients with and without gastroesophageal reflux disease (GERD) after POEM, there was no difference in the length of the myotomy, but in patients with GERD, the amount of extension from resting to maximum at the LES level of the esophagus was significantly greater in both esophageal diameter (7 mm vs 4 mm, $p = 0.048$) and esophageal area (25 mm^2 vs 9 mm^2, $p = 0.006$).

Conclusion: The improvement of esophageal distensibility at LES level and esophageal emptying by POEM could be evaluated objectively by esophageal 4D analysis using 320-ADCT. The extent of esophageal distensibility at the LES level was also determined as a risk of post-POEM GERD. 4D analysis with 320-ADCT may be a new tool to assess esophageal motility.

Disclosure: Nothing to disclose.

PP0066

ENDOLUMINAL FUNCTIONAL LUMINAL IMAGING PROBE IS SUPERIOR TO MANOMETRY IN ASSESSING PREVIOUSLY TREATED ACHALASIA PATIENTS WITH SYMPTOM RECURRENCE

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Introduction: There are no agreed guidelines to inform the approach to previously-treated achalasia patients presenting with recurrent symptoms. The decision to proceed to re-intervention is often based mainly on the clinical presentation and data arising from barium swallow studies and upper gastrointestinal endoscopy.

Aims & Methods: We evaluated Endoluminal functional luminal imaging probe (EndoFLIP) and High Resolution Manometry (HRM) value in such a setting. We selected patients from a prospectively-kept database with previously-treated achalasia (including Per Oral Esophageal Myotomy (POEM), Heller myotomy (LHM), pneumatic balloon dilatation (PBD) and botulinum toxin injection (BTX; only if submitted the last six months) presenting with symptom recurrence during an 8-year period (11/2015-2/2023).

Only those with assessable EndoFLIP data (distensibility index (DI) at 40ml balloon inflation volume) and planned for re-intervention with POEM according to clinical judgment were included in the study. Baseline data were analyzed retrospectively. Consecutive naïve-to-treatment patients formed the control group.

Results: N=70 patients (25 treated vs 45 naïve) were included in the study (F=38; mean age 43 (17-78yrs). The majority of patients were previously submitted to pneumatic balloon dilatation (n=13), 5 were submitted to POEM A to Heller myotomy and 3 had botox treatment during the last six months before assessment.

Table 1 lists the main demographic and investigative parameters. DI of treated patients was significantly decreased among patients without barium clearance at 5 min (1.8±0.9 vs 2.5±1.6, p=0.017) and was correlated to height of barium column (r=-0.439, p=0.015), fact not observed for IRP (29.1±13.5 vs 21.5±8.8, p=0.017 and r=0.266, p=0.319, respectively). DI was not correlated to IRP4s in treated patients (r=-0.168, p=0.374) in comparison to naïve (r=-0.227, p=0.046). Neither DI, IRP, nor barium column at 5 min were correlated to patients Eckardt score among treated patients (p=0.494, p=0.998, p=0.734 respectively).

	Previously treated	Treatment-naive	p
Male:Female	25/20	13/12	0.807
Manometric sub-type (1, 2, 3)			
1 vs 2	10/13	11/28	0.271
1 vs 3	10/1	11/1	1.000
2 vs 3	13/1	28/1	1.000
Unclassified/classified	1/25	5/40	0.410
Positive barium swallow signs	(20/22) 90.9[HB1] %	(31/37) 83.3%	0.362
Delayed clearance of barium at 5 mins	(25/34) 73.5%	(14/19) 73.7%	0.551
Height of barium standing column (cm)	5.3± 6.0	4.2±4.6	0.551
Mean IRP4s (mmHg)	21.1 ± 12.6	27.9±11.3mm	0.06
IRPs 4s <15mmHg	(4/15) 26.7[HB2] %	(2/39) 5.1%	0.04
Mean DI	2.6±1.6	1.8±1.0	0.017

Table 1.

Conclusion: DI is impaired and correlated to height of barium swallow in 5 minutes in previously treated achalasia patients presenting with symptom recurrence and can be used as an objective metric to tailor re-intervention in conjunction to barium swallow. DI is significantly reduced among treated in comparison to naïve achalasia patients. HRM cannot with certainty navigate treatment decisions in approximately half of treated patients. Future studies that may define specific diagnostic DI cut-offs for patients with recurrence of achalasia symptoms needing re-intervention are needed.

Disclosure: Nothing to disclose.

PP0067

FROM AMINO ACIDS TO MUSCLES: WEIGHT GAIN ANALYSIS IN ACHALASIA PATIENTS AFTER POEM USING NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

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Introduction: Untreated symptomatic achalasia leads to decreased caloric intake due to adjustment of the composition of the diet to impaired esophageal emptying. Peroral endoscopic myotomy (POEM) provides reversion of normal eating pattern with consequent weight gain.

We performed in-depth analysis of the metabolomic composition of blood plasma before POEM and the composition of the gained tissue mass 3 months after POEM using nuclear magnetic resonance spectroscopy and bioimpedance scale.

Aims & Methods: Consecutive patients with symptomatic untreated achalasia were included in the study. At the first visit (hospital admission due to POEM procedure), we evaluated Eckardt score, obtained blood metabolomics using nuclear magnetic resonance (NMR) spectroscopy and nutrition-related parameters obtained using bioimpedance scale (body weight, muscle and fat weight). At the second visit 3 months after the POEM procedure, the same NMR metabolomic and nutritional parameters were obtained.

Results: 43 patients (22M/21F) were included in the study. The symptoms significantly improved 3 months after the POEM procedure (Eckardt score 6.86±1,92 vs. 0,71±0,77, p<0.0001). The average overall weight gain was 5,58±5,05 kg, average fat gain was 1,77±3,33 kg and average muscle gain was 1,33±4,78kg. We also determined the difference in the muscle and fat contribution to the weight of the patient (pre and post POEM, expressed in %). We performed correlation analyses between the amount of amino acids before POEM and the gain of the muscle weight and fat weight.

We observed that the individual levels of branched chain amino acids (valine, leucine, isoleucine) (BCAA), their keto acids (ketovaline, ketoleucine, ketoisoleucine) and levels of glutamine, histidine and lysine before POEM were positively correlated with the % of muscle gain (p values in range 0.03-0.0004) and inversely correlated with the % of fat gain (p values in range 0.01-0.00001, Pearson correlation).

Conclusion: Our analysis revealed that post POEM muscle mass gain is directly correlated to the amount of proteogenic amino acids in circulation before the intervention. The level of BCAA before POEM showed consistent positive correlation to the increase of the muscle mass 3 months after POEM.

This finding could further serve as a guidance for nutrition strategies in patients with yet untreated achalasia and also in the broader spectrum of patients with impaired caloric intake. We suggest that achalasia could serve as a study model for metabolic changes related to restored normal dietary pattern. Supported by VEGA 1/0060/23.

Disclosure: Nothing to disclose.

PP0068

SINGLE-CENTER EXPERIENCE OF PERORAL ENDOSCOPIC MYOTOMY IN PAEDIATRIC PATIENTS

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Introduction: Peroral endoscopic myotomy (POEM) has become the mainstay of treatment of oesophageal achalasia in adult patients and recently also gained acceptance as effective therapy of achalasia in paediatric population. Here we retrospectively reviewed prospectively collected children with achalasia that had been treated with POEM at our institution.

Aims & Methods: Patients that were hospitalized in the Paediatric Clinic for POEM procedure from 11/2017 to 05/2023 were included. All patients had achalasia confirmed by high resolution manometry (HRM). We evaluated their symptoms in terms of duration and intensity (Eckardt score) and the integrated relaxation pressure (IRP) obtained by HRM before POEM. 3 months after POEM during the follow-up visit we determined Eckardt score, IRP and the presence of reflux oesophagitis on upper endoscopy. When finalizing the abstract we conducted a brief telephone survey to determine Eckardt score and presence of reflux symptoms.

Results: 10 patients (6 boys and 4 girls), mean age 11.5 (5-18) years were included. 9 of these patients received POEM as their first therapy for achalasia, 1 patient had been previously treated surgically via thoracotomy. The median of the duration of symptoms was 8.5 (range 1-36) months. All patients were diagnosed with type I achalasia according to Chicago classification. Eckardt score decreased significantly 3 months after POEM (7.38±1.68 vs. 0.63±1.06 before and after POEM, respectively, p<0.0001) and sustained unchanged (0.4±0.66) during the median follow-up of 21.5 months (range 1-60 months). IRP also significantly decreased after the intervention (46.5±11.1 mmHg vs. 3.8±5.68 mmHg; before and after POEM, respectively, p=0.0001).

Complications occurred in 2 patients. Pleuropneumonia in one patient led to extension of hospital stay and was solved conservatively. Upper GI bleeding occurred in one patient 2 weeks after discharge, was self-limited without any obvious source found. Follow-up endoscopy was performed off PPI therapy and revealed mild esophagitis (LA A) in 2 patients that also reported mild heartburn.

Conclusion: POEM represents an effective therapy for achalasia in paediatric population in mid-term follow-up as it significantly improves symptom and provides effective decrease of the IRP. Although in our case series no severe heartburn or reflux esophagitis occurred, more data with longer follow up are needed to prove either long-term safety with regard to the reflux issue and the need for long term PPI therapy in these patients. Supported by VEGA 1/0060/23.

Disclosure: Nothing to disclose.

PP0069

TIMED BARIUM ESOPHAGRAM TO CONFIRM PRESENCE OF ACHALASIA IN PATIENTS WITH INCONCLUSIVE DIAGNOSIS OF ACHALASIA DURING HIGH-RESOLUTION MANOMETRY

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Introduction: According to Chicago Classification version 4.0 a diagnosis of absent contractility and esophagogastric junction outflow obstruction (EGJOO) during high-resolution manometry (HRM), are both considered inconclusive diagnoses of achalasia, thus requiring presence of relevant symptoms such as dysphagia, and additional supportive tests, including timed barium esophagram (TBE) or functional lumen imaging probe (FLIP), in order to confirm the presence of achalasia and treat accordingly.

Aims & Methods: Aim: To evaluate the clinical utility of TBE and FLIP to further confirm diagnosis of achalasia in patients with inconclusive diagnosis of achalasia per HRM.

Methods: We conducted a retrospective study in patients referred for evaluation of dysphagia from December 2021 until December 2022 . Patients completed an upper gastrointestinal endoscopy and HRM per Chicago classification v.4.0. Those patients with an inconclusive diagnosis of achalasia during HRM, either absent contractility or EGJOO, followed by additional assessment with TBE and/or FLIP were included. Patients with anatomic lesions of the esophagus (i.e Schatzki ring, esophageal diverticula), esophageal surgery and chest radiotherapy were excluded.

Results: A total of 101 consecutive patients were referred for evaluation and 29 patients were included for analysis. Median age was 71 (p=0.58) and 65.51% of the patients were female (p=0.1). Of the 29 patients who had an HRM diagnosis of inconclusive achalasia, 55.17 % had absent contractility and 44.82% were diagnosed with EGJOO. After completing a TBE, 28.68 % of those patients had an abnormal result (delayed TBE). There was a significant correlation between an inconclusive diagnosis of achalasia per HRM and delayed TBE (OR 3.83 95 % CI [1.36-10.79], p=0.001). Furthermore, diagnosis of EGJOO was significantly correlated with esophageal stasis and delayed TBE (p=0.025).

Additionally, we found a significant correlation between inconclusive diagnosis of achalasia and confirmation of achalasia with FLIP in one patient (p=0.0008). All patients were referred for achalasia-treatments.

Conclusion: Patients classified as inconclusive diagnosis of achalasia during HRM benefit from additional supportive testing with TBE to confirm the presence of achalasia, therefore, provide treatment.

Disclosure: Nothing to disclose.

PP0070 WITHDRAWN

PP0071

IMPACT OF OVERWEIGHT AND OBESITY ON THE INTERPRETATION OF HIGH-RESOLUTION ESOPHAGEAL MANOMETRY PARAMETERS

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Introduction: Evidence is scarce regarding the impact of overweight and obesity on the interpretation of high-resolution esophageal manometry (HREM) parameters. We aimed to investigate whether the presence of overweight and/or obesity influences the HREM parameters.

Aims & Methods: Retrospective cohort study including adult patients undergoing HREM (Manoscan® 36-sensor probe) between 2019-2022, regardless of the indication, with measurement of height and weight at the time of HREM. A HREM diagnosis was obtained according to the Chicago 4.0 classification and the following HREM parameters were collected: esophageal length, length and type of esophagogastric junction (EGJ), presence and extent of hiatal hernia, minimum basal, mean and residual lower esophageal sphincter pressures, basal and residual upper esophageal sphincter pressures, percentage of failed, weak, ineffective, with pressurization, premature, fragmented, intact, hypercontractile swallows and mean and after multiple rapid swallows distal contractile integral.

Body mass index (BMI) was calculated, and patients were categorized as underweight (<18.5), normal weight (18.5-24.9), overweight (25-29.9) and obesity (≥30). The relationship between BMI and its categories with the HREM parameters was evaluated.

Results: A total of 249 patients were included, mostly women (59.8%) with a mean age of 56 ± 14 years. The median BMI was 26 (IQR 5) kg/m2 and 115 (46.2%) patients were overweight, 91 (45.7%) normal weight and 43 (17.3%) obese. A normal HREM (51.8%), followed by ineffective esophageal motility (21.7%) and EGJ outflow obstruction (8.8%) were the most frequent HREM diagnoses. There were no statistically significant differences between the presence of overweight and/or obesity and the HREM parameters evaluated, regardless of the HREM diagnosis.

Conclusion: Overweight and obesity do not seem to influence HREM parameters, so its interpretation should not be influenced by these factors.

Disclosure: Nothing to disclose.

PP0072

INTEGRATED RELAXATION PRESSURE ON HIGH RESOLUTION MANOMETRY DIFFERS BETWEEN MEASUREMENT ACROSS LOWER ESOPHAGEAL SPHINCTER ALONE VS. CRURAL DIAPHRAGM IN THE PRESENCE OF A HIATUS HERNIA

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Introduction: An intact esophagogastric junction (EGJ) barrier consists of the lower esophageal sphincter (LES) in the same anatomical plane as the crural diaphragm (CD). When there is separation between the planes of the LES and the CD, the morphology of the EGJ is disrupted, and a hiatus hernia is identified on high resolution manometry (HRM). The integrated relaxation pressure (IRP) is typically measured as the nadir residual pressure across the EGJ during swallow induced LES relaxation.

Aims & Methods: Our aim was to determine if measurement of the IRP across the LES, both LES and CD, and across the CD alone yields different values, and whether differences, if any, have clinical implications. All patients undergoing HRM during a 3-year period at a tertiary facility were eligible for inclusion; incomplete studies were excluded. Demographics and esophageal function testing results were extracted from patient records. EGJ morphological subtypes consisted of type 1 when LES and CD were superimposed; type 2 when LES-CD separation was <3 cm, and type 3 when separation was ≥3 cm. Standard analysis consisted of IRP measured across the entire EGJ in type 1 and 2 EGJ, and across LES in type 3 EGJ. IRP was calculated across LES and CD, separately as well as together in type 2 and type 3 EGJ. An IRP threshold of <15 mmHg defined normal EGJ relaxation. Categorical variables were compared using chi square, and continuous values using Mann Whitney U. Absolute IRP values, and proportions with outflow obstruction were compared between EGJ morphological subtypes, and between LES IRP and CD IRP when a hernia was identified.

Results: Data from 467 patients (median age 54.0 years, 68.7% female, median body mass index 30.5 kg/m^2) were analyzed, of which 61.2% had type 1 EGJ, 28.7% had type 2 and 10.1% had type 3 (Table).

	Type 1	Type 2		Type 3	
	n=286	*n=134*		*n=47*	
Median IRP (mmHg)	6.1 (3.0-9.6)	5.5 (2.9-9.5)		8.5 (2.0-12.1)	
EGJCI (mmHg.cm.s)	29.4 (17.2-48.4)	19.0 (5.1-35.4)		18.6 (5.5-37.2)	
IRP>15 mmHg	21 (7.4%)	5 (3.7%)		6 (12.8%)	
Total AET (%)	2.6 (0.7-6.6)	5.5 (2.2-9.3)		5.3 (1.2-9.8)	
		LES	CD	LES	CD
n	286	134	133	47	24
Median IRP (mmHg)	6.1 (3.0-9.6)	0.0 (0.0-3.0)	4.4 (1.5-7.0)	8.5 (2.0-12.1)	3.3 (1.0-5.6)
IRP >15 mmHg	21 (7.4%)	1 (0.8%)	1 (0.8%)	0 (0.0%)	1 (4.2%)

Values are reported as median (interquartile range) or number (percent).

Table.

Using standard methodology, the median IRP was similar in the three morphological subtypes. However, when a hernia was present, IRP across the EGJ was significantly higher than that across either LES or CD (p<0.001), and LES IRP was significantly different from CD IRP (p<0.001). In type 2 EGJ, median IRP across LES was lower across the LES compared to CD (p<0.001). The CD was not traversed in 23 of 47 type 3 EGJ; in the remainder, LES IRP was similar to CD IRP (p=0.784). Of 11 patients with IRP>15 mmHg within types 2 and 3 EGJ, only 3 patients had persistent IRP elevation when LES and CD were separately assessed. Median AET increased as separation between LES and CD increased; patients with elevated IRP had normal AET (0.9, IQR 0.2-6.2). After differential IRP measurement, abnormal IRP was most frequent with type 1 EGJ, and IRP elevation across CD alone was rarely encountered.

Conclusion: In the presence of a hiatus hernia, the IRP across LES and CD together is higher than IRP recorded separately across LES and CD. We speculate that this is because the IRP measurement tool might be picking up pressurization within the hiatus hernia when IRP is measured across both LES and CD. Differential assessment of IRP across LES and CD can reduce over-diagnosis of outflow obstruction.

Disclosure: Nothing to disclose.

PP0073

BARIUM ESOPHAGRAMS HAVE THE HIGHEST YIELD IN EXCLUDING CLINICALLY IRRELEVANT ESOPHAGOGASTRIC JUNCTION OUTFLOW OBSTRUCTION – A CROSS SECTIONAL STUDY

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Introduction: The Chicago classification 4.0 (CC4) definition of esophagogastric junction (EGJ) outflow obstruction (EJGOO) was made more stringent than the CC3 iteration to limit overdiagnosis of a disorder of undetermined significance. A clinically relevant EGJOO (Cr-EGJOO) diagnosis in CC4 requires a combination of relevant symptoms, high resolution manometric (HRM) criteria, and adjunctive tests instead of elevated supine median integrated relaxation pressure (IRP) alone in CC3.

Aims & Methods: We aimed to explore the importance of each component (symptoms, HRM, and adjunctive tests) in excluding or establishing Cr-EGJOO.

We included all patients undergoing esophageal HRM since 01/2020-12/2021, (both CC3 and CC4 protocols).

We excluded patients with inadequate tests. Positive symptoms were dysphagia/chest pain.

Adjunctive tests: Barium esophagrams were either timed or with a barium tablet. Functional lumen imaging probe (FLIP) tests were categorized as limited, borderline, or normal EGJ opening.

We also applied the same Cr-EGJOO criteria on the CC3 group (mandating relevant symptoms and adjunctive tests). We examined the proportion of EGJOOs excluded by each component.

Results: We included 486 (CC3, n=198, CC4, n=288) patients, with a median age of 58.7 years, 59% were female patients.

There were 100 (20.6%) with an elevated IRP in at least one position and normal peristalsis. Symptom data were available for all 100 patients and excluded Cr-EGJOO in 24%, barium esophagrams available for 85 and excluded Cr-EGJOO in 78.8%, FLIP was available in 11 patients (all had an esophagram). It rejected Cr-EGJOO in 63.6%, was borderline in 9.1%, and positive in the 27.3%. HRM criteria excluded Cr-EGJOO in 37.1% of the CC4 group. Note, most (93.1%) elevated IRPs were in the supine position.

Consequently, we could apply the Cr-EGJOO criteria on 85 patients with

complete data (68 and 17 patients in the CC4 and CC3 groups, respectively). In the CC4 group the EGJOO rate was reduced from 27.3% to 3.1%, and in the CC3 group from 11.1% to 5.3%. Patients with an elevated IRP in at least one position and a positive adjunctive test were invariably symptomatic, but most symptomatic patients did not have Cr-EGJOO.

	Patients with an elevated IRP in at least one position, n=100	Chicago 3 (n=22)	Chicago 4.0 (n=78)
Age (y)	62.6 (49 – 70.2)	64.8 (50.7 – 70.9)	62.3 (49 – 70)
Female sex *	70 (68.6)	**20 (91)**	**50 (64)**
BMI	26.5 (22 – 31.5)	27.6 (21.1 – 33.5)	26.4 (22.1 – 31)
Mean LES pressure	40.1 (29 – 52.4)	43.3 (31.6 – 54)	39.8 (27.9 – 52.3)
Median supine IRP	19.2 (16.8 – 22.3)	19.3 (16.9 – 23.2)	19.2 (16.8 – 22.3)
Median upright IRP	See CC4	-	14 (9.5-19)
normal peristalsis %	87 (67 – 100)	86 (20.8 – 100)	87 (73 – 100)
Dysphagia	69 (69)	19 (86.4)	50 (66.7)
Chest pain	14 (14)	4 (18.2)	10 (12.8)

Conclusion: The updated CC 4.0 criteria considerably reduce the diagnosis rate of EGJOO diagnosis. Barium esophagrams had the highest yield in excluding clinically irrelevant cases, highlighting the importance of utilizing this non-invasive, readily available test to avoid unnecessary worry and invasive treatments.
Disclosure: Nothing to disclose.

PP0074

PATIENTS WHO ARE OLDER THAN 65 HAVE HIGHER RATES OF CLINICALLY RELEVANT ESOPHAGOGASTRIC JUNCTION OUTFLOW OBSTRUCTION AND HIGHER INTEGRATED RELAXATION PRESSURES

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Introduction: High resolution esophageal manometry (HRM) is commonly used to assess esophageal motility disorders. Data about the effect of age on HRM parameters and diagnoses are contradictory.
Aims & Methods: We aimed to explore the effect of age on HRM parameters and diagnoses in those under and above the age of 65.
We included all patients undergoing HRM within our institution between 2020-2021 (across both Chicago Classification 3 and 4 protocols). Clinically relevant esophagogastric junction outflow obstruction (EJGOO) was defined as having dysphagia or chest pain, elevated integrated relaxation pressure (IRP) in both positions where available, and positive adjunctive tests. Adjunctive tests included timed barium esophagrams, esophagram with a barium tablet, and/or functional lumen imaging probe (FLIP) tests.
Results: Of 486 included patients, 59% were female patients, 81% white, 3% Hispanic. There were 151 (31%) aged 65 and older and 335 (69%) younger than 65. The age≥65 vs. under 65 groups had similar proportions of female patients (61% vs.58%), race and ethnicity distribution, though older patients had lower median (IQR) BMI (26 [23-30] vs. 27 [24-31], p=0.023)
The age≥65 group had a higher IRP and mean lower esophageal sphincter pressure (LES) compared to the age<65 group, p<0.01 for both. Additionally, patients older than 65 had a higher rate of both manometric and clinically relevant EGJOO (p<0.001 for both), and a lower rate of hypomotility diagnoses. See table for details.

Multivariable logistic regression showed that age was independently associated with EGJOO per CC3 (elevated IRP in at least one position [upright or supine] and normal peristalsis): OR= 1.72 (95% CI 1.35-2.19, p<0.001) for each 10-year increase in age and after adjusting for sex, BMI and the study protocol (Chicago 3 or 4).
Furthermore, within the group of patients with EGJOO per CC3, the odds of being diagnosed with clinically relevant EGJOO were 4.28 (95% CI 1.34-13.7, p=0.014) for each 10-year increase in age and adjusting for the same variables.

	Total Cohort n=486	Younger than 65 n=335	65 and older n=151	P vlaue
Mean LES pressure (mmHg)	26.1 (15.7 - 39.3)	**25 (14.2 - 36.5)**	**29.1 (17.8 - 43.5)**	**0.004**
Median IRP (mmHg)	9 (4.8 - 14.4)	**8.5 (4.2 - 13.3)**	**10.7 (5.9 - 18.2)**	**<0.001**
Normal peristalsis %	79.5 (33 - 100)	75 (30 - 100)	80 (40 - 100)	NS
Ineffective %	20 (0 - 62)	20 (0 - 67)	14 (0 - 54)	NS
Hypomotility disorders (Absent contractility or Ineffective motility)	106 (22%)	82 (25%)	24 (16%)	0.034
Hypermotility disorders:	104 (21%)	**53 (16%)**	**51 (34%)**	**<0.001**
Achalasia	26 (5%)	15 (5%)	9 (6%)	NS
Manometric EGJOO	68 (14%)	**29 (9%)**	**39 (26%)**	**<0.001**
Clinically relevant (symptomatic, Manometric and positive barium swallow tests)	19 (4%)	**4 (1%)**	**29 (26%)**	**<0.001**

Conclusion: Our data show that HRM results differ in patients referred for manometry and older than 65. Specifically, these patients have a higher rate of clinically relevant EJGOO and greater IRP. This may be related to age related changes in myenteric innervation. Future studies are needed to establish whether patients older than 65 progress to achalasia or will benefit from EGJ directed therapy.
Disclosure: Nothing to disclose.

PP0075

ASSOCIATION BETWEEN ESOPHAGEAL MOTOR DISORDERS AND PULMONARY INVOLVEMENT IN PATIENTS AFFECTED BY SYSTEMIC SCLEROSIS: A RETROSPECTIVE STUDY

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Introduction: Systemic sclerosis (SSc) is a rare autoimmune disease of the connective tissue that can affect multiple organs. The esophagus is the most affected gastrointestinal tract, while interstitial lung disease (ILD) is a main feature associated with SSc.
Aims & Methods: The aim of the present study was to evaluate the association and prognostic implication between motor esophageal disorders and pulmonary involvement in SSc patients.
We retrospectively assessed patients with SSc who underwent both the high resolution manometry with the new Chicago Classification 4.0 and pulmonary evaluation comprehensive of function tests and high-resolution computer tomography (HrCT) with the use of Warrick score. A total Warrick score≥7 was considered predictive of ILD, while a score≥10 in a HrCT acquired prospectively from baseline evaluation was considered to establish significant interstitial involvement.

Results: Forty-two patients were included. We found a score≥7 in 11 patients with aperistalsis, in 6 subjects with ineffective esophageal motility and in 6 patients with a normal manometry.
Otherwise, a Warrick score<7 was observed in 3 patients with aperistalsis, and in 2 and 14 patients with ineffective esophageal motility disorder and with a normal contractility, respectively.
Higher scores were observed in subjects with absent contractility or ineffective esophageal motility than subjects with normal motility, indeed DCI and HrCT score were inversely correlated in linear and logarithmic regression analysis. Prospectively, lower baseline pressure of lower esophageal sphincter and greater HrCT scores at follow-up evaluation were significantly associated.
Conclusion: This study shows an association between motor esophageal disorder and pulmonary involvement in SSc patients: more severe is the esophageal involvement, more critical is the pulmonary disease.
Disclosure: Nothing to disclose.

PP0076

HIGH-RESOLUTION MANOMETRY CATHETER INSERTION DURING SEDATED ENDOSCOPY: A VIABLE OPTION WHEN STANDARD INTUBATION FAILS

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Introduction: High-resolution manometry (HRM) is routinely performed in an outpatient clinic setting. If intubation is not tolerated or if the LOS is not traversed, the test is often abandoned with no viable alternative option, thus impacting on therapeutic decisions.
This study explores the option of intubating the catheter during endoscopy under the comfort of sedation and direct vision.
Aims & Methods: All patients who had HRM catheter insertion during endoscopy at a tertiary referral centre in London between Jan 2020 and April 2023 were collated and analysed. A consecutive equivalent number of standard unsedated HRM studies, as well as patients having standard diagnostic endoscopy at the same centre between Nov and Dec 2022 were included for comparison. Demographic data, symptom presentation, endoscopic technique and manometry diagnosis were analysed. All HRM studies attempted a full protocol of single water swallows and rice meal, undertaken only after confirmation that sedation had abated.
The median integrated relaxation pressure (IRP) of single water swallows was used to categorise patients into those with and without a disorder of outflow. Oesophageal body function was defined according to the Chicago Classification of motility disorders[1].
Results: Of the 47 patients (68.1% F; 17-86 yrs) who were referred for endoscopic insertion (EI) of the HRM catheter, 42 (89.3%) were successfully intubated to the stomach. Of those, 33 (78.6%) were observed to pass through the pharynx and LOS with the endoscope, 4 (9.5%) required manual guidance through the oesophagus and LOS, whilst 5 (11.9%) required only observation of catheter passage through the pharynx.
Overall, 41 (87.2%) patients completed the full swallow protocol. Indications for referral for EI included intolerance to standard insertion through the nares (52.4%), inability to breach the LOS resulting in a curled catheter (26.2%) and other reasons including septal deviation and psychiatric burden (21.4%). Similarly, of the contemporaneous 47 patients who had standard insertion (SI) of the HRM catheter in the outpatient setting (67.3% F, 23-80 yrs), 39 (82.9%) were successfully intubated and 33 (67.3%) completed the full swallow protocol. Symptoms were reproduced during the test protocol in both cohorts similarly (69.0% EI, n=42; 59.0% SI, n=39). EI patients required higher doses of sedation compared to a consecutive cohort of patients who attended for routine diagnostic endoscopy; mean Fentanyl 112.5µg (n=36) vs 78.7µg (n=47) p<.001, and Midazolam 4.9mg vs 3.4mg p<.001, respectively.
The IRP was not significantly different between EI and SI regardless of LOS morphology; mean IRP in patients with no LOS outflow disorder (8.01mmHg, n=28 vs 6.05mmHg, n=35; p=.08), compared to those with an outflow obstruction (28.0mmHg, n=12 vs 23.1mmHg, n=5; p=.35). Overall motility diagnoses between the two cohorts are presented in Table 1.

Manometry Diagnosis	Normal oesophageal motility	Achalasia (all subtypes)	Treated Achalasia	OGJOO	Absent contractility	Hypercontractile oesophagus	Ineffective oesophageal motility	Other
% Patients EI	28.6	21.4	16.7	11.9	11.9	4.8	4.8	0
% Patients SI	46.2	7.7	2.6	7.7	2.6	10.3	17.9	5

Table 1: Diagnoses for HRM.

Conclusion: Inserting the HRM catheter during endoscopy under sedation and direct vision enables oesophageal physiology testing for patients who might not have otherwise been able to receive motility assessment. The procedure is safe, feasible and is associated with no complications or adverse risk to date. Just as wireless pH monitoring can be a salvage for those who are unable to tolerate the pH catheter, this technique can fill an important gap in the investigation algorithm where motility testing would have otherwise been abandoned.
References: Yadlapati, Rena et al. "Esophageal motility disorders on high-resolution manometry: Chicago classification version 4.0©." *Neurogastroenterology and motility : the official journal of the European Gastrointestinal Motility Society* vol. 33,1 (2021): e14058. doi:10.1111/nmo.14058
Disclosure: Nothing to disclose.

PP0077

EFFICACY ANALYSIS OF TRADIPITANT IN IDIOPATHIC AND DIABETIC GASTROPARESIS IN STUDY VP-VLY-686-3301

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Introduction: This report presents the results of a multicenter, randomized, double-blind, placebo-controlled phase 3 study (VP-VLY-686-3301) assessing the efficacy of tradipitant in relieving symptoms of gastroparesis. Tradipitant, a novel NK-1 receptor antagonist, previously demonstrated efficacy in diabetic and idiopathic gastroparesis in reducing gastroparesis symptoms in a phase 2 study (VP-VLY-686-2301).
Aims & Methods: N=201 idiopathic and diabetic gastroparesis patients with delayed gastric emptying, moderate to severe nausea, and at least 1 vomiting episode were included in the ITT (Intent-to-Treat) population. Subjects were randomized to receive 85 mg tradipitant twice a day (n=102) or placebo (n=99) for 12 weeks. Nausea was assessed daily using the 5-point Gastroparesis Core Symptom Daily Diary (GCSDD). Overall gastroparesis symptom improvement was evaluated using the Patient Global Impression of Change (PGI-C) and the Overall Patient Benefit (OPB) scales. Sensitivity analyses were also performed to control for confounders that may have masked the true treatment effect size.
Results: At the primary endpoint of change in nausea from baseline as

measured by the GCSDD at week 12, both tradipitant and placebo showed significant and similar reductions from baseline at 1.55 and 1.49 respectively. Comparison between treatment arms did not reach statistical significance in this measure.

However, in the PGI-C scale, more tradipitant treated patients demonstrated response as compared to placebo both at week 2 (74% v. 58%, p=0.019) and at week 12 (78% v. 66%, p=0.065). Similarly, in the OPB scale, more tradipitant treated patients demonstrated response as compared to placebo both at week 2 (81% v. 62%, p=0.0003) and week 12 (86% v. 71%, p=0.011).

Sensitivity analysis adjusting for rescue medication use further confirmed the ITT findings in both the PGI-C and OPB analysis at both week 2 and week 12.

Conclusion: Significant but similar improvements from baseline for tradipitant and placebo may have masked the true treatment effect size at the primary endpoint of the study of change in nausea severity as measured by daily diary at week 12 leading to no statistically significant difference between treatments. Despite this large placebo effect, tradipitant was shown to be significantly better than placebo in global measures of patient improvement including the Patient Global Impression of Change (PGI-C) and the Overall Patient Benefit (OPB) scales.

Disclosure: Study was sponsored by Vanda Pharmaceuticals, Inc. Authors are employees of Vanda Pharmaceuticals, Inc.

PP0078

IS THE ABSENCE OF CONTRACTION RESERVE ASSOCIATED WITH HIGHER ACID EXPOSURE TIME IN PATIENTS WITH INEFFECTIVE ESOPHAGEAL MOTILITY?

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Introduction: Ineffective esophageal motility (IEM) has been associated with higher esophageal reflux burden in the context of gastroesophageal reflux disease (GERD). However, the association of IEM with acid exposure time (AET) is not perfect and its true clinical relevance remains unclear.

Additionally, although contraction reserve (CR) assesses the ability of the esophageal smooth muscle to augment contraction when challenged and higher CR ratios have been shown to correlate with decreased AETs in nonerosive GERD, there is still limited data in the context of IEM.

We aimed to evaluate the association between CR, in IEM and normal esophageal high-resolution manometry (HRM) patients, and AET measured by 24h-ambulatory reflux monitoring (ARM).

Aims & Methods: Retrospective cohort-study that assessed adult patients submitted to HRM with a 36 – channel solid state probe (*Manoscan®*) and ARM (*Diggitrapper™*) off acid suppressive therapy for evaluation of GERD symptoms between 2020-2022. Patients with IEM, according to Chicago Classification 4.0, and a control group adjusted for age and sex with normal HRM were included.

Single swallows and multiple rapid swallows (MRS) were evaluated using Manoview® software and parameters including respiratory minimum basal Lower Esophageal Sphincter Pressure (minLESP), respiratory mean basal LESP (meLESP), median residual LESP (rLESP) and distal contractile integral (DCI) to determine CR were analysed. CR was present when the ratio between MRS DCI and mean single swallow DCI (sDCI) was >1. ARM parameters were assessed and total AET >6% was considered pathologic. The relationship between HRM parameters and AET, between IEM and control group and within each group was analyzed.

Results: From 185 patients who underwent concomitant HRM and ARM for GERD, 40 patients with IEM and 40 with normal HRM were identified. Median rLESP (8.5 vs 7.8, P=0.870) was not significantly different between groups, respectively. However, minLESP (11.2 vs 12.6, P=0.048), meLESP (18.2 vs 21.1, P=0.008), median sDCI (562.5 vs 1604.5, P<0.001), median MRS DCI (589 vs 1677.0, P<0.001), absence of CR (17.5% vs 55%, P=0.001), median AET (6.3 vs 2.3, P=0.025) and proportion of pathologic AET (52.5% vs 12.5%, P<0.001), were significantly different between groups, respectively.

Patients without CR, with IEM or normal HRM, had significantly higher proportions of pathologic AET than patients with preserved CR (72.7% vs 27.7%, P=0.01; 42.8% vs 6.1%, P=0.03, respectively).

Conclusion: The absence of contraction reserve is associated with pathologic AET both in IEM and normal HRM patients, having IEM patients a higher burden of pathologic AET than normal HRM group.

Disclosure: Nothing to disclose.

PP0079

A BASELINE SEVERITY INFLATION ANALYSIS IN STUDY VP-VLY-686-3301 OF TRADIPITANT IN GASTROPARESIS

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Introduction: Tradipitant is a NK-1 receptor antagonist that showed efficacy in improving nausea, vomiting and gastroparesis symptoms in a phase 2 study (VLY-2301) of diabetic and idiopathic gastroparesis. Efficacy was further evaluated in a phase 3 study (VLY-3301). A large placebo effect may have masked the true size of tradipitant benefit. Large placebo responses can be driven by Baseline Severity Inflation (BSI) especially on parameters used for inclusion into the study.

Aims & Methods: Idiopathic and diabetic gastroparesis patients with delayed gastric emptying, moderate to severe nausea, and at least 1 vomiting episode were randomized to tradipitant or placebo for 12 weeks. Nausea was assessed using the 5-point Gastroparesis Core Symptom Daily Diary. Overall gastroparesis symptoms was evaluated using the Patient Global Impression of Change (PGI-C) and the Overall Patient Benefit (OPB) scales. The BSI analysis subgroup included ITT subjects with at least 1 but less than 7 average vomiting episodes and excluded subjects whose vomiting severity was zero or highest severity. This baseline threshold allows for censoring of patients with minimal or very high frequency of vomiting and uses a symptom scale for censoring other than the primary endpoint scale. This is an accepted strategy to minimize placebo effect, and allows for a less biased estimation of true treatment effect.

Results: A responder analysis of PGI-C and OPB Score in the BSI subgroup showed a larger proportion of tradipitant treated patients improved versus placebo at start (Week 2) and end (Week 12) of study. Similarly, at the same timepoints nausea was improved.

For the primary endpoint of change in nausea from baseline at week 12, tradipitant treated patients reported a greater reduction in nausea than placebo treated patients (-1.98 v. -1.28, p=.028). Improvement in tradipitant treated patients versus placebo was also seen at week 2 (-.99 v. -.50, p=.013). In the PGI-C scale more tradipitant treated patients demonstrated improvement as compared to placebo at week 2 (86% v. 53%, p=.002) and at week 12 (84% v. 65%, p=.056). For the OPB scale, more tradipitant treat-

ed patients demonstrated benefit compared to placebo at week 2 (95% v. 68%, p=.003) and week 12 (92% v. 68%, p=.009).

Conclusion: Tradipitant treatment in the Baseline Severity Inflation Analysis subpopulation resulted in improvements in nausea, PGI-C, and OPBS both the earliest (Week 2) and last (Week 12) timepoints.

Disclosure: Study was sponsored by Vanda Pharmaceuticals, Inc. Authors are employees of Vanda Pharmaceuticals, Inc.

PP0080

RISK FACTORS FOR SUBMUCOSAL FIBROSIS DURING PER-ORAL ENDOSCOPIC MYOTOMY: A PROSPECTIVE STUDY

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Introduction: Per-oral endoscopic myotomy (POEM) is an established treatment modality for achalasia cardia. Submucosal fibrosis (SMF) is rare, but the most important reason for technical failure during POEM. Prediction of SMF may be crucial to improve technical outcomes with POEM.

Aims & Methods: In this study we aim to evaluate the predictors for SMF in cases with achalasia cardia.Consecutive patients with achalasia cardia who underwent POEM (Aug 2021 to October 2022) were included in the study, prospectively. Various factors were analysed for prediction of SMF including age, gender, stasis esophagitis, type of achalasia, duration of disease, lower esophageal sphincter pressure (LESP), height of barium column on barium esophagogram and severity of symptoms (Eckardt score). Esophageal mucosa was graded for the severity of stasis esophagitis (grade I to grade III) based on vascular pattern, mucosal thickening, ulceration and nodularity. SMF was graded (I minimal, II moderate, III severe) according to mucosal lift, difficulty in entry, density of SM fibers, separation of mucosa and muscle.

Results: 240 patients (males 139, mean age 44.4±14.7 years) underwent POEM during the study period. The subtypes of achalasia included type I in 29, type II in 201, type III in 10. Median symptom duration was 24 (1-240) months and mean pre-POEM Eckardt score was 7.6±1.8. Majority (93.3%) of the patients were treatment naïve and underwent POEM via posterior route (91.2%). Stasis esophagitis was evident in 122 (50.8%) patients including grade I in 99 (41.3%), grade II in 16 (6.7%) and grade III in 7 (2.9%) patients. SMF was detected in 87 (36.3%) patients including grade I in 52 (21.7%), grade II in 30 (12.5%) and grade III in 5 (2.1%) patients. Mean age, duration of symptoms, width of esophagus and procedure duration were significantly higher in cases with submucosal fibrosis. (Table 1)

	SMF (no or grade 1)	Significant SMF (grade 2 or 3)	p value
Age, mean+/-SD	44.5+/-14.5	44.0+/-15.9	0.859
Disease duration, months	36.3+/-43.9	43.9+/-53.1	0.035
Mean Eckardt score	7.8+/-1.9	7.1+/-1.4	0.060
Mean TBS height in cm	13.8+/-5.1	13.4+/-5.4	0.619
Mean TBS width in cm	4.6+/-1.7	6.1+/-3.5	0.001
Mean LES pressure, mmHg	24.3+/-10 3	26.9+/-15.1	0.198
Mean Integrated relaxation pressure, mmHg	26.6+/-13.7	27.2+/-13 9	0.791
Mean Myotomy length, cm	9.2+/-2.6	9.9+/-2.9	0.114
Mean Procedure time, min	40.8+/-17.7	58.2+/-24.1	0.001

Table 1. Multivarient analysis.

Significantly higher proportion of patients with type I achalasia (62.1%) had SMF as compared to type II (33.8%) and type III achalasia (10%) [p=0.013]. On multivariate analysis, the presence of stasis esophagitis and width of esophagus on timed barium were predictors of significant (≥grade II) SMF.

Conclusion: Severe SMF (grade III) is uncommon in cases with achalasia cardia. The presence of stasis esophagitis and width of esophagus are predictors of SMF during POEM.

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Disclosure: Nothing to disclose.

PP0081

ESOPHAGEAL MOTILITY RECOVERY IN ACHALASIA CARDIA POST PER ORAL ENDOSCOPIC MYOTOMY (POEM)- A PROSPECTIVE STUDY

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Introduction: Achalasia cardia is an esophageal motility disorder characterized by absence of proper propulsive peristalsis of esophagus along with insufficient relaxation of the lower esophageal sphincter.[1]

Eckardt scoring[2] systems was developed for assessment of symptom complex. Current gold standard test for the definitive diagnosis of achalasia is HREM. An endoscopic approach with principles of natural orifice transluminal endoscopic surgery to perform a myotomy called peroral endoscopic myotomy (POEM).

Till now it is believed that Absent or impaired peristalsis of the esophageal body in patients of achalasia cardia are irreversible however some early studies challenged this phenomenon.[5,6,7]

Recently, in some studies, partial peristaltic recovery or pseudo-peristaltic recovery was observed after myotomy (either POEM or surgery) in a significant number of patients with AC. There are limited studies to assess the post-POEM esophageal motility patterns with regard to potential peristaltic recovery, partial or pseudo recovery.

Aims & Methods: HRM finding pre and post POEM in achalasia cardia and its correlation to clinical eckardt score. And to assess the post-POEM esophageal motility patterns with regard to potential peristaltic recovery, partial or pseudo recovery and to assess its predictive factors

Results: The study was conducted in Department of Gastroenterology, Medanta-The Medicity, Gurgaon, Haryana. 30 patients, ≥ 18 years of age, presenting with symptoms of achalasia. Mean value of age (years) of study subjects was 42.5 ± 17. 20(66.67%) patients were females.

Significant difference was seen in baseline lower esophagus sphincter resting pressure (Inspiratory)(33.7 vs 25.9mmHg), baseline lower esophagus sphincter resting pressure (Expiratory) (43.9 vs 32.4mmHg), 4-s integrated relaxation pressure (23.6 vs 11.4), distal contractile integral (1065 vs 255) between pre and post POEM.(p value < 0.05) After POEM, partial recovery of esophageal body peristalsis was observed in 10 patients (33.3%, 10/30), including one (11.1%, 1/9) with type I, six (33.3%, 6/18) With type II, and three (100%, 3/3) with type III achalasia. High IRP and achalasia subtype (type III) before POEM were statistically significant factors associated with recovery of esophageal body peristalsis after POEM.

On comparisons of the clinical factors related to IRP value after peroral endoscopic myotomy. 30 patients with reviewable IRPs after POEM, 5 patients (16.6%) had high post-POEM IRP values (>15 mm Hg) 29.5 vs 23 mm Hg.

Conclusion: POEM provided improvement in LES relaxation in the form of reduction of LESP and 4sIRP along with excellent clinical symptomatic relief. Post POEM HRM also demonstrated "esophageal remodeling" in terms of recovery of esophageal peristalsis. The recovery of the contractile activity also seemed to be correlating with the subtypes of achalasia where the patients with type II achalasia were more prone to show the contractile reserve (besides the obvious type III) than type I. Nevertheless, an improved symptomatic outcome did not necessitate peristaltic recovery. The present study may contribute further on understanding the pathophysiological changes of subtype of achalasia.

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PP0082

NOVEL EVALUATION OF ESOPHAGEAL DISTENTION FOR THE PATIENTS WITH FUNCTIONAL DYSPHAGIA BY ONIGIRI ESOPHAGOGRAPHY

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Introduction: Commonly known as the "law of the intestine," gastrointestinal peristalsis consists of contraction in combination with preceding distention. Disturbance of this sequential peristalsis results in impaired transportation of food which would be associated with dysphagia. Recently, using Distension contraction plot (DCP), Mittal K revealed that impaired esophageal distention is indeed responsible for patients with functional dysphagia (FD) who are suffering from dysphagia despite being normal high-resolution manometry (HRM).

In contrast, we have developed Onigiri (Japanese rice ball) esophagography (OE) which enables us to screen esophageal motility disorders by the value of obstruction level (OL 0-4; OL0, no obstruction and OL4; the most severe obstruction). In OE of normal subjects, the swallowed onigiri is transported to the stomach forming an American football shape. We found that some patients with FD present OL1-2 out of an American football shape.

The objective of this study was to determine whether OE is useful for evaluate esophageal distention.

Aims & Methods: From June 2021 to April 2023, both HRM with DCP and OE were performed on 60 patients of dysphagia. 11 FD (male/female;2/9, median age;63 y.o.) who had a normal HRM but OL1-2 in OE (OL 1/2; 4/7), and 15 volunteer normal subjects (male/female; 9/6, median age; 27 y.o.) with normal HRM and OL0 were also enrolled. AUC Distension (AUCD) and Peak distension (PD) were assessed for distention capacity. In DCP, the esophageal body is divided into 4 segments (seg 1 to 4). In this study, we evaluated the seg 3 and 4, corresponding to the esophageal smooth muscle region.

Results: In seg 4, AUCD of 11 FD (OL1-2) (8176±1536mm^2) was significantly lower than that of normal (11067±2703mm^2), (p = 0.0022), and PD of 11 FD (OL1-2) (161±17mm^2) was significantly lower than that of normal (184±19mm^2, p=0.005). Furthermore, focusing on FD with OL2, AUCD of the 7 FD (OL2) (6599±487mm^2) was significantly lower than that of normal (8019±2145mm^2) in seg 3 (p=0.047).

Conclusion: Impaired esophageal distention is responsible for the patients with FD who has normal HRM. OE is useful for screening impaired esophageal distention.

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Disclosure: Nothing to disclose.

PP0083

RANDOMIZED TRIAL OF TRADITIONAL DIETARY ADVICE IN POSTPRANDIAL FUNCTIONAL DYSPEPSIA

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Introduction: Almost 80% of individuals with functional dyspepsia report meal-related symptoms and are classified as having postprandial distress syndrome (PDS). However, studies evaluating dietary modifications in PDS are sparse.

Aims & Methods: The aim of this study was to perform a single-centre randomized trial evaluating traditional dietary advice (TDA) in PDS.

Following a normal upper gastrointestinal endoscopy, patients with PDS were randomly assigned to a leaflet providing reassurance and diagnostic explanation (RADE) +/- TDA; the latter recommending smaller, regular meals and reducing the intake of caffeine/alcohol/fizzy drinks, fatty/processed/spicy foods, and fibre. Questionnaires were completed during the 4-week trial, including self-reported adequate relief of dyspeptic symptoms, and the validated Leuven Postprandial Distress Scale (LPDS), Gastrointestinal Symptom Rating Scale, and Nepean Dyspepsia Index for quality of life.

The primary endpoint(s) to define clinical response were:
i. ≥50% adequate relief of dyspeptic symptoms, and;
ii. >0.5-point reduction in the PDS subscale of the LPDS (calculated as the mean scores for early satiety, postprandial fullness, and upper abdominal bloating).
Results: Of 53 patients with PDS, 27 were assigned RADE-alone and 26 to additional TDA. Baseline characteristics were similar between the groups, with a mean age of 39 years, 70% female, 83% white, and co-existent IBS in 66%.
The primary endpoints of:
i. Adequate relief of dyspeptic symptoms was met by 33% (n=9) assigned RADE-alone vs. 39% (n=10) with TDA; p-value=0.70, while;
ii. A reduction of >0.5 points in the PDS subscale was met by 37% (n=10) assigned RADE-alone vs. 27% (n=7) with TDA; p-value=0.43.
Response rates did not alter according to IBS status. There were no significant between-group changes in the gastrointestinal symptom rating scale and dyspepsia quality of life.
Conclusion: The addition of TDA did not lead to greater symptom reduction in PDS compared with reassurance and diagnostic explanation alone. Alternate dietary strategies should be explored in PDS.
Disclosure: Nothing to disclose.

PP0084

FUNCTIONAL DYSPEPSIA (ROME-IV), EROSIVE AND NON-EROSIVE GERD: RISK FACTORS AND RELATIONSHIP WITH ANXIETY AND DEPRESSION. A CROSS-SECTIONAL STUDY

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Introduction: There is conflicting data on the risk factors linked to Gastroesophageal Reflux Disease (GERD) and Functional Dyspepsia (FD). Studies that explore the association between anxiety/depression and GERD phenotypes (Esophagitis/EE and Non-Erosive Reflux Disease/NERD), FD, and Rome-IV syndromes are scarce.
Aims & Methods: The aim was to evaluate the association between epidemiological factors and comorbidities with GERD phenotypes, FD, and Rome-IV syndromes, as well as the relationship of these processes with anxiety/depression.
338 participants were selected from 357 patients referred to three tertiary centers in Granada (Spain) for endoscopic assessment. A gastroenterologist individually interviewed each participant prior to the procedure and administered three validated questionnaires (GERD-Q, Rome-IV, and HADS) to detect the presence of GERD, FD, and anxiety/depression, respectively.
Results: 45/338 patients were controls, 198/58.6% were classified as GERD, 81/24.0% EE (49/14.5% symptomatic, and 32/9.5% asymptomatic), 117/34.6% NERD, 176/52.1% FD (43/12.7% epigastric pain syndrome, 36/10.7% postprandial distress syndrome, and 97/28.7% overlapping syndrome). 81 patients were mixed GERD-FD.
Multivariate analysis found significant independent associations: age in NERD and FD; sex in EE, asymptomatic EE and FD; body mass index in NERD and FD; alcohol in EE; anxiety/depression in FD; use of calcium channel antagonists in EE; and inhalers in FD.
We compared controls vs different groups/subgroups finding significantly more anxiety in NERD, FD, all Rome-IV syndromes, and mixed GERD-FD; more depression in FD, overlapping syndrome, and mixed GERD-FD; and higher levels of anxiety+depression in NERD, FD, overlapping syndrome, and mixed GERD-FD.

Associated factors	Age	Sex	BMI	Alcohol	Calcium channel blockers	Inhalers	Anxiety and/or depression
EE	0.127	**0.006 OR = 3.804 (1.455-9.946)**	0.122	**0.015 OR = 8.608 (1.515-48.907)**	**0.021 OR = 9.617 (1.408-65.688)**	0.349	0.822
AEE	0.338	**0.013 OR = 3.392 (1.299-8.859)**	0.714	0.216	0.797	0.495	0.300
NERD	**0.033 OR = 0.978 (0.959-0.998)**	0.973	**0.002 OR = 2.336 (1.354-4.030)**	0.788	0.998	0.160	0.890
FD	**0.027 OR = 0.977 (0.957-0.997)**	**0.000 OR = 0.273 (0.155-0.480)**	**0.011 OR = 0.511 (0.305-0.856)**	0.570	0.305	**0.011 OR = 0.179 (0.047-0.677)**	**0.034 OR = 2.290 (1.064-4.928)**

GERD, gastroesophageal reflux disease;
EE, erosive GERD;
AEE, asymptomatic erosive GERD;
NERD, non-erosive GERD;
FD, functional dyspepsia.
Data expressed: p-value, OR and confidence interval-95%. Only values with significant and independent associations are shown.
Table: Multivariate analysis (logistic regression) of factors associated with different groups and subgroups of GERD and FD.

Conclusion: The existence of shared demographic and psychopathological risk factors in Non-Erosive Reflux Disease (NERD) and Functional Dyspepsia (FD) implies that they could be part of the same pathophysiological spectrum. The prevalence of anxiety was higher in NERD, while anxiety and depression were more frequent in FD. These results suggest that psychological therapy could be a supportive strategy for both conditions.
Disclosure: Nothing to disclose.

PP0085

ASSOCIATION OF VITAMIN D WITH FUNCTIONAL DYSPEPSIA- A NEW KID IN THE BLOCK?

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Introduction: Functional dyspepsia (FD) is an enigma in itself but a commonly prevalent problem, around 10-30%, encountered by physicians worldwide [1].
There is evidence of low-grade inflammation in duodenal mucosa including eosinophilic infiltration and T-cell mediated among others [2].
Moreover, since vitamin D has immunomodulatory properties and its role has been well established in various diseases including inflammatory bowel diseases and cancers, evaluation of vitamin D status in patients with FD needs to be actively pursued given its immuno-regulatory attributes [3].

The beneficial roles of vitamin D, particularly in gut and neurological functioning of the body counts in an effective option in treating irritable bowel syndrome [4,5].

In one study, increased VDR (vitamin D receptor) expression is seen in duodenal mucosa and it has been proposed that since Vitamin D acts as a ligand of VDR, assessing vitamin D status in such patients remains an area of active research [6].

Thus the authors here seeks to probe into the key role of Vitamin D in the FD patients, utilizing evidence from previous studies in vitamin abnormalities [4].

Aims & Methods: This case control study was done at a tertiary care hospital with 150 cases and 150 controls. FD was diagnosed by the ROME IV criteria. Demographic and serum vitamin D levels including perceived stress score (PSS) and salivary alpha levels were determined for both cases and controls. Statistical analysis were done with the help of SPSS version 27.

Results: Majority of the FD cases were males (57.3%). Post prandial distress syndrome (PPDS) represented the major type of functional dyspepsia (FD) cases (104 cases; 69.3 %), followed by epigastric distress syndrome (EPS) (48 cases, 32%). Among the cases, 6.6 % had sleep problems, 18.6% had heart burn, 18.6% had bowel disturbances and 13.4% had headache. Cases have higher mean age than the controls (42.24±12.047 vs 38.94±, p=0.028). A higher mean BMI was found among the control group (23.2 vs 21.2, p<0.05) and higher percentage of obese individuals in the control group (42.7% vs 29.3%, p= 0.05). Majority of the cases are from rural background (89.3% vs 74%, p<0.001). Comparison of perceived stress scale (PSS) showed that cases had significantly higher grades of PSS than control (p<0.001). Hypovitaminosis D (<30ng/ml) was found significantly more among cases (73.3% vs 60%; p<0.05) with an odds ratio (OR) of 1.833 (CI95%= 1.126- 2.985). After adjustment of age, place of residence and BMI, Vitamin D levels were significantly associated with functional dyspepsia in the regression analysis. Nagelkerke R Square= 11%, p= 0.023, OR= 1.016

	Cases	Control	P value
Vitamin D, Mean SD	22.9 ± 18.3	27.8 ± 17.5	**0.009**
Vitamin D categories, n (%)			**0.020**
Vit D deficiency (VDD)	110 (73.3)	90 (60)	
Normal Vitamin D	40 (26.7)	60 (40)	

Conclusion: The present work demonstrates a close association of VDD, BMI and PSS score in FD patients for the first time. Findings from the study has been able to shed light into the role of Vitamin D in FD and the possible need for vitamin D supplementation to further improve the management of such cases, thus opening new avenues for further research.

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PP0086

CLINICAL CHARACTERISTICS AND OUTCOMES OF CONSECUTIVE PATIENTS WITH FUNCTIONAL DYSPEPSIA TAKING OPIOIDS REFERRED TO A UK TERTIARY CARE HOSPITAL

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Introduction: Functional dyspepsia (FD) has an estimated population prevalence of 10% using the ROME IV criteria (1). Opioids have a limited therapeutic role in the management of non-malignant pain, but the opioid prescription rates for the management of non-cancer pain has increased steadily by 0.5% per year from 2006 to 2016 (2).

Opioid induced hyperalgesia is thought to contribute to the development of visceral hypersensitivity in patients with disorders of gut-brain interaction (DGBIs) (3).

To our knowledge, no UK study has yet addressed the clinical characteristics and healthcare outcomes of patients diagnosed with clinically confirmed ROME IV FD who are prescribed opioids.

Aims & Methods: The primary aim of this study is to determine the proportion of patients diagnosed with ROME IV FD in a tertiary care neurogastroenterology setting who are prescribed opioids.

The secondary aims of the study are as follows: to determine the differences in clinical characteristics and symptomatology between patients with FD taking opioids compared to those not taking opioids; to determine the differences in healthcare utilisation (i.e., number of investigations, clinic consultations, and hospitalisations) between patients taking opioids compared to those not taking opioids; and to determine the proportion of patients who adhere to opioid cessation advice and whether their clinical symptoms improve.

This study was approved as a retrospective audit (Nottingham University Hospitals NHS Trust registration number 21-482C). Data were analysed from consecutive patients who presented to a single tertiary care neurogastroenterology unit (Queen's Medical Centre, Nottinghamshire, UK) between January 2016 – December 2021 and diagnosed with FD according to the Rome IV clinical diagnostic criteria. Only patients aged ≥ 18 were included and pregnancy was the only exclusion factor. Phenotype and clinical outcomes were compared between FD patients taking opioids and those not taking opioids.

Results: A total of 157 patients were diagnosed with ROME IV FD. Among these 157 patients, 34 were classified in the opioid group and the remainder (n=123) in the non-opioid group. Nausea (n=28, 82.4% versus n=75, 61%; p=0.02), vomiting (n=19, 55.9% versus n=34, 27.6%; p=0.002), and constipation (n=18, 52.9% versus n=21, 23.6%; p=0.001) were most commonly seen in the opioid group.

There was no intergroup difference in the number of specialist consultations (p=0.45), or number of investigations (p=0.14) that the patients underwent. In the opioid group (n=34), 32 (94.1%) patients were advised to stop opioids. Fifteen (46.8%) stopped taking opioids on advice and nine (60%) of these patients who stopped opioids reported improvement in symptoms.

The most commonly reported symptom improvement was reduced constipation (n=3, 33.3%), reduced pain (n=3, 33.3%), or general feeling better (n=3, 33.3%). Approximately half of the patients who did not stop taking opioids reported that they needed the drugs for pain relief, whilst the remaining did not provide an explanation.

Conclusion: We demonstrate that opioid intake in FD is associated with more nausea, vomiting, and constipation compared to patients who are not prescribed opioids. We also show that most patients with ROME IV FD in a tertiary care setting often do not follow opioid cessation advice.
Should the burden of opioids in patients diagnosed with DGBIs be as high as this study suggests, then it is possible that an appreciable part of this disease burden may be avoidable via the strict implementation of policies to reduce opioid prescriptions for chronic non-cancer pain.

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PP0087

BASELINE ANXIETY SCORES PREDICT ESCALATION TO HIGHER DOSES OF PAROXETINE IN PATIENTS WITH FUNCTIONAL HEARTBURN AND REFLUX HYPERSENSITIVITY

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Introduction: Up to 40% of patients with heartburn (HB) do not respond to proton pump inhibitors (PPI). In absence of objective gastroesophageal reflux disease (GERD) evidence, functional esophageal disorders (FEDs) defined by Rome IV criteria, such as functional heartburn (FH) and reflux hypersensitivity (RH), represent a possible cause. Paroxetine may have a therapeutic role in these conditions. We investigated the efficacy of paroxetine in patients with FH and RH.

Aims & Methods: We investigated the efficacy of paroxetine in patients with FH and RH.

We enrolled consecutive outpatients with negative endoscopy and PPI-refractory HB who were treated with paroxetine following a diagnosis of FH or RH on pH-impedance monitoring (MII-pH) performed off therapy at Pisa University Hospital. Demographics, symptoms, PPI response rates, paroxetine dose and response, and MII-pH findings were recorded. Patients were classified, according to Rome IV criteria, into group A (FH) and group B (RH). All patients received either paroxetine 10mg or 20mg daily according to individual HB response.

An adequate response to SSRI was defined as HB relief >60% on a VAS questionnaire. In addition, anxiety levels were assessed using the corresponding items of Hospital Anxiety and Depression Scale (HADS) questionnaire at baseline and after 8 weeks.

Results: 57 patients were included (44 F), median age 53 years (40-62) mean BMI 24 (22-26), of these, 42 had FH and 15 had RH. The groups were comparable in age, sex distribution, BMI, and symptoms. Table 1 reports clinical data.

On MII-pH, RH patients had higher total, recumbent and upright AET, higher number of total refluxes, and lower values of MNBI (p<0.001 for all) and PSPW (p<0.05) compared to FH. Table 1 reports MII-pH details. FH showed higher anxiety scores at baseline compared to RH (all p<0.001). Although FH more frequently required a higher dose of paroxetine to achieve symptoms relief (p<0.001), response to paroxetine was comparable between FH vs RH (69% vs 53%, respectively) (p=0.4). SSRI outcomes has been evaluated by means of HADS questionnaire (anxiety) that changed from a 16 (IQR 13.2, 17.8) to 9 (IQR 7, 10) in FH patients and from 11 (IQR 9.5, 12) to 6 (IQR 5, 8) in RH patients. At least 37/42 (88%) of patients with FH required standard dose of paroxetine compared to 12/15 (80%) of patients with RH who required only 10mg of paroxetine to reach symptomatic relief.

On ROC curve analysis, anxiety scores at baseline predicted the dose of paroxetine required for HB control in patients with FH and RH, with an area under the curve of 0.84 (CI, 0.71-0.96).

	Functional Heartburn (42 pts)	Reflux Hypersensitivity (15 pts)	P
Female (%)	35 (83%)	9 (60%)	0.082
BMI (median, IQR)	24 (21, 26)	24 (23, 26)	>0.9
Age (median, IQR)	53 (39, 61)	49 (42, 62)	0.4
Total AET (median, IQR)	0.2 (0.1, 0.8)	1.4 (0.9, 2)	<0.001
Reflux events (median, IQR)	18 (12, 27)	38 (32, 40)	<0.001
MNBI (median, IQR)	3617 (3040, 3945)	2670 (2447, 2882)	<0.001
PSPW-index (median, IQR)	72 (66, 77)	64 (63, 66)	0.004
SI/SAP positivity	0	15 (100%)	N/A
PPI Response rate, VAS	10% (10, 30)	40% (40, 50)	<0.001

Table 1: demographic, clinical and pH-imopedance findings.

Conclusion: Baseline anxiety scores predict whether patients with FH or RH will respond to low dose (10mg) or high-dose (20mg) paroxetine. These results suggest that patients with FH or RH who have high anxiety scores, should be treated with paroxetine 20mg, while 10mg could be adequate for patients with low anxiety levels at baseline.

Disclosure: Conference Speech: Reckitt Benckiser; Malesci; Sofar; Alfa-Sigma;
Dr Falk; Cadigroup; Sanofi Genzyme.
Advisory: Astra-Zeneca

PP0088

COMPARISON OF GASTRIC PERISTALSIS IN PATIENTS WITH FUNCTIONAL DYSPEPSIA WHICH WAS SUBDIVIDED INTO POSTPRANDIAL DISTRESS SYNDROME AND EPIGASTRIC PAIN SYNDROME WITH HEALTHY CONTROLS USING CINE MAGNETIC RESONANCE IMAGING

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Introduction: Functional dyspepsia (FD) is a commonly occurring functional gastrointestinal disorder, increases the number of clinical consultations and tests, significantly decrease quality of life and has a significant socioeconomic impact. FD is subdivided into postprandial distress syndrome (PDS), which is characterized by the presence of postprandial fullness and/or early satiety, and epigastric pain syndrome (EPS), which is characterized by the presence of epigastric pain and/or epigastric burning. Different pathophysiological mechanisms have been suggested to underlie the symptoms presented in these syndromes. Evidence suggests alterations in gastrointestinal motility, visceral hypersensitivity, permeability may play a role.

Aims & Methods: In this study, we aimed to studied the differences in gastric motility between healthy controls and PDS, and between healthy controls and EPS using cine magnetic resonance imaging (MRI). This study was a prospective interventional study. From January 2021 to May 2022, patients diagnosed with FD according to the ROME IV diagnostic criteria but who were non-adherent to prescribed medications that affect intestinal peristalsis, including laxatives, bowel regulators, and gastric peristalsis regulators, were studied prospectively. Cine MRI was performed before and after the test meal. Gastric short diameter, amplitude, contraction frequency, peristaltic wave height, peristaltic wave velocity, and gastric motility index (GMI) were evaluated in each group, and comparisons were made between the PDS group and healthy controls and between the EPS group and healthy controls.

Results: The numbers of subjects (controls/PDS/EPS) were 49 (18/22/9) patients. The mean (±standard deviation) age was 46.9±21.3 (32.9±14.1/59.1±20.4/45.1±18.8) years.

The male-to-female ratio was 24:25 (12:6/9:13/3:6). The mean BMI was 22.0±3.3 (23.1±14.1/20.4±2.1/22.3±2.8). In the pre-prandial state, there were no significant differences in any of the findings in the PDS or EPS groups compared to the healthy controls. In the post-prandial state, there was no significant difference in maximum short diameter between the PDS group and healthy controls.

However, the PDS group compared to the healthy controls showed increased amplitude of the fornix [PDS/controls) 12.1±4.3/7.3±5.1 (p=0.002)] and reduced contraction frequency [2.7±0.5/2.9±0.3 (p=0.003)], peristalsis wave height [9.2±2.5/14.9±4.0 (p<0.001)], and GMI 16.8±6.1/24.5±7.1 (p=0.001)]. The EPS group compared to the healthy controls showed no significant differences in maximum short diameter and amplitude, but had reduced contraction frequency [EPS/controls: 2.6±0.2/2.9±0.3 (p=0.027)], peristalsis wave height [9.5±3.2/14.9±4.0 (p=0.001)], and GMI [15.9±6.3/24.5±7.1 (p=0.009)].

Conclusion: In the pre-prandial state, analysis of gastric peristalsis using cine MRI showed no differences between the PDS group and healthy controls or between the EPS group and healthy controls. In the post-prandial state, both the EPS and PDS groups showed significant decreases in contraction frequency, peristaltic wave height, and GMI compared to the healthy controls, indicating reduced gastric peristalsis.

Furthermore, the amplitude of the fornix was increased in the PDS group compared to the healthy controls, suggesting that it is possible to evaluate post-prandial gastric adaptive relaxation by cine MRI.

Disclosure: Nothing to disclose.

PP0089

PRESENCE OF ESOPHAGEAL CONTRACTILITY AFTER TREATMENT OF NON-SPASTIC ACHALASIA IS ASSOCIATED WITH IMPROVED ESOPHAGEAL EMPTYING

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Introduction: Some achalasia patients exhibit esophageal contractile activity on follow-up after treatment, yet its importance remains unclear.

Aims & Methods: We aimed to identify factors associated with presence of contractility after treatment and to assess its impact on timed barium esophagram (TBE) and clinical outcomes. Patients with type I or II achalasia on baseline high-resolution manometry (HRM) who completed HRM, TBE, and functional lumen imaging probe (FLIP) after treatment were retrospectively identified. The distal contractile integral (DCI) was calculated for the 10 supine swallows using the smart box tool with the isobaric contour set at 20 mmHg and median values were calculated.

Contractility was defined on post-treatment HRM as presence of at least 1 supine swallow with DCI ≥100 mmHg·s·cm in accordance with CC v4.0[1]. On FLIP, esophago-gastric junction (EGJ) opening was assessed applying the EGJ distensibility index (EGJ-DI) at the 60ml fill volume and measuring the maximum EGJ diameter that was achieved at the 60ml or 70ml fill volume. The classification of EGJ opening with FLIP Panometry used prespecified validated thresholds[2]. For TBE, 200 mL of low-density barium sulfate were administered and the height of the barium column was measured vertically from the EGJ at 1 and 5 minutes.

	Entire cohort		Normal EGJ subgroup	
	No contractility (n=61)	Contractility present (n=61)	No contractility (n=20)	Contractility present (n=33)
IRP, mmHg, median (IQR)	13 (10-20)	12 (9-16)	11 (8-13)	10 (7-14)
60ml pressure, mmHg, median (IQR)	**25 (21-31)**	**29 (24-33)**	**23 (20-28)**	**29 (25-32)**
EGJ opening classification normal + borderline-normal	**40 (66)**	**56 (92)**	**-**	**-**
EGJ opening classification reduced + borderline-reduced	**21 (34)**	**5 (8)**	**-**	**-**
1-minute column height, cm, median (IQR)	**8 (5-12)**	**4 (0-8)**	**7 (5-10)**	**4 (0-7)**
5-minute column height, cm, median (IQR)	**6 (2-9)**	**0 (0-4)**	**5 (2-7)**	**0 (0-3)**
Esophageal width, cm (IQR)	**2.9 (2.0-3.5)**	**2.1 (1.7-2.7)**	2.6 (1.6-3.1)	1.8 (1.7-2.3)
Eckardt score, median (IQR)	3 (1-4)	2 (1-3)	2 (1-4)	2 (1-4)

Comparisons with significant (p<0.05) differences are marked in **bold**.

Results: 122 patients were included (mean age 48 ± 17 years, 50% female). At follow-up evaluation (median 13 months) after treatment (54% peroral endoscopic myotomy, 24% pneumatic dilation, 22% laparoscopic Heller myotomy), 61 (50%) patients had contractility on HRM, with a median (IQR) DCI of 297 (183-545) mmHg·s·cm (median swallows with contractility: 80%).

Patients with evidence of contractility (compared to those without contractility) more frequently had a pre-treatment diagnosis of type II achalasia (84% vs 57%, p=0.001) and more frequently had a normal/borderline-normal EGJ opening (92% vs 66%, p<0.001). 14 patients (23%) had spastic

contractility (≥20% swallows with DL <4.5 s) and it was not associated with higher TBE column heights at 1 minute (3 vs 4 cm, p=0.422) or 5 minutes (0 vs 0 cm, p=0.506) when compared to non-spastic contractility. In the subgroup of patients with post-treatment integrated relaxation pressure <15mmHg and normal EGJ opening on FLIP (n=53), those with contractility had lower median column heights on TBE at 1 minute (4 vs 7 cm, p=0.002) and 5 minutes (0 vs 5 cm, p=0.001). These patients also had higher median FLIP 60 ml pressures (29 vs 23 mmHg, p=0.024). Eckardt scores were not significantly different across groups.

Conclusion: Esophageal body contractility appears to contribute to improved esophageal emptying after treatment of non-spastic achalasia. Contractility more frequently occurs in type II achalasia and seems facilitated if adequate EGJ opening is achieved after treatment. Avoidance of unnecessary extended myotomy may help preserve potential for contractility and improved outcomes in these patients.

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Disclosure: John E. Pandolfino and Peter J. Kahrilas (with Northwestern University) hold shared intellectual property rights and ownership surrounding FLIP Panometry systems, methods, and apparatus with Medtronic, Inc; Dustin A. Carlson is a speaker for Medtronic, and a consultant for Medtronic and Phathom Pharmaceuticals, and shares a licensing agreement with Medtronic. Peter J. Kahrilas has consulted for AstraZeneca, Ironwood, Reckitt, and Johnson & Johnson; and John E. Pandolfino has consulted for Sandhill Scientific/Diversatek, Medtronic, Torax, and Ironwood, has been a speaker for Sandhill Scientific/Diversatek, Takeda, Astra Zeneca, Medtronic, and Torax, has received grant support from Sandhill Scientific/Diversatek, and owns a patent and license with Medtronic. Edoardo Vespa, Domenico A. Farina and Andree H. Koop have no disclosures.

PP0090

ASSOCIATION OF SLING-FIBER PRESERVATION POEM AND POST-POEM GERD SYMPTOMS: A NORTH AMERICAN SINGLE-CENTER RETROSPECTIVE STUDY

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Introduction: Peroral endoscopic myotomy (POEM) is standard treatment for achalasia. Gastroesophageal reflux disease (GERD) after POEM has been a limiting factor with this procedure. Preservation of the sling fiber during POEM was reported to reduce post-POEM GERD in Japan [1], but there are no reports of this technique in a western population.

Aims & Methods: The aim is to investigate the association of sling-fiber preservation during POEM and post-POEM GERD symptoms at our institution, which is a large therapeutic endoscopy referral center in Canada. This is a retrospective, single-center study of patients who underwent POEM from October 2017 to January 2023 at our center.

The initial cohort of patients were treated by conventional POEM until June 2021, after which a second cohort underwent POEM with sling-fiber preservation, as the techniques advanced.

The primary outcome was the rate of positive GERD symptoms after POEM. The secondary outcomes were procedure time, gastric myotomy length, clinical success rate (Eckard score ≦3), adverse events rate (Clavien-Dindo classification ≧Grade II) and use of PPI at follow-up.

Results: 148 POEM cases (52.5±15.6 y/o, female:61(43%)) were included in this study. There was no significant difference in patient characteristics between the groups. The mean procedure time (108.6±34.5 vs 109.1±45.7 min, P=0.93) and rate of adverse events (21% vs 14%, P=0.36) were similar between the traditional and modified groups. In the sling fiber preservation group, gastric myotomy length was significantly longer (2.2±0.7 vs 1.6±0.8 cm, P<0.05) yet the GERD symptom rate at follow-up was significantly lower (22% vs 41%, P<0.05), although PPI use was similar (57% vs 50%, P=0.47). Finally, the clinical success rate was similar between groups (88% vs 84%, P=0.6).

	Conventional POEM (N=74)	Sling fiber preservation POEM (N=74)	P value
Procedure time, mean (SD), min	109.1 (45.7)	108.6 (34.5)	0.93
Gastric myotomy length, mean (SD), cm	**1.6 (0.8)**	**2.2 (0.7)**	**<0.001**
Adverse events (%) (Clavien-Dindo classification≧II)	18 (24.3%)	16 (21.6%)	0.85
Clinical success rate (Eckardt score ≦3) N=121	53 (84.1%)	51 (87.9%)	0.60
GERD symptoms N=121	**26 (41.3%)**	**13 (22.4%)**	**0.033**
PPI usage (%) N=121	31 (50%)	33 (57%)	0.47

Conclusion: Sling fiber preservation during POEM is safe and reduces post-POEM GERD symptoms, despite the longer gastric myotomy length. As such, sling fiber preservation may be a useful solution to reduce post-POEM GERD in western populations.

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Disclosure: Nothing to disclose.

PP0091

BIOMECHANICAL AND NEUROPHYSIOLOGICAL CHARACTERIZATION OF THE PATHOPHYSIOLOGY OF OROPHARYNGEAL DYSPHAGIA IN OLDER PATIENTS

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Introduction: Oropharyngeal dysphagia (OD) is a very prevalent geriatric syndrome that causes serious nutritional and respiratory complications and mortality. Main pathophysiological elements of OD include delayed biomechanics as well as impaired sensitivity with alterations of the pharyngeal sensory/afferent pathway. However, the involvement of the motor/efferent pathway is unknown.

Aims & Methods: To characterize the biomechanics and neurophysiology of the swallow response in older patients with OD.

Observational study in 12 older patients with OD (>65 years) without neurological disorders, 12 young healthy volunteers (HV) and 9 older HV (OHV). Swallowing biomechanics and neurophysiology were measured by

videofluoroscopy (VFS) including the Penetration-Aspiration scale (PAS) and time to laryngeal vestibule closure (LVC), pharyngeal sensory (pSEP) and motor evoked-potentials (pMEP) to intrapharyngeal electrical and transcranial magnetic stimulation (TMS), respectively.

Results: Study participants (OD, HV and OHV) presented a mean age of 75.6±6.8, 29.9±6.2 and 74.9±5.5 years, respectively (p<0.0001), and a mean Barthel score of 82.5±29.0, 100.0±0.0 and 99.4±1.7 (p=0.022). 83.3% of OD patients had unsafe swallows (PAS=4.25±2.1 vs. 1.18±0.4 HV vs. 1.40±0.5 OHV; p<0.0001) with delayed LVC time (362.5±73.4ms OD vs. 185 5±57.3ms HV vs. 143.2±46.9ms OHV; p<0.0001 OD vs. HV and OHV).

Neurophysiologically we found OD patients had:

a. Higher pharyngeal sensory threshold (12.2±7.5mV OD vs. 5.9±2.2mV HV vs. 6.2±3.3mV OHV; p=0.009) and delayed pSEP P1 and N2 latencies (p<0.05 vs HV); and,

b. Higher pharyngeal motor thresholds to TMS in both hemispheres (right: 93.4±5.4 OD vs 82.0±11.0 HV vs 85.3±10.3 OHV, p=0.04; left: 92±8.1 OD vs 77.8±10.7 HV vs 86.3±10.4 OHV, p=0.02) and delayed MEPs latencies (tenar: 22.0±1.7ms OD vs 16.3±1.3ms HV vs 22.3±2.0ms OHV, p<0.0001 HV vs OD and OHV; right pharyngeal: 8.5±1.3 OD vs 6.6±1.6 HV vs 9.6±1.3 OHV, p=0.01; left pharyngeal: 7.8±1.0 OD vs. 6.3±1.4 HV vs 8.3±112 OHV, p=0.02).

Conclusion: Older OD patients present impaired swallowing biomechanics, pharyngeal hypoesthesia with disrupted conduction of pharyngeal sensory inputs, and reduced excitability of the pharyngeal motor cortex with delayed responses. These findings reveal a new element in the pathophysiology of aging-associated OD and open the door to new and specific neurorehabilitation treatments for these patients by acting simultaneously at both sensory and motor pathways.

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Disclosure: Nothing to disclose.

PP0092

USEFULNESS OF FUNCTIONAL ENDOSCOPY WITH THE ENDOSCOPIC PRESSURE STUDY INTEGRATED SYSTEM (EPSIS) FOR THE DIAGNOSIS OF ESOPHAGEAL ACHALASIA

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Introduction: The Endoscopic Pressure Study Integrated System (EPSIS) is a novel diagnostic device that enables continuous measurement of intragastric pressure during an upper endoscopy. The intragastric pressure (IGP) waveform is recorded during continuous insufflation of the stomach. Previous studies have shown that lower esophageal sphincter (LES) function can be evaluated by characterizing the IGP waveform, and this technique has been applied in diagnosing gastroesophageal reflux disease (GERD).

We hypothesized that EPSIS could be useful for the dynamic evaluation of achalasia in conjunction with other diagnostic tests.

Aims & Methods: This single-center retrospective cohort study included patients who underwent EPSIS as an adjunct diagnostic tool for suspected esophageal motility disorders at a tertiary referral hospital between January 2022 and December 2022. The study group included patients with esophageal achalasia, and the control group consisted of cases with no abnormalities on upper endoscopy, absence of primary esophageal motility disorders with high-resolution manometry, barium swallow, and pathological reflux of acid exposure time ≤ 6% ruled out by 24-hour pH monitoring tests. Esophageal achalasia was confirmed using upper endoscopy, high-resolution manometry, and barium esophagram. The gradient of the pressure waveform obtained by EPSIS was compared between the two groups.

Results: During the study period, 35 cases in the esophageal achalasia group and 34 cases in the control group were included. The gradient of the pressure waveform (median) was significantly higher among achalasia patients (0.45 ± 0.17 vs. 0.31 ± 0.17 mmHg/sec, p=0.0008), indicating a failure of LES relaxation. A receiver operating characteristic (ROC) analysis was conducted, and the diagnostic performance of EPSIS for achalasia was determined to have an area under the curve (AUC) value of 0.76.

Conclusion: EPSIS in the achalasia group showed steep waveforms compared to the control group. ROC analysis also revealed that EPSIS had high diagnostic performance in detecting achalasia. These results suggest that EPSIS is a useful adjunct diagnostic tool for the diagnosis of esophageal achalasia. Functional endoscopy using EPSIS was found to be useful not only in diagnosing GERD but also in other disorders of LES function.

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PP0093

FUNCTIONAL DYSPEPSIA SYMPTOM PATTERNS IN PATIENTS ON OR OFF ACID SUPPRESSIVE THERAPY

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Introduction: Functional dyspepsia (FD) is a disorder of gut-brain interaction (DGBI) characterized by postprandial fullness, early satiation, epigastric pain or burning in the absence of a readily identifiable cause at upper endoscopy. Proton pump inhibitors (PPIs) are often used as a first-line treatment for FD, although their efficacy has not been convincingly established.

Aims & Methods: The aim was to investigate symptom patterns in FD patients with and without acid-suppressive therapy (PPI or H2-antagonist, H2RA) and to evaluate the use of these drugs in different patient groups. Ambulatory tertiary-care patients referred for upper gastrointestinal endoscopy were requested to fill out Rome IV gastro-duodenal questionnaires. Those fulfilling Rome IV FD criteria with a negative endoscopy were identified as FD patients and subdivided into patients on and off acid-suppressive therapy. The pattern of GI symptoms was compared between these two subgroups, using frequency thresholds from the Rome IV criteria. The chi-square or Fisher exact (when applicable) test was used to evaluate statistical significance (p<0.05).

Results: The Rome IV questionnaire was filled out by a total of 1002 patients (58% females, 48.5 ± 0.5 years, BMI 25.4± 0.5). Of these, 229 (23%, 73% females, 45.5 ± 1.1 years, BMI 23.9 ± 0.3) fulfilled the diagnostic criteria for FD. Organic findings at endoscopy included Barrett's oesophagus (n=40, 4%), peptic ulcers (n=24, 2%), and reflux oesophagitis (n=352, 35%). PPI/H2RA usage in FD patients was 60%, which was not significantly different from patients diagnosed with Barrett's oesophagus (75%, p=0.07), peptic ulcer (50%, p=0.33), reflux oesophagitis (57%, p= 0.45) or the combined group with organic abnormality at upper endoscopy (46%, p=0.1). There was no significant difference (p=0.67) in PPI/H2RA usage between the EPS (epigastric pain syndrome, 55% usage) and PDS (postprandial distress syndrome, 50% usage) subgroups of FD.

The most prevalent symptoms in FD patients were postprandial fullness (76%), epigastric pain (67%) and bloating (62%). Patients on acid-suppressive therapy reported more nausea (41% vs 27%, p=0.04) and excessive belching (50% vs 36%, p=0.05) compared to patients without acid suppression.

There was no significant difference in postprandial fullness (84% vs 73%, p=0.05), epigastric pain (75% vs 64%, p=0.08), heartburn (17% vs 28%, p=0.06) and bloating (70% vs 58%, p=0.06) between the two subgroups. Looking at the EPS and PDS subgroups of FD, there was a significant difference (p=0.03) in bloating between patients on (73%) and off (46%) acid suppression in the PDS subgroup of FD.

Conclusion: The cardinal symptom pattern in FD patients referred for upper endoscopy is similar for those on and off acid-suppressive therapy, but those on PPI/H2RA report more nausea and belching. No difference in acid-suppressive therapy use was observed between FD patients and those with organic findings at endoscopy.

Disclosure: Nothing to disclose.

PP0094

FOOD-RELATED SYMPTOMS AND AVOIDANCE IS PREVALENT EVEN IN BETWEEN ATTACKS IN PATIENTS WITH SEVERE CYCLIC VOMITING SYNDROME

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Introduction: Patients with cyclic vomiting syndrome (CVS) experience episodic severe attacks of nausea and vomiting, subsequently limiting food intake during attacks. When the attacks remit, however, patients are mostly asymptomatic. Among adults with CVS in remission, we aimed to examine differences between those with mild versus severe CVS on:

1. Eating-related quality of life (QOL) and;
2. Dietary variety.

Aims & Methods: In a prospectively-maintained cohort of adults with CVS, we included all patients in remission (inter-attack phase at assessment time point) from June 2018 up to September 2022. We grouped patients into severe CVS group (4 attacks or more/year) and mild CVS group (less than 4 attacks/year).

We assessed eating-related QOL on the *Patient Assessment of Upper Gastrointestinal disorders- Quality of life (*PAGI-QOL), using the diet and food habits subscale and diet variety on a *Food Frequency Questionnaire* (FFQ), capturing patient-reported outcomes (PROs) over the prior two weeks, as an approximation of long-term dietary intake.

Results: Of the 49 patients enrolled (30 [61%] females, mean age 33.5 +/- 12.6 years old), 32(65%) patients were included in the severe CVS group (>4 attacks/year), whereas 17 (35%) were enrolled in the mild CVS group. During enrollment, all patients were free of active CVS symptoms.

The severe CVS group was significantly younger and experienced significantly more nausea (p<0.001), abdominal pain (p=0.003), early satiety (p=0.002), loss of appetite (p=0.012), discomfort (p=0.022) and bloating (p=0.007) compared to CVS patients with mild symptoms, during the inter-attack phase.

Those with more severe CVS attacks had poorer QOL and significantly more concern about eating (p<0.001), avoidance (p=0.005) and restriction behavior, and less enjoyment of food (p=0.002), as displayed by PAGI-QoL. Despite symptom differences, there were no differences neither in food type frequencies, nor in the body mass index (BMI) between the two groups.

Conclusion: Despite the episodic nature of CVS, there are notable decreases in quality of life, specifically food-related QOL, in the inter-attack phase among those with a higher frequency of attacks. Such decrements in QOL and altered eating behaviors suggest that patients with more frequent CVS attacks may have significant inter-attack symptoms that would not typically fall into the typical CVS classification schema.

Disclosure: A.Trikola received the International training grant from American College of Gastroenterology.

PP0095

COMPARISON OF DRUGS FOR EOSINOPHILIC ESOPHAGITIS: SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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Introduction: There is currently no recommendation regarding preferred drugs for eosinophilic esophagitis (EoE) because their relative efficacy is unclear.

Aims & Methods: We conducted an up-to-date network meta-analysis to compare proton pump inhibitors, off-label and EoE-specific topical steroids, and biologics in EoE. We searched MEDLINE, EMBASE, EMBASE Classic, and the Cochrane central register of controlled trials from inception to February 2023. We included randomized controlled trials (RCTs) comparing efficacy of all drugs versus each other, or placebo, in adults and adolescents with EoE.

Results were reported as pooled relative risks with 95% confidence intervals to summarize effect of each comparison tested, with drugs ranked according to P-score.

Results: We identified 13 RCTs containing 1327 subjects with EoE. For histological remission defined as ≤15 eosinophils/high-power field (eosinophils/HPF), budesonide orally disintegrating tablet 1mg b.i.d., fluticasone orally disintegrating tablet 1.5mg b.i.d. and 3mg b.i.d., and dupilumab 300mg weekly ranked first, second, third, and fourth, respectively.

Results were similar when histological remission was defined as ≤6 eosinophils/HPF. EoE-specific formulations were generally superior to adapted asthma medications in achieving histological remission. For failure to achieve symptom improvement, only budesonide orally disintegrating tablet 1mg b.i.d. and budesonide oral suspension 2mg b.i.d. were significantly more efficacious than placebo. For failure to achieve endoscopic improvement based on the EoE endoscopic reference score, only budesonide orally disintegrating tablet 1mg b.i.d. and budesonide oral suspension 1mg b.i.d. or 2mg b.i.d. were significantly more efficacious than placebo.

Conclusion: Most drugs are effective for achieving histological remission in active EoE, but few are superior to placebo in terms of symptomatic or endoscopic improvement.

Disclosure: Nothing to disclose.

PP0096

THERE IS A LONG WAY FROM CURRENT CLINICAL PRACTICE IN DENMARK COMPARED TO RECENT PUBLISHED ENGLISH GUIDELINE ON MANAGEMENT OF CHILDREN WITH EOSINOPHILIC OESOPHAGITIS

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Introduction: A low incidence of eosinophilic esophagitis (EoE) in children in the North Denmark Region (NDR) were measured in 2007-2017. Few of the children diagnosed before 2017 were treated to remission suggesting a lack of awareness. While there currently are no guidelines for treating EoE in Denmark, a new English guideline was published in 2022 renewing focus on the disease.

Aims & Methods: The aim of this study was to measure the difference of current Danish clinical practice for treatment and follow-up of EoE children in the NDR with the new English guideline from the British Society of Gastroenterology (BSG) and the British Society of Pediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN).

This retrospective, register-based DanEoE cohort study included 31 children diagnosed with EoE between 2007–2021 in NDR. Medical records were reviewed and information about treatment and follow-up were collected.

Results: In 32% of the children with EoE in the NDR, first-line treatment initiated corresponded with the recommendations in the new English guideline. One in 6 children were never started on any treatment even though treatment always is recommended.

Symptomatic follow-up was completed in 77% (24/31) of children and 85% (11/13) of the children after 2017. Histologic follow-up within 12 weeks was completed in 13% (4/31) of the children and 15% (2/13) of the children after 2017. Combined symptomatic and histologic remission after first-line treatment was achieved in 6% (2/31).

Conclusion: In Denmark focus on improving EoE treatment and follow-up for children is needed, as there is a significant difference between current clinical practice and the recommendations in the new English guideline.

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Disclosure: Nothing to disclose.

PP0097

PATIENTS WITH EOSINOPHILIC OESOPHAGITIS IN DENMARK HAVE HIGHER USE OF PSYCHOTROPIC DRUGS: A DANISH NATIONWIDE STUDY OF PSYCHOTROPIC DRUG USE IN 3,367 PATIENTS AND 16,835 MATCHED COMPARATORS

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Introduction: Eosinophilic oesophagitis (EoE) is a chronic, immune-mediated disease of the oesophagus. EoE is associated with a substantial disease burden affecting the quality of life and impact mental health. There are limited data describing the incidence of psychiatric disorders and the use of psychotropic drugs (PDs) in EoE patients.

Aims & Methods: The aim was to investigate whether EoE patients in Denmark, after being diagnosed, have a higher incident use of psychotropic drugs and more psychiatric comorbidity compared to the general population.

This study is a nationwide, population-based register study including 3,367 EoE patients and 16,835 age- and sex-matched comparators.

A register-based EoE definition was used to identify cases. Incident PD use was extracted from the prescription register and information regarding psychiatric contacts was retrieved from the Danish Psychiatric Central Research Register.

Results: The five-year incidence of PD use in EoE patients was 13.8% compared to 7.1% of the matched comparators (HR 1.83; CI 1.6-2.0; P ≤ 0.001). Antidepressants were the most frequently prescribed PD, whereas antipsychotics were the least prescribed PD. Increasing age, lower educational level, and comorbidity (Charlson Comorbidity Index score ≥1) were associated with the prescription of PDs. The risk of PD use was lower in men compared to women with EoE.

Conclusion: Treatment with PDs were 94% more common in EoE patients after they were diagnosed than in the general Danish population, indicating that EoE patients have an increased risk of psychiatric disorders.

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Disclosure: Nothing to disclose.

PP0098

EOSINOPHILIC ESOPHAGITIS AND RISK OF INCIDENT MAJOR ADVERSE CARDIOVASCULAR EVENTS: A NATIONWIDE MATCHED HISTOLOGY COHORT STUDY

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Introduction: Eosinophilic esophagitis (EoE) is a chronic, allergic inflammatory disease of the esophagus. Major adverse cardiovascular events (MACE) have been associated with diseases of chronic inflammation. Data on MACE from large population-based cohorts of biopsy-proven EoE are lacking.

Aims & Methods: The aim of this study was to investigate the association between EoE and MACE. It included all Swedish adults with EoE (1990-2017) without a record of previous cardiovascular disease (CVD) (n=1,546, with follow-up until 2019). EoE was defined from prospectively recorded esophageal histopathology reports from all Swedish pathology departments (n=28) in the Epidemiology Strengthened by Histopathology Reports in Sweden (ESPRESSO) cohort. Individuals with EoE were matched with up to five general population reference individuals (n=7,281) for age, sex, calendar year and county without EoE or CVD.

Multivariable-adjusted hazard ratios (aHRs) for MACEs (any of ischemic heart disease, congestive heart failure, stroke and cardiovascular mortality) were calculated using Cox proportional hazards models. In secondary analyses, individuals with EoE were compared to their siblings to account for residual confounding.

Results: The majority of individuals with EoE were male (75%), and the median age at EoE diagnosis was 37 years (IQR 19-51). Over a median of 6.0 (IQR 4.6-8.0) years of follow-up, 65 (4.2%) MACE events were observed in patients with EoE and 225 (3.1%) in reference individuals, corresponding to 6.4 *vs.* 4.7 events per 1,000 person-years (incidence rate difference: 1.7, 95%CI=0.0-3.4), respectively.

No significantly higher overall risk (aHR=1.14, 95%CI=0.86-1.51) of MACE outcomes. No significant differences between age, sex and follow-up time were observed. When adjusting for relevant CVD medication and sibling comparison, results were similar.

	Reference individuals	EoE
	N=7 281	N=1 546
MACE outcomes*		
Incident events (%)	226	65
Incidence rate per 1000 py (95%CI)	4.7 (4.1-5.4)	6.4 (4.9-8.1)
Absolute rate difference per 1000 py (95%CI)	0 (ref.)	1.7 (0-3.4)
Unadjusted HR# (95%CI)	1 (ref.)	1.37 (1.04-1.80)
Adjusted HR (95%CI)	1 (ref.)	1.14 (0.86-1.51)

CI, confidence interval; EoE, eosinophilic esophagitis; HR, hazard ratio; MACE, major adverse cardiovascular events; py, person-years

*Includes ischemic heart disease, congestive heart failure, stroke and cardiovascular mortality.

#Adjusted for age, sex, calendar year, county of residence at index date, country of birth (Nordic country or other), educational level (compulsory school, upper secondary school or college/university), ≥1 metabolic disease (diabetes, obesity, hypertension or dyslipidemia), chronic kidney disease, atopic dermatitis, celiac disease and chronic respiratory disease (chronic obstructive pulmonary disease or asthma) diagnosis.

Table 1. Incidence Rates, Absolute Rate Differences and Hazard Ratios for incident Major Adverse Cardiovascular Events in patients with Eosinophilic Esophagitis compared to general population reference individuals 1990-2019.

Conclusion: Individuals with biopsy-proven EoE had no increased risk of MACE outcomes compared to general population or sibling comparators. The absence of any association with MACEs in our study may be reassuring for patients with EoE.

Disclosure: Dr. Forss has served as a speaker and advisory board member for Janssen corporation. Dr. Uchida is a medical advisor for Sanofi-Regeneron and AstraZeneca. Dr. Roelstraete has no conflicts of interest. Dr. Ebrahimi has served as advisory board member for Boehringer Ingelheim. Dr. Garber do not have any conflicts of interest to declare related to this study. Dr. Sundström reports stock ownership in Anagram kommunikation AB and Symptoms Europe AB outside the submitted work. JFL has coordinated an unrelated study on behalf of the Swedish IBD quality register (SWIBREG). This study received funding from Janssen corporation. JFL has also received financial support from MSD to develop a paper reviewing national healthcare registers in China, and has ongoing discussions with Takeda about a celiac disease project.

PP0099

MULTIDISCIPLINARY APPROACH IN EOSINOPHILIC OESOPHAGITIS CARE: HOW TO IMPROVE DIAGNOSIS AND MANAGEMENT

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Introduction: Eosinophilic esophagitis (EoE) is a complex disease that often coexists with different conditions. Given the complexity of this pathology, a multidisciplinary approach, with gastroenterologist, allergist, dietitian, psychologist, and endoscopist may benefit to diagnosis and management of patients, reducing time to diagnosis as well.

Aims & Methods: To evaluate impact of multidisciplinary team in diagnosis and management of eosinophilic esophagitis disease. A retrospective study was conducted to include all patients referred to Fondazione Policlinico Universitario A. Gemelli between September 2016 and April 2023. Prevalence of allergic, nutritional, and psychological disturbs was evaluated. Referral for each patient was reviewed.

Diagnostic delay (time interval between first occurrence of EoE symptoms and confirmed diagnosis with endoscopy) was analyzed in patients with suspected eosinophilic esophagitis and diagnosis made in our center, compared to data reported in literature. Publications from 2014 to 2023 were reviewed.

Results: A total of 98 patients, 76 males and 22 females, with a mean age at diagnosis of 25 years, were included in the study. For all patients, each visit was conducted in team with gastroenterologist, allergist, dietitian, and psychologist. 81 patients presented allergic diseases (82 %), 51 patients (52 %) needed nutritional support by a dietitian and 63 patients (64 %) presented psychological implication by the disease to necessitate clinical support. 42 patients (43%) were referred by team members. 13 patients (13%) presented to our center with suspect eosinophilic esophagitis.

For these patients, ab initio evaluated with multidisciplinary approach, mean time to diagnosis was 2.25 months. Diagnostic delay reported in literature was 3 years.

Conclusion: Multidisciplinary team is needed to manage patients with eosinophilic esophagitis because its several associated diseases. In fact, most of our patients presented allergic, nutritional, and psychological disturbs. This approach assures more appropriate medical management through shared decision making. Almost half of patients was referred by team members. Thanks to awareness of each physician of the team and his early referral, we assisted in a reduction of diagnostic delay in our center compared to data reported in literature.

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Disclosure: Nothing to disclose.

PP0100

THE EFFECT OF THE 6-FOOD ELIMINATION DIET FOR THE TREATMENT OF EOSINOPHILIC ESOPHAGITIS ON URINE AND BLOOD PLASMA METABOLOMIC PROFILE IN HEATHY VOLUNTEERS

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Introduction: Eosinophilic esophagitis is a chronic, immune-mediated inflammatory disease of esophagus characterized by a significant mucosal eosinophilia. However, the definite cause of this disease remains unknown. One of the most probable etiology factors is an abnormal response of immune system to various types of ingested food. Therefore, one of the treatment options is the so called 6-food elimination diet. This diet represents a therapeutic method of choice especially in patients who could not be treated by standard immunosuppressive medications such as corticosteroids. The 6 food groups that are mostly associated with food allergies are: eggs, dairy products, seafood/shellfish, nuts, wheat, and soy. Although widely used, there is surprisingly lack of data evaluating its effect on metabolomic profile of the patients and their well-being despite its strict dietary regime.

Aims & Methods: The aim of this study was to evaluate possible changes in metabolomic and anthropometric parameters in healthy individuals pre and after 4 weeks of elimination diet.

We performed a prospective single center study on healthy volunteers (age >18 years). For metabolomic analysis of blood plasma and urine the method of NMR (Nuclear Magnetic Resonance) was used. Anthropometric analysis was performed by bioelectrical impedance. All volunteers also filled validated questionnaires considering various aspects of patient well-being (WHOQOL-BREF, PROMIS-10 and PHQ-15). The statistical analysis was processed by unparametric tests (Mann-Whitney U-test) for comparison of equality of medians and unparametric paired Wilcoxon-signed-rank test.

Results: Fifteen (15) healthy volunteers without any previous dietary restrictions participated in this study (12 women with median age 35,5 years and 3 men with median age 41 years). Evaluation of blood plasma metabolomic profile shows significant increase of acetate, succinate, creatine, and creatinine at the end of the four weeks period of the course of the diet. The urine metabolomic profile shows significant decrease of dimethylamine. Importantly, no statistically significant changes were observed in the levels of essential aminoacids. No relevant differences were observed considering anthropometric parameters (BMI, percentage of fat and muscle mass) and in the questionnaires assessing quality of life.

Conclusion: The results of presented study shows that the 6-food elimination diet have only minor effect on the metabolomic profile of healthy volunteers. This further suggest its good safety profile for the treatment of eosinophilic esophagitis. In addition, presented data point out that this diet does not significantly lower the quality of life of patients which could result to good adherence to the diet in short term course.

Disclosure: Nothing to disclose.

PP0101

A UK BASED RETROSPECTIVE ANALYSIS OF THE MANAGEMENT OF PATIENTS PRESENTING AS AN EMERGENCY WITH FOREIGN BODY IN THE OESOPHAGUS

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Introduction: Emergency admission with foreign body in the oesophagus (FBO) commonly requires endoscopic removal. Oesophageal food bolus obstruction is often due to eosinophilic oesophagitis (EoE). Patients with food bolus obstruction should undergo endoscopy and multilevel oesophageal biopsies to exclude EoE.

This national retrospective study examined the management including endoscopy and follow-up of patients presenting as an emergency with FBO.

Aims & Methods: The Hospital Episode Statistics database was used to identify patients over 18 with FBO presenting as emergencies in England using the ICD-10 code T18.1 between 2008 and 2019. Logistic regression analysis assessed factors associated with undergoing endoscopy and biopsy.

Results: 10,417 patients were identified: 71% male; 82% white ethnicity; and 52% were admitted under Ear, Nose & Throat (ENT). 74.7% underwent endoscopy (94% within a week of admission) but only 18% had biopsies taken within 6 months of admission. 1.6% underwent endoscopic dilation for FBO, with 0.5% coded with a related perforation. 70% of ENT patients underwent endoscopy but only 11.9% biopsy to exclude EOE, compared with 83% of patient admitted under General Medicine undergoing endoscopy and 29.5% biopsy.

Endoscopy and biopsy was associated with: older age (61-70 OR 1.43 (95% CI 1.26-1.61), males (females 0.67(0.62-0.71)), the least deprived (1.24 (1.13-1.38)), later diagnosis year (2019 1.42 (1.21-1.66), and admission under General Medicine (2.68(2.48-2.88) or Gastroenterology (3.03(2.61-3.51)) but not with NHS trust FBO volume. 32% received outpatient follow-up within 12 months of their FBO admission: 30% of patients admitted under General Medicine were referred to gastroenterology for follow-up but only 12% of those admitted under ENT.

In recent data from Scotland (Ntuli et al. 2020), 26% of patients with food bolus obstruction had EoE. This suggests that in the present study cohort approximately 1300 patients missed an opportunity to be diagnosed with EoE, as oesophageal biopsies were not taken at endoscopy for FBO.

Conclusion: 75% of patients presenting with FBO undergo endoscopy but only 18% had biopsies taken to exclude this common presentation of EoE. Pathways for the management of food bolus obstruction require re-design and unless the airway is impaired, this condition should be managed under General Medicine.

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Disclosure: Nothing to declare.

PP0102

COMPARATIVE EFFICACY AND SAFETY OF DIFFERENT PHARMACOLOGICAL INTERVENTIONS FOR EOSINOPHILIC ESOPHAGITIS: A NETWORK META-ANALYSIS

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Introduction: Currently there is no single strategy that has a clear benefit as primary therapy for Eosinophilic Esophagitis (EoE). Because of the continuous emergence of randomized clinical trials on various pharmacological and nonpharmacological approaches, we conducted a network meta-analysis in order to evaluate the efficacy and safety of available treatments for EoE in adult patients.

Aims & Methods: Histologic remission, clinical and endoscopic response, and serious adverse events (SAEs) were evaluated. Direct and indirect comparisons between treatments (proton pump inhibitors (PPI), swallowed topical corticosteroids (STC), monoclonal antibodies (mAb), placebo) were performed. Results are expressed as risk ratio (RR) and 95% confidence interval (CI).

Results: A total of eight eligible randomized controlled trials (1057 patients) were included in the meta-analysis. When the three interventions were compared with each other, none was significantly more effective in terms of histologic remission (STC vs mAb RR 5.03, 95% CI 0.96-26.24, PPI vs mAb RR 0.87, 95% CI 0.41-3.12, PPI vs STC RR 0,75, 95% CI 0.60-5.09) while all three interventions were significantly superior to placebo (mAb vs placebo RR 31, 95% CI 10.91-88, STC vs placebo RR 54.26, 95% CI 12.1-241.83, PPI vs placebo RR 10.78, 95% CI 5.33-21.78). STC and mAB resulted as the best interventions (SUCRA 0.93 and 0.78, respectively) followed by PPI (SUCRA 0.38).

None of the interventions tested resulted in a significant increase in SAE rate compared with placebo (mAb vs placebo RR 3.41, 95% CI 0.61-19.12, STC vs placebo RR 1.28, 95% CI 0.25-6.44). As a consequence, placebo ranked as the safest treatment (SUCRA 0.73), followed by STC (SUCRA 0.63) and mAb (SUCRA 0.51).

Conclusion: The results of this network meta-analysis show that mAb and STC were the most effective treatments among those available for EoE as assessed by histologic remission, both with a relatively low rate of serious adverse events.

Disclosure: Nothing to disclose.

PP0103

EVALUATION OF EFFICACY, SAFETY AND PATIENT SATISFACTION OF THERAPEUTIC SWITCH FROM OFF-LABEL SWALLOWED TOPICAL CORTICOSTEROIDS TO BUDESONIDE ORODISPERSIBLE TABLETS IN PATIENTS WITH EOSINOPHILIC ESOPHAGITIS

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Introduction: Swallowed Topical Steroids (STCs) originally developed for airway administration have been used off-label for eosinophilic esophagitis (EoE). Recently a new specifically designed formulation of budesonide orodispersible tablet formulation (BOT) has been developed and ap-

proved in different European countries. Since 30/08/2022 in our center all patients treated with STCs have been switch to BOT and prospectively followed up clinically and histologically.

Aims & Methods: The aim of our study is to evaluate efficacy, safety and patient' satisfaction of therapeutic switch from off-label STCs to BOT (NCT05594849). Each patient performed upper GI endoscopy with biopsies under STCs and after 12-16 weeks of BOT to evaluate histologic remission. Moreover, all patients filled up a set of questionnaires before the switch and after 12-16 weeks of BOT evaluating severity of symptoms (DSS, DSQ), quality of life (EoE QoL) and satisfaction of the treatment (19 items scored between 0 to 4 evaluating the modality of assumption, the taste, and the perception of safety; higher values corresponding to higher satisfaction).

Results: The sample consists of 29 EoE patients, PPI non responders, who were receiving STCs (72.41% home-made viscous fluticasone, 27.58% viscous budesonide). Mean treatment-time was 32.53±29.27 months for fluticasone and 23.5±11.01 months for budesonide. Six patients (20.68%) presented strictures previously treated endoscopically. The starting dose of BOT was determined on the previous dosage of STCs and on the presence of histologic remission (89.65% used 1 mg twice daily, 10.34% 1 mg daily). Of 29 enrolled patients, 19 have already repeated the endoscopy under BOT (65.51%). Before therapeutic switch, 8 patients over 19 (42,11%) were active (>15 EOS/HPF) and 11 patients (57.89%) were in histologic deep remission (<6 EOS/HPF). After therapeutic switch, 7 patients over 8 (87.5%), histologically active under STCs, achieved deep remission with BOT, and one remained active (12.5%). Between patients in deep remission with STCs, 10 patients over 11 mantained histologic deep remission (90,91%) and only one relapsed (9,09%) after switch. After the switch to BOT, 3 patients over 29 presented oral/esophageal candida infection. Of these three, two patients have already experienced oral/esophageal candida under off-label STCs. After the therapeutic switch an improvement of symptoms severity was found for DSS score but not for DSQ (STCs-DSQ 0.24±0.63, BOT-DSQ 0.16±0.57, p value=0.60; STCs-DSS 5.14±2.77, BOT-DSS 2.3±2.05, p value=0.012). No differences were found for the quality of life (STCs-EoE QoL 42.07±19.42, BOT EoE QoL 30.72±23.95, p value=0.068). Finally, the satisfaction score showed a significant major willing of assumption of BOT rather than STCs (STCs 38.21±11.61, BOT 55.91±14.30, p value= 0.003).

	STCs	BOT	P-VALUE
HISTOLOGIC REMISSION	11 Remission	10 deep-remission (90.91%), 1 relapse (9.09%)	
	8 Active	7 deep-remission (87.5%), 1 active (12.5%)	
DSQ	0.24±0.63	0.16±0.57	0.601
DSS	5.14±2.77	2.3±2.05	0.012
EOE QOL	42.07±19.42	30.72±23.95	0.068
SATISFACTION	38.21±11.61	55.91±14.30	0.003

Conclusion: Preliminary data of our study showed that therapeutic switch from off-label STCs to BOT in EoE patients is effective, safe and well tolerated. Most of patients histologically active under off-label STCs achieved histological deep remission with BOT and, if previously acquired with off-label STCs, histological deep remission was maintained in the majority of patients under BOT. The patients reported a significant major willing of assumption of BOT rather than off-label STCs.

Disclosure: Nothing to disclose.

PP0104 WITHDRAWN

PP0105

UPDATED OVERVIEW OF CLINICAL CHARACTERISTICS AND UNDERLYING CAUSES OF DYSPHAGIA IN THE OUTPATIENT SETTING: REAL-LIFE EXPERIENCE FROM A TERTIARY CENTRE

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Introduction: Dysphagia is a common and alarming symptom, which harbours the risk of organic diseases. Its incidence is increasing in the last decades worldwide, both in the young and elderly population. However, epidemiological and clinical data related to dysphagia patients are lacking. Thus, we aimed to provide an updated analysis of the main underlying causes of dysphagia in outpatient clinic.

Aims & Methods: We retrospectively evaluated consecutive patients referred from June 2022 to December 2022 to our outpatient clinic, suffering from incident dysphagia as the main symptom at the index visit. Patients already previously evaluated were excluded.

After clinical evaluation, all the subjects underwent esophago-gastro-duodenal endoscopy (EGDS) as the first diagnostic exam, during which, up to clinical suspect and endoscopist evaluation, biopsies of the oesophagus and/or cardias were made. According to clinician assessment, execution of high-resolution manometry (HRM) was also performed.

Results: During the study period 700 first outpatient visits were performed. A total of 78 patients met the inclusion criteria and were then involved in the study. Esophageal dysphagia was the most frequently reported symptom (65/78, 83.3%), followed by oropharyngeal dysphagia (8/78, 10.3%) and mixed dysphagia (5/78, 6.4%).

The most common concomitant symptoms were chest pain (40/78, 51.3%), regurgitation (34/78, 43.6%), heartburn (20/78, 25.6%), weight loss (19/78, 24.3%) and cough (14/78, 17.9%). Median age was 57.0, with M/F ratio of 33/78 (42.3%).

Endoscopy showed abnormal features in 25/78 (32.1%), with the most common finding being erosive esophagitis (5/25, 20%). Seven out of 25 (28%) subjects had at least one non-specific finding among those associated with eosinophilic esophagitis (edema, rings, exudate, furrowing, strictures). The physician performed biopsies of the esophagus and/or cardias in 52/78 (66.6%) cases, and 28 patients had histologic abnormal findings.

The most common histological diagnosis was eosinophilic esophagitis (EoE) which was identified in 12 patients, 5/12 (41.7%) without mucosal evidence of EoE. HRM was performed in 22/30 patients (73.3%) after negative endoscopy and/or histology, with abnormal findings in 17/22 (77.3%) of the tests. In this setting achalasia was the most common diagnosis (5/22, 22.7%), one patient with Type I, two with Type II and two patients with Type III.

Overall, the most common diagnosis in our cohort was EoE (12/78, 15.4%), followed by achalasia (7/78, 9.0%).

Conclusion: Among patients complaining of dysphagia referred to an outpatient gastroenterology clinic, EoE is the main underlying cause of such condition. Given its high frequency, biopsies should be always performed in patients with dysphagia, regardless of endoscopic findings.

Disclosure: Nothing to disclose.

PP0106

ASSOCIATION OF MODERATE-INTENSITY AND VIGOROUS-INTENSITY PHYSICAL ACTIVITY ON GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: Lifestyle modifications leading to weight reduction recommend for symptom relief on patient with gastroesophageal reflux disease (GERD) with overweight or obesity. The physical activity seems to be an important factor of lifestyle modifications for weight loss and maintenance.

However, it is lack of data that elucidate which GERD patients and physical activity would have a benefic impact.

Aims & Methods: This study investigated the association of physical activity intensity with GERD. This retrospective study, 21,266 subject who underwent esophagogastroduodenoscopy as a comprehensive health screening program. The participants were assessed for physical activity (metabolic equivalent task [MET]- min/week) using a self-reported questionnaire between January 2018 and December 2021.

We used the current physical activity guideline to distinguish "physically active" (i.e., ≥450 MET·min·wk−1) or "physically inactive" subjects (i.e., <450 MET·min·wk−1). We analyzed the association between intensity for physical activity and GERD.

Results: The prevalence of GERD in men was significantly higher than that in women (86.5% vs 13.5%, $P < 0.001$). The mean body mass index (BMI) was higher in GERD patients than non-GERD patients (23.6±3.4 vs 25.7±3.5, $P < 0.001$).

Compared to the non-GERD group, the GERD group got more vigorous-intensity physical activity (140 MET vs 210 MET, $P < 0.001$), while no significant difference in moderate-intensity physical activity (360 MET vs 360 MET, $P = 0.272$). The severity of GERD showed a significant positive correlation with frequency and duration of vigorous-intensity physical activity.

Moreover, the prevalence of GERD in physically active group was significantly higher than physically inactive group (68.5% vs 31.5%, $P < 0.001$). In the physically active group, the severity of GERD showed a significant positive correlation with the higher portion of vigorous-intensity physical activity in total physical activity.

Conclusion: We could find that vigorous-intensity physical activity of frequent and long duration could trigger the reflux to aggravate the symptoms of GERD. These findings suggest that the modest-intensity physical activity can be beneficial to GERD.

Disclosure: No any conflict of interest.

PP0107

METABOLIC RISK FACTORS FOR GASTROESOPHAGEAL REFLUX DISEASE IN DYSPEPTIC PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: The prevalence of non-alcoholic fatty liver disease (NAFLD) and gastroesophageal reflux disease (GERD) has increased. Both diseases are more prevalent in obese individuals. Strong association between GERD and NAFLD has been demonstrated. However, it is not known whether this association is a causal or is a result of shared underlying risk factors.

Aims & Methods: The aim of this study was to evaluate metabolic risk factors for GERD in dyspeptic patients with NAFLD.

The present study was a cross sectional observational study that was conducted on 300 dyspeptic patients with NAFLD. Patients were divided into the GERD group (n=207) and the non-GERD group (n=93) using upper GIT endoscopy.

Patients were subjected to medical history taking, clinical examination with assessment of blood pressure, body mass index (BMI) and investigations including complete blood picture, fasting blood sugar and fasting Insulin levels, liver enzymes, HOMA IR and FIB-4 were calculated.

Results: The GERD group had higher significant ratio of smokers compared to the non-GERD group. No significant difference was found between dyspeptic NAFLD patients with GERD and those without as regarding the prevalence of obesity, but they had significantly higher mean waist circumference and BMI than those without GERD. TG and TG/HDL ratio were significantly higher in dyspeptic NAFLD patients with GERD than in those without. FBS and insulin level were significantly higher in dyspeptic NAFLD patients with GERD than in those without but with no significant difference between both groups as regard HOMA score.

Logistic regression analysis showed that the model using triglycerides (TG), BMI, waist circumference, insulin, and FBS could correctly predict 89.9% GERD in dyspeptic NAFLD patients.

			95% C.I. for EXP(B)	
	Significance	Odd's ratio	Lower	Upper
TG	.000	1.010	1.005	1.016
BMI	.050	.911	.830	1.000
Waist circumference	.006	.960	.933	.989
Insulin	.000	1.170	1.093	1.253
FBS	.000	.946	.924	.968
Constant	.000	3480.383		

Table. Logistic regression analysis.

Conclusion: TG, BMI, waist circumference, insulin level and fasting blood sugar were independent risk factors for GERD in dyspeptic NAFLD patients.

Disclosure: Nothing to disclose.

PP0108

THE ROLE OF SALIVA PRODUCTION AND ESOPHAGEAL MOTOR FUNCTION IN POST-REFLUX SWALLOW INDUCED PERISTALTIC WAVE (PSPW) RELATED ESOPHAGEAL ACID CLEARANCE

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Introduction: The post reflux swallow-induced peristaltic wave (PSPW) brings salivary bicarbonate via an esophago-salivary reflex to neutralize residual esophageal mucosal acidification after gastro-esophageal reflux episodes.

Aims & Methods: We hypothesized that reduced saliva in Sjogren's syndrome and hypomotility in both Sjogren's syndrome and scleroderma/mixed connective tissue disease (MCTD) could compromise PSPW-induced pH recovery in the distal esophagus. Patients with confirmed Sjogren's syndrome and scleroderma/MCTD (based on rheumatologic evaluation) who underwent high resolution manometry (HRM) and ambulatory pH-impedance monitoring off antisecretory therapy were retrospectively identified over a 5-year period at 2 motility centers.

For comparison, patients without these disorders undergoing HRM and pH-impedance monitoring for GERD symptoms were identified from the same time-period, segregated into two groups based on presence or absence of ineffective esophageal motility (IEM).

Patients with prior foregut surgery, studies with artifacts precluding reflux episode and PSPW identification, and unconfirmed rheumatologic diagnoses were excluded. Acid exposure time (AET), numbers of reflux episodes and PSPW (using Wingate Consensus criteria), pH recovery with PSPW, and HRM metrics were compared between Sjogren's syndrome, scleroderma/MCTD and comparison groups.

Univariate comparisons and multivariable analysis were performed to determine predictors of PSPW and pH recovery.

Results: We studied 34 patients with Sjogren's syndrome, 14 with scleroderma/MCTD, 96 comparison patients with reflux symptoms (49 without IEM, and 47 with IEM, Table). Age and gender distribution were similar across groups. The scleroderma/MCTD group had higher AET, higher prevalence of hypomotility, lower detected reflux episodes from very low baseline impedance, and very low numbers of PSPW ($p \leq 0.004$ compared to other groups).

There was no difference in pH impedance metrics between Sjogren's syndrome, and comparison patients ($p \geq 0.481$), including between subsets of Sjogren's and comparison patients with and without hypomotility ($p \geq 0.116$ for each comparison).

In contrast, proportions with complete pH recovery with PSPW was lower in Sjogren's patients compared to comparison reflux patients ($p=0.009$), predominantly in subsets with hypomotility ($p<0.001$). Within Sjogren's syndrome, absent contractility was associated with rates of complete pH recovery with PSPW similar to scleroderma/MCTD (0.0% vs. 8.1% respectively, p=ns), while Sjogren's with IEM resembled comparison patients with IEM (p=ns) although numbers were small.

On multivariable analysis including variables of interest (total reflux episodes, PSPW index, AET, and diagnosis) only higher total reflux episodes ($p=0.028$) and diagnosis of Sjogren's syndrome ($p=0.034$) independently predicted lack of complete pH recovery with PSPW, while failed and ineffective swallows and AET were not predictive.

	Sjogren's syndrome n=34	Scleroderma/ MCTD n=14	Comparison reflux patients n=96	p value across groups
Total AET (%)	3.2 (0.5-10.8)	13.2 (2.9-40.1)	3.5 (1.5-7.1)	0.017
Reflux episodes	26.5 (14.0-46.5)	9.5 (1.5-20.5)	34.5 (16.0-46.8)	0.003
PSPW	6.0 (3.0-11.0)	0.0 (0.0-6.0)	7.0 (2.0-12.0)	0.010
PSPWI (%)	21.7 (14.5-46.3)	8.3 (0.0-33.0)	21.2 (13.7-36.1)	0.160
Partial pH recovery (%)	11.3 (0.0-35.6)	11.1 (0.0-49.2)	10.7 (0.0-33.3)	0.765
Complete pH recovery (%)	38.1 (0.0-61.9)	8.1 (0.0-29.2)	55.6 (33.3-71.4)	0.002
Esophageal hypomotility	8 (23.6%)	11 (78.5%)	47 (49.0%)	<0.001
IEM	4 (11.8%)	1 (7.1%)	42 (43.8%)	<0.001
Absent contractility	4 911.8%)	10 (71.4%)	5 (5.2%)	<0.001

Values are described as median (interquartile range) or values (percent)

Conclusion: Saliva production may be more important than motor function in PSPW related pH recovery.

Disclosure: Nothing to disclose.

PP0109

NEUROKININ A AND SUBSTANCE P SERUM CONCENTRATIONS CORRELATE WITH ESOPHAGEAL FUNCTION TESTING PARAMETERS IN SUBJECTS WITH GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: Neurokinin A (NKA) and substance P (SP) may be responsible for airway hyperreactivity and hypersensitization. Animal studies showed an increase of their blood concentration in response to acid installation into the esophagus, suggesting the presence of neurogenic inflammation in pathogenesis of asthma and chronic cough. However, little is known about association between serum concentration of these cytokines and esophageal function testing parameters in patients with gastroesophageal reflux disease (GERD).

Aims & Methods: Aim of the study was to assess serum concentration of neurokinin A and substance P in patients with erosive esophagitis and non-erosive form of GERD and perform correlation analysis between concentrations of these substances and data of multichannel esophageal pH-impedance (MII-pH) and high-resolution esophageal manometry (HREM).

Methods: The data of examination of 88 subjects (31with erosive esophagitis (EE); 57 with non-erosive form of GERD (NERD)) served as a source for the study.

Diagnosis of GERD was established per Lyon criteria. Subjects with autoimmune disorders, receiving immunosuppressants, antisecretory agents and medications able to affect esophageal motility were not eligible. Patients underwent HREM with the use of 36-channel solid-state catheters and MII-pH with 2-pH, 6-impedandce sensors catheters.

Serum concentrations of NKA and SP were measured with Sunrise analyzer and ELISA kits (Biochemmack, USA). Non-parametric statistics was used to compare the results obtained in EE and NERD groups and to perform correlation analysis.

Results: Acid exposure time (AET), and number of high gastroesophageal refluxes were higher in EE group compared to NERD, while number of refluxes and concentrations of NKA and SP were similar. Mean, minimal and residual lower esophageal sphincter resting pressures (mean by 10 water swallows) were lower in EE compared to NERD.

There was direct correlation between serum concentration of SP and number of gastroesophageal refluxes (Spearman rank R=0.258), AET (R=0.252), and number of refluxes lasted >5 min (R=0.353). Serum concentration of

NKA correlated directly with number of refluxes >5 min long (R=0.275), and inversely with levels of integrated relaxation pressure (R=-0.321), and contractile front velocity (R=-0.379). Other correlations were not statistically significant.

	Neurokinin A	Substance P
24 hours MII-pH		
Total number of gastroesophageal refluxes	0.192	0.258*
Acid exposure time, %	0.137	0.250*
Mean pH	0.051	-0.089
Number of refluxes longer than 5 minutes	0.275*	0.353*
HREM		
IRP4	-0.321*	-0.210
CFV	-0.379*	-0.286
DCI	0.039	-0.149

** P<0.05*

Table 1. Correlation coefficients (by Spearman rank R) between serum concentrations of Neurokinin A, Substance P and esophageal function testing parameters.

Conclusion: In subjects with GERD, serum concentrations of Neurokinin A and Substance P do not depend on the presence of esophagitis and probably are not caused by the influence of reflux content to sensory neurons of esophageal mucosa. Established correlations may support the involvement of neurokinin A and substance P in pathogenesis of gastroesophageal reflux disease through disturbance of esophageal motility.

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PP0110

MOLECULAR CHANGES IN THE MUCOSAL BARRIER FOLLOWING LAPAROSCOPIC ANTI-REFLUX SURGERY

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Introduction: Patients after laparoscopic anti-reflux surgery (LARS) report an improvement in their quality of life and significant decrease in their symptoms. In our previous study, we showed that LARS increases tissue resistance and decreases permeability (1).

However, the molecular effects of this operation on mucosal integrity, which is responsible for stopping reflux attacks, are not yet understood.

Aims & Methods: In this study, changes in intercellular adhesion proteins and dilated intercellular spaces were investigated in patients before and after anti-reflux surgery.

The study included 22 GERD patients (10 ERD-AB, 6 ERD-CD, 6 NERD) who received approval for LARS and 16 healthy controls (HC) without GI symptoms and with normal 24-h MII-pH monitoring & upper GI endoscopy. All patients have pathological reflux attacks. Upper GIl endoscopy was performed on HC and GERD patients before and after surgery (2-18 months later), and esophageal biopsies were obtained. The expressions of E-cadherin (CDH1), Occludin (OCLN), Claudin 1 (CLDN1), Claudin 4 (CLDN4), ZO-1 and ZO-2 were studied in the biopsies and dilated intercellular spaces (DIS) were also examined by double-blinded under light microscopy.

Results: Gene expressions of CDH1 (+1.7) and ZO-2 (+2.9) increased in GERD patients, while CDH1 (+1.7), OCLN (+3.9), ZO-1 (+3.5), and ZO-2 (+2.9) increased in Post-LARS. When compared before and after surgery, ZO-1 expression was significantly increased by 1.8-fold in Post-LARS. Post-LARS biopsies were also divided as 2-6 months and 6-18 months before and after surgery.

No difference was observed in the gene expressions of patients who evaluated for follow-up within 6 months after surgery, but those who evaluated after 6 months showed a 1.5-fold increase in OCLN expression in Post-LARS biopsies.

Patients were divided into phenotypes, and post-surgery results were examined. In the ERD-CD group, OCLN expression increased by 1.5 times after surgery compared to pre-LARS, while ZO-1 (-1.6) and ZO-2 (-1.7) expression decreased in the NERD group. No changes were observed in the ERD-AB group.

The patients were separated into 18-45 and 45-74 age groups, it was found that Post-LARS resulted in a 1.5-fold increase in OCLN expression in individuals under 45 years old, but there was no difference in individuals over 45 years old.

When the DIS characteristics of all patients were examined, it was observed that DIS of HC group was significantly lower than Pre-LARS (1.31±0.5 µm) and Post-LARS (1.26±0.6 µm) ($p<0.001$), but there was no significant difference between Pre-LARS and Post-LARS. No difference was found between age groups in DIS.

Conclusion: ZO-1 plays an important role in mucosal repair, and its increase in Post-LARS compared to pre-LARS may indicate improvement following cessation of acid-peptic attacks.

Although no significant differences were observed in the short term after surgery (<6 months), OCLN expression increased in the long term (>6 months), which could be a molecule that contributes to the decreased permeability observed after Post-LARS. The upregulation of this gene was also observed in the ERD-CD group after LARS.

Furthermore, OCLN was significantly higher in individuals under 45 years of age. This gene, which contributes to decreased permeability, appears to be activated in response to repair mechanisms in severely damaged groups and is more active in younger individuals.

In the NERD group, where mucosal integrity was not compromised, the downregulation of ZO genes may be due to the absence of repair mechanisms. The lack of change in DIS after LARS suggests that the dilatations between cells might be irreversible.

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Disclosure: Nothing to disclose.

PP0111

NOVEL COMBINATION OF TECHNIQUES TO ASSESS GASTROESOPHAGEAL FUNCTION: NORMAL DATA FROM HEALTHY INDIVIDUALS

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Introduction: To better understand the mechanisms of gastroesophageal function in patients with gastroesophageal reflux disease (GERD), we assessed healthy individuals using a novel, multi-model study that combined physiology techniques, including high resolution manometry (HRM), 24-hour multichannel-intraluminal impedance-pH (MIIpH), C13 gastric emptying breath testing (GEBT), and body surface gastric mapping (BSGM).

Aims & Methods: Healthy controls were screened and those with a score of 0 on the GERDQ were enrolled. Also, participants completed ROME IV, PAGI-QOL, PAGI-SYM and real time study symptom questionnaires. A 30 minute BSGM baseline was performed after a six hour fast. Then HRM was performed with 10 supine 5 ml swallows to classify esophageal motility followed by a 233 kcal porridge meal labelled with C13 sodium acetate consumed within 10 minutes. Postprandial HRM, GEBT, MIIpH, and BSGM were recorded. After 1 hour HRM was removed and after 4 hours GEBT and BSGM were concluded, but MIIpH testing was continued for the remaining 24 hours. Data were analysed using standard procedures and compared with established reference intervals.

Results: 30 healthy volunteers (15 males and 15 females, mean age 31.8 ±9.8 years) completed with none meeting ROME criteria. Mean PAGI-SYM and PAGI-QOL were 3.2 ±5.4 and 4.3 ±7.5, respectively. The mean esophageal acid exposure time (AET) was 2.9% ±4.9 where 3 participants had excessive AET >6%. The mean total number of reflux episodes was 30.5 ±19.9 and the mean number of hypopharyngeal episodes was 1.4 ±12.2. On HRM, 8 participants had ineffective esophageal motility, 1 participant had absent contractility and 1 hypercontractile esophagus.

On GEBT, the mean T lag was 47.9 ±18.1 minutes and T ½ was 92.1 ±22.9 minutes. 8 participants had abnormal BSGM but 1 was excluded due to excessive artefact. Of the remaining 7, 5 had low gastric rhythm index, 1 had low frequency and 1 low amplitude.

Those with abnormal BSGM were more likely to be male (P = 0.017) and have a hiatus hernia >1.5cm (P = 0.029), but abnormal BSGM in this healthy cohort was not related to any other HRM, MIIpH or GEBT parameters.

Conclusion: These data show it is feasible to perform a combination of techniques to comprehensively assess gastroesophageal function. These normative data can be used to compare with a GERD population to determine pathophysiology of gastroesophageal reflux.

Disclosure: Nothing to disclose.

PP0112

CONTRIBUTION OF INEFFECTIVE MOTILITY AND ABSENT PERISTALTIC RESERVE TO THE SEVERITY OF GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: Peristaltic reserve is the normal augmentation of peristaltic contraction amplitude at the end of a series of multiple-rapid swallows (MRS). Normal peristaltic reserve in patients with ineffective esophageal motility (IEM) has been reported to a predictor of good outcome after fundoplication. Conversely, absent peristaltic reserve following MRS is associated with poor esophageal clearance.

Aims & Methods: Aim: Evaluate esophageal acid exposure and mean nocturnal baseline impedance (MNBI) in patients with IEM and patients with normal motility with and without peristaltic reserve.

Methods: Patients undergoing high-resolution esophageal manometry (HRM) and 24-h impedance-pH monitoring (24h-Imp-pH) were classified as having IEM or normal esophageal manometry according to Chicago 4.0 criteria. Peristaltic reserve was declared present (PR+) if distal contraction integral (DCI) following a series of 4x5ml rapid swallows ≥25% greater than the average DCI following 10 single 5ml swallows.

We compared esophageal acid exposure (% time pH<4), number of reflux episodes and MNBI in patients with IEM/normal motility with (PR+) and without (PR-) peristaltic reserve.

Results: Between February 2020 and December 2022 we identified 220 patients (132;60% females, avg (±SD) age 54 (±15) years with IEM (49;22%) and normal motility (171;78%). Esophageal acid exposure, number of reflux episodes and MNBI are summarized below:

Parameter	IEM/PR- (N=17)	IEM/PR+ (N=32)	Normal/PR+ (N=88)	Normal/PR+ (N=83)	p-value
% time pH <4	7.9 ± 2.8*	6.5 ± 1.2	5.7 ± 1.0	3.4 ± 0.6*	0.056
# reflux episodes	71.6 ± 14.0*	90.4 ± 17.5	65.7 ± 9.8	46.3 ± 3.8*	0.034
MNBI (Ohm)	1667.1 ±267.7*	1726.2 ±209.4	2074.7 ± 117.4	2325.7 ±110.6*	0.020

Data are presented as mean ± SEM

* p<0.05 in post-hoc comparison IEM/PR- vs. Normal/PR+

Conclusion: Absent peristaltic reserve combined with ineffective esophageal motility is associated with higher esophageal acid exposure and lower mean nocturnal baseline impedance suggesting that patients with IEM and absent peristaltic reserve have a more severe form of GERD compared to patients with normal motility with normal peristaltic reserve.

Disclosure: RT - speakers bureau and educational programs of Laborie Inc.

PP0113

GASTROESOPHAGEAL REFLUX DISEASE, DISTALE LATENCY AND DYSPHAGIA. IS THERE A CORRELATION?

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Introduction: Patients with typical Gastroesophageal reflux disease (GERD) symptoms frequently report Dysphagia. During HRM study patients with GERD show in an increased rate ineffective or absent esophageal motility and Low Esophageal Sphincter (LES) pressure though no data exist about disturbances of Distal latency (DL).

Aims & Methods: As typically patients with spastic disorders of the esophagus present with dysphagia and show decreased DL we aimed to investigate if there is a correlation between GERD, dysphagia and DL disturbances.

We included 2629 patients with typical long-lasting symptoms, submitted to High Resolution Manometry and 24 hrs pH-Impedance study (pH-IM), off-PPI. Patients with a positive endoscopic GERD diagnosis undergoing pre-operativel HRM/pH-impedance, with a previous definite GERD diagnosis studied “on” PPI, using of opioids, history of esophageal surgery or diagnosed with major motility disorders except absent peristalsis (Chicago IV classification) were excluded. GERD diagnosis was made by using Lyon consensus criteria for pH-IM; Acid Exposure time (AET)> 6%.

Results: GERD was diagnosed in 845 (32.1%) pts while indefinite AET for GERD (4-6%) was found in 300 (11.4%). Any grade of dysphagia was reported by 934 (35.5%) pts. Patients with dysphagia had decrease DL (6.2±1.7 vs 6.5±2.7 in patients not reporting dysphagia, p=0.008) Patients with GERD showed decreased DL in comparison to patients without (6.1±1.8 vs 6.6±2.7, p<0.001). GERD diagnosis was not correlated to report of dysphagia (300/845 35.5% vs 536/1484, 36.1% in pts without GERD, p=0.788) and no difference in mean DL was observed in patients with GERD and or without dysphagia (6.2±1.8 vs 6.1±1.9, p=0.772).

GERD was also correlated to Esophagogastric Junction (EGJ) type 2 or 3 anatomy (358/845, 42.4% vs 361/1484, 24.3%, p<0.001), diagnosis of ineffective esophageal motility/absent peristalsis (375/845, 44.7% vs 530/1484, 35.7%, p<0.001) and LES hypotension (449/845, 53.1% vs 665/1484, 44.8%, p<0.001).

The correlation of DL to GERD was maintained in the multivariate logistic regression analysis (p=0.002, OR: 0.907, 95% C.I 0.853-0.964) fact also observed for type 2/3 EGJ (p<0.001, OR:2.255) and diagnosis of ineffective motility/absent peristalsis (p=0.001, OR: 1.468).

Conclusion: Patients reporting typical reflux symptoms and dysphagia show decreased DL even when a diagnosis of diffuse Esophageal Spasm is not met. Patients with GERD diagnosis by pH-impedance and typical reflux symptoms show decreased DL in comparison to patients without GERD. Though lower DL observed among patients with GERD was not correlated to dysphagia.

Disclosure: Nothing to disclose.

PP0114

POSITIONING IN HIGH RESOLUTION MANOMETRY IN PATIENTS WITH GASTRO-ESOPHAGEAL REFLUX DISEASE. DOES IT MATTER?

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Introduction: According to guidelines, in order to strictly diagnose esophageal motility disorders, besides achalasia, high resolution manometry (HRM) findings should be documented in both the upright and the supine position. A common finding among patients with Gastro-Esophageal Reflux Disease GERD submitted to manometry is ineffective esophageal motility (IEM).

The clinical impact of such a diagnosis in this setting is ambiguous though it may denote future disturbance of peristaltic reserve even if until now only inadequate response to multiple rapid swallows (MRS) has been correlated to post anti-reflux surgery dysphagia.

Aims & Methods: We aimed to evaluate differences in esophageal contractility in different positions in patients with definite GERD.We included consecutive patients with definite GERD according to Acid Exposure Time (>6%) submitted simultaneously to 24 hours pH impedance off PPI study and HRM in both the upright and supine position.

Patients with previous esophago-gastric surgeries as also patients diagnosed with motility disorders besides IEM/absent contractility according to Chicago 4 guidelines were excluded.

Results: In total 49 patients (M/F:26 (53.1%)/23 (46.9%), mean age:51±14) were included. The main referral reason was typical reflux symptoms in 37/49 (75.5%) patients while 8/49 (16.3%) reported dysphagia. Mean Distal Contractile Integral (DCI) was significantly reduced in the upright position (1629.2±1175.6 mm/s/mmHg) vs supine position (2762.4±2710.4 mm/s/mmHg), p=0.010.

The rate of total ineffective swallows in the upright position was significantly increased in the upright position (29.0%) vs the supine (12.3%), p=0.010 as was also the rate of weak contraction (10.3% vs 3.1%, p=0.033) and marginally not of absent contractions (17.0% vs 8.3%, p=0.078). The rate of diagnosis of IEM/absent contractility was doubled in the upright position (8/49, 16.3%) vs in the supine position (4/49, 8.2%) (k-value:0.473, p=0.001).

Inadequate post MRS contraction was observed in 9/49 (18.4%) and more specifically among 3/4 (75%) patients with IEM/absent contractility diagnosis in the supine position (k:-0.436, p=0.002) vs 4/8 (50%) in the upright position (k:-0.361, p=0.011). Dysphagia was not correlated to diagnosis of IEM/absent contractility neither in the supine (p=0.675) nor the upright position (p=0.586).

Conclusion: Upright position in HRM is correlated to a decreased mean DCI and an increased rate of ineffective esophageal contractions leading to an increased rate of diagnosis of IEM/absent contractility. Such a diagnosis in the upright position is correlated in a lesser extent to inadequate post-MRS swallow and not correlated to symptom of dysphagia.

Until new data arise such an overdiagnosis among patients with GERD may be misleading and therefore the procedure in such patient may be better to be undertaken only in the supine position.

Disclosure: Nothing to disclose.

PP0115

CORRELATION BETWEEN LARYNGOPHARYNGEAL REFLUX CLINICAL SCORES AND ESOPHAGEAL MULTICHANNEL INTRALUMINAL IMPEDANCE PH MONITORING

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Introduction: Laryngopharyngeal Reflux (LPR) is a common troublesome complaint in clinical practice. The treatment outcomes were unsatisfied given unclear pathophysiology and lack of gold standard test. Reflux Symptom Index (RSI) and Reflux Finding Score (RFS) had been used to help with the diagnosis while esophageal multichannel intraluminal impedance (MII)/pH monitoring is the most reliable tool to evaluate gastroesophageal reflux disease (GERD). The role of MII/pH monitoring in extraesophageal GERD is controversial.

Aims & Methods: We aimed to evaluate the benefit of MII/pH monitoring results in patients with LPR defined by clinical scoring of RSI ≥ 13 points and/or RFS ≥ 7 points.

Patients with definite LPR diagnosed by otolaryngologists using predefined RSI and RFS were recruited. All participants underwent esophageal manometry and off-PPI MII/pH monitoring. The results of MII/pH findings and clinical scores were determined for the correlation.

Results: A total of 100 (71 Female, 29 Men) LPR patients were enrolled, with the mean age of 50.1 years. The mean RSI and RSF score were 18.4±6.1 and 9.8±4.1 respectively. Half of the patients had abnormal manometry; 48% had ineffective esophageal motility (IEM) and 9% had low lower esophageal sphincter pressure (LESP). The median acid exposure time (AET) was 1.85% and the median number of reflux episodes and proximal reflux episodes were 29.5 and 4 respectively.Gas reflux is the most common type of reflux with 98% of population.

There was a significant correlation between RSI and the number of gas reflux (r = 0.255, P-value 0.011). There was no difference in RSI and RFS in all MII/pH parameter subgroups, including pathological vs non-pathological acid reflux, a high vs low DeMeester score, a high vs low number of reflux, proximal reflux, or acid reflux.

Parameters	RSI		RFS	
	r	P-value	*r*	P-value
Acid exposure time	0.016	0.877	-0.149	0.244
No. of reflux events	0.026	0.794	-0.027	0.835
No. of proximal reflux events	0.017	0.867	-0.174	0.172
No. of acid reflux events	0.041	0.688	-0.147	0.250
No. of nonacid reflux events	0.021	0.833	-0.045	0.727
No. of liquid reflux events	0.041	0.683	0.201	0.115
No. of gas reflux events	**0.255**	**0.011**	-0.078	0.541
No. of mixed reflux events	0.136	0.176	0.201	0.115

MII; Multichannel Intraluminal Impedance, RFI; reflux finding score, RSI; reflux symptom index

Table. Correlation between RSI or RFS and MII/pH finding.

Conclusion: In this population, there were no significant acid refluxes in patients with LPR diagnosed by standard cut-off score of RSI and/or RFS. However, RSI had significant correlation with gas reflux episodes. Interestingly, up to 60% of the participants had IEM or low LESP. These findings are still be scrutinized.

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PP0116

ESOPHAGEAL MUCOSAL ADMITTANCE: A NEW TECHNIQUE TO DIAGNOSE GASTROESOPHAGEAL REFLUX DISEASE – IS IT FEASIBLE?

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Introduction: Esophageal mucosal admittance (MA) is a promising diagnostic method for gastroesophageal reflux disease (GERD), however, only some studies were done and mainly in Japan.

Aims & Methods: We conducted a study to describe the esophageal MA in patients with reflux symptoms and determine its diagnostic accuracy. We recruited 92 patients with ambulatory pH-impedance monitoring, upper gastrointestinal endoscopy, and MA measured by the tissue conductance meter. MA was measured during endoscopy at 5cm (distal esophagus) and 15cm above the Z line (middle esophagus), repeated at least five times at each position, and median MA was obtained.

Afterwards, two biopsies were taken 5cm above the Z line for histopathological evaluation using the Esohisto criteria. Patients were classified as GERD or non-GERD according to the 2018 Lyon consensus.

Results: The mean age was 43.2 years, and 42 patients were males. The most common symptoms were regurgitation (75.0%), belching (65.2%), and heartburn (46.7%). Twenty-three (32.3%) were diagnosed with GERD using the Lyon consensus, and 24 (26.1%) had esophagitis on histopathology. The median MA at the distal and middle esophagus was moderately correlated. The median MA at both positions was higher in the GERD group but only statistically significant in the middle esophagus. MA was not associated with pH-impedance parameters and esophagitis on histopathology. The diagnostic model developed using the logistic regression did not have good accuracy.

Conclusion: MA was not different between GERD and non-GERD patients. The diagnostic model integrating MA did not have high accuracy in diagnosing GERD.

Disclosure: Nothing to disclose.

PP0117

PATIENTS WITH LARYNGO PHARYNGEAL REFLUX SYMPTOMS MOSTLY HAVE NORMAL PH-IMPEDANCE TESTING RESULT: A PROSPECTIVE OBSERVATIONAL CROSS SECTIONAL STUDY

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Introduction: Patients presenting with laryngeal complaints are often considered to harbor atypical esophageal laryngo-pharyngeal reflux (LPR). The association between LPR symptoms and gastroesophageal reflux (GER) is an ongoing debate.

Aims & Methods: We aimed to characterize patients referred for investigation of LPR complaints and to compare them to patients referred with classic reflux complaints.

All patients referred for pH-impedance testing were offered to participate in this cross-sectional observational study. Those included underwent a comprehensive workup including medical history (presence of a neurologic disease, diabetes, foregut surgery, depression, a diagnosis of Irritable bowel syndrome (IBS) or peptic disease), filling a symptom questionnaire, Rome 3, SCL 90 and SF 36 questionnaires. IBS, functional dyspepsia (FD) and other conditions were defined according to Rome 3 criteria.

All patients underwent gastroscopy, esophageal HRM (Chicago 3) and pH-impedance testing off therapy.

Classic reflux complaints were defined as heartburn, regurgitation, and chest pain. Atypical reflux/LPR symptoms included cough, hoarseness, throat clearing, globus sensation, and asthma exacerbation.

Of patients with symptoms during the study (104/156=(67%), functional heartburn was diagnosed in 33% vs.50.0%, p=0.094.

Results: 156 patients were included, 53% were females and with mean age of 53±17y. The indication for testing was classic reflux in 90 (58%), and 66 (42%) patients were referred for LPR symptoms. No significant differences were found between the groups in demographic parameters, background diseases and psychological profile. Both classic and LPR groups had a high prevalence of Rome 3-IBS (67% and 59%, p-NS) and FD (56% and 32%, p=0.058), respectively.

Patients with classic reflux symptoms, compared to the LPR group, used more PPI`s (90% vs. 73%, p=0.008) and SSRI`s (19% vs. 8%, p=0.053) respectively. Life quality was not different between the groups. Gastroscopy and HRM diagnoses and LES and esophageal body parameters were similar between the 2 groups. A higher upper esophageal sphincter pressure was noted in the classic reflux group (p=0.011). Esophageal acid exposure time (AET) was similar as well in the classic vs. the LPR group: 5% vs.5.4%, p=NS, as was the number of patients with AET>6%: 36% vs. 35%, p=NS, respectively. The median number of weakly acidic reflux and non-acidic episodes was also similar: 27 vs. 24, p=NS and 2 (0-2) vs. 1 (0-2), p=NS, respectively.

Of patients with symptoms during the study (104/156=(67%), functional heartburn was diagnosed in 33% vs.50.0%, p=0.094.

Conclusion: In our cohort, the majority of patients with LPR had normal esophageal acid exposure, while the prevalence of IBS, functional dyspepsia, and functional heartburn was higher than reported world prevalence. While other mechanistic explanations may exist, our study suggests an overdiagnosis of LPR symptoms to be related to acid gastro esophageal reflux.

Disclosure: Nothing to disclose.

PP0118

THE ROLE OF LARYNGOSCOPY IN GERD PATIENTS WITH ATYPICAL SYMPTOMS - A MULTICENTRE STUDY

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Introduction: Gastroesophageal reflux disease (GERD) patients with atypical symptoms represents a diagnostic and therapeutic challenge. In particular, the diagnosis of GERD is often suspected by ENT surgeons according to laryngoscopic findings, but their sensitivity and specificity for diagnosis is low.

The aim of this study was to assess the prevalence of GERD in patients with atypical symptoms undergoing laryngoscopic examination and pH monitoring.

Aims & Methods: We retrospectively evaluated patients with atypical symptoms with or without typical symptoms associated referred to Gastroenterology Units of six tertiary Italian centres between January and December 2020. Of 477 patients, we enrolled 277 patients who underwent both 24 hours pH-impedance monitoring off-therapy and laryngoscopy. Diagnosis of GERD was made according to Lyon Consensus, and we considered the novel impedance metrics (baseline impedance and post reflux swallow-induced peristaltic wave index) when pH-impedance monitoring was inconclusive in order to add confidence to diagnosis of GERD. Three patients with hypersensitive esophagus were excluded.

Results: The most common atypical symptom was cough (90/274). Laryngoscopic examination showed pathological findings in 195 patients (71.2%), and the most frequent feature detected was posterior laryngitis (77.4%). GERD was diagnosed in 80/274 patients (29.2%) on pH impedance monitoring. Upper endoscopy was made in 269 patients and 5 of them had B grade esophagitis. The prevalence of GERD diagnosis in patients with or without positive laryngoscopy examination was not statistically significant (p=0.075).

No difference in the number of proximal refluxes was observed in patients with positive or negative laryngoscopy (65/195, 33.3% vs 19/79, 24.1%; p= 0.133). Sensitivity and specificity of laryngoscopy in diagnosing GERD is 78.8% and 32.0% respectively (PPV= 32.3%; NVP= 28.4%).

Conclusion: Laryngoscopic examination has a poor specificity in diagnosing GERD in patients with atypical symptoms. This study may underline that pathological laryngoscopy findings could only pose a suspect of an underlying GERD, but its diagnosis would still need to be confirmed by impedance-pH monitoring, even in patients with atypical symptoms.

Disclosure: Nothing to disclose.

PP0119

PH-MII ON PPI FAILS TO PREDICT THE OUTCOME AFTER ANTI-REFLUX SURGERY IN PATIENTS WITH PPI-REFRACTORY GERD

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Introduction: Esomeprazole and laparoscopic anti-reflux surgery have shown similar efficacy in PPI-responsive patients (1). However, a significant proportion of patients fails to respond to PPI and are the most relevant group seen by gastroenterologists and surgeons for advanced therapy, including surgery. In a highly selected subgroup of patients with PPI-refractory GERD surgery resulted in treatment success in 2/3 of patients and was superior to medical therapy (2). However, the selection of patients for surgery remains a topic of controversy and the role of pH-MII in patients with ongoing symptoms on-PPI is unknown.

Aims & Methods: Our aim was to assess whether 24h pH-impedance measurement (pH-MII) *on* PPI can predict outcome of anti-reflux surgery in patients with persistent typical GERD symptoms despite twice daily PPI for at least 3 months.

Patients with refractory GERD symptoms on PPI were assessed by the surgeons and selected for anti-reflux surgery based on typical GERD symptoms and the results of pH-MII *off* PPI. Patients underwent usual pre-operative work-up including upper endoscopy, esophageal manometry and esophago-gastro-duodenal X-ray, and underwent an additional pre-operative pH-MII *on* b.i.d. PPI for study purposes. Symptom questionnaires were filled out before, and at intervals after surgery. VISICK scores were used to define outcome after surgery, with grade I and II defined as treatment success, grade III or IV as failure (3).

pH-impedance monitoring (Diversatek) was analyzed using Bioview Analysis® by trained personnel. Symptom association probability (SAP) was used to describe the relation between reflux episodes and symptoms. Statistical analysis was done using GraphPad Prism.

Results: In this interim report, we analyzed 38 patients (23 female, mean age 45, BMI 26). 17 patients were SAP positive on pH-MII *on* PPI, 21 were SAP negative. Mean follow-up after surgery was 9 years (IQR 5.8-11).

After a mean follow-up of 9 years, 66% (25/38) of the patients in this cohort reported treatment success (VISICK I or II). Treatment success was reported by 90% (19/21) of patients with a negative SAP, 10% (2/21) were treatment failures, no patients required redo surgery. In the SAP positive group, 35% (6/17) reported treatment success, 24% (4/17) treatment failure, and 41% (7/17) required redo surgery. Indications for redo surgery were intrathoracic migration (5/7) and persisting dysphagia (2/7). The proportion of patients with treatment success, failure and redo surgery differed significantly between the SAP-based groups (χ^2 test; p<0.0001) (table 1), with a significantly higher success rate in the SAP negative group.

	Failure = Visick III + IV	Success = Visick I + II	Redo = redo surgery
SAP negative (n=20)	10%	90%	0%
SAP positive (n=16)	24%	35%	41%
χ^2 test: p<0.0001			

Table.

Conclusion: This interim analysis suggests that symptom association probability on pH-impedance monitoring *on* PPI cannot be used to select refractory GERD patients for anti-reflux surgery.

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Disclosure: Nothing to disclose.

PP0120

THE DIAGNOSIS OF LARYNGOPHARYNGEAL REFLUX IN PATIENTS WITH EXTRAESOPHAGEAL SYMPTOMS OF GERD

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Introduction: The gold standard for diagnosis of laryngeopharyngeal reflux is 24h MII-pH with localization of impedance nearby the upper esophageal sphincter.

Aims & Methods: The aim of the study was to evaluate high GER in patients with laryngeal symptoms of GERD.

Subjects and methods: 50 patients with extraesophageal manifestations of GERD underwent upper endoscopy, esophageal manometry and 24h MII-pH. Mean age 49,54 ±5,2 y.o. Females – 44%, males – 56%. We used new probes for 24h MII-pH with 2 impedance channels located above lower esophageal sphincter (LES) and 5 impedance channels located under and above upper esophageal sphincter (UES).

There were 3 types of probes according to the length of esophagus: 1st type – for the length 20-22 cm, 2nd type – 23-25 cm, 3rd type – 26-28 cm. The pH electrodes were at 5 cm above LES and 1 cm above UES. The location of LES and UES was detected by manometry.

Results: According to the results of 24h MII-pHmetry in the lower third of the pharynx, 21 patients had more than 1 reflux (LFR+ group), 29 patients had no reflux in the pharynx (LFR-). Patients with LFR+ significantly more often complained of hoarseness, slightly more often noted cough, burning in the oral cavity, dysphagia.

Patients with LFR- often complained of heartburn, regurgitation, sore throat, lump in the throat. The upper endoscopy showed that the frequency of occurrence of the erosive esophagitis was the equal in both groups, including Barrett's esophagus.

The pathologic GER in the lower third of the esophagus was more common in patients with LFR + (71%) than in patients without LFR (24%). A positive correlation was revealed (r=0.46). The ratio of the physiological amount of GER was 24 and 59%, respectively.

Conclusion: The new probes allow simultaneous assessment of reflux in the lower third of the esophagus and pharynx. The amount of reflux in the lower third of the pharynx correlates with the amount in the lower third of the esophagus.
However, there are options when, with a normal number of them, there may be a high spread in the lower third of the esophagus.
Disclosure: Nothing to disclose.

PP0121

NEW FORMULATION INCLUDING SODIUM ALGINATE, CHAMOMILE, AND MELATONIN (ALIGASTRIL GEL®) RESULTS EFFECTIVE IN CONTROLLING GERD SYMPTOMS IN ADD-ON THERAPY

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Introduction: Alginate-based formulations are frequently used as an add-on to proton pump inhibitor (PPI) therapy in patients with partial control of heartburn and regurgitation. Few data are available to inform decision-making on switching to a different PPI or adding an alginate-based formulation to ongoing PPI treatment in partial responders.
Aims & Methods: We aimed to evaluate the effects of a new formulation of sodium alginate, chamomile, and melatonin (Aligastril gel® Aliveda, Pisa, Italy) in improving reflux-related symptoms in patients with persistent symptoms despite once daily PPI versus the switch to a different PPI treatment.
This was a single-center, randomized trial that compared Aligastril gel (3 times/day; Group A) as add-on versus switching to a different PPI once daily (Group B) in patients with incomplete heartburn relief. Reflux symptoms were assessed using the GerdQ and were recorded at baseline and after 8 weeks from PPI switch or add-on of Aligastril gel. Consecutive patients were randomized in a 1:1 ratio to take Aligastril gel (12ml) 3 times per day 30-min after breakfast, lunch, and dinner (treatment group).
A control group was randomized to switch to a different PPI. Patients were asked to do the HRDQ questionnaire once a day (evening time). Patients were evaluated again after one month.

	Group A (Aligastril)	Group B (PPI switch)	P
Total patients	45	45	N/A
Female	26	25	>0.99
Mean age	50.7±10.6	51.1±10.2	0.855
BMI	23.6±2.8	23.7±2	0.846
PPI-response rate (VAS)	3.2±1.7	3.3±1.9	0.793
GERDQ (t0)	13.6±2.6	13.2±3.2	0.517
GERDQ (t1)	8.4±2.2	10.6±2.5	<0.001
Delta GERDQ	-5.3±1.4	-2.6±-1.4	<0.001
Consecutive heartburn free days (mean)	6.8±1.7	2.4±2	<0.001

Table 1: epidemiological characteristics and summary of the treatment response.

Results: 90 patients (51 female, mean age 50.7±10.4 yrs) were randomized. Group A included 45 (26 female, mean age 50.7±10.5 yrs) and Group B 45 patients (25 female, 51.1±10.2 yrs) (p=NS). Change in GerdQ score was significantly greater for Group A (mean: -5.0±1.4) than for Group B (mean: -2.6±1.4) P <0.001. The heartburn free days observed from patients were 6.8±1.7 in group A compared to 2.4±2.0 in the Group B (p<0.0001) (Table 1).
Conclusion: In patients with residual reflux symptoms despite PPI treatment, adding Aligastril gel (alginate+melatonin+chamomille) offered additional decrease in the burden of reflux symptoms compared to switching the PPI treatment. These data support the role of alginate in the add on therapy in patients with poor heartburn control whilst on PPI therapy.
Disclosure: Conference Speech: Reckitt Benckiser; Malesci; Sofar; Alfa-Sigma; Dr Falk; Cadigroup; Sanofi Genzyme
Advisory: Astra Zeneca.

PP0122

ANTI-REFLUX MUCOSECTOMY FOR GASTROESOPHAGEAL REFLUX DISEASE: EFFICACY AND MECHANISM OF ACTION

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Introduction: A substantial part of patients with gastroesophageal reflux disease (GERD) responds insufficiently to pharmacological therapy. Therefore, a novel anti-reflux endoscopic procedure - anti-reflux mucosectomy (ARMS) - has been developed.
Previous studies suggest that ARMS is effective in reducing reflux symptoms and total acid exposure, although the mechanisms through which reflux is reduced has not yet been investigated.
Aims & Methods: GERD patients with a pathological acid exposure and insufficient symptom control despite twice daily PPI underwent a piecemeal multiband mucosectomy of 50% of the circumference of the esophagogastric-junction (EGJ), extending 2cm into the cardia. Prior and 3 months following the procedure patients underwent (ambulatory and postprandial stationary) manometry and pH-impedance study, endoscopy and impedance planimetry (Endoflip). PPI treatment was temporarily stopped prior to these investigations. The main study parameter was the total number of reflux episodes assessed during ambulatory 24-h pH-impedance studies. Secondary endpoints were: total 24-h acid exposure time, number of reflux episodes and acid exposure time during prolonged postprandial stationary measurement, prevalence of transient lower esophageal sphincter relaxations (TLESRs), EGJ morphology and distensibility, grade of reflux esophagitis, symptoms and quality of life and occurrence of complications.
Results: 11 patients were treated, of which follow-up is complete in 9 patients (6 men, median age 37 (36-61) years, mean BMI 28.7 (±3.1) kg/m2).
ARMS reduced the total number of reflux episodes from 71 (59.5-82.5) to 39 (28-67)(p=0.018), resulting in a reduction of both acidic (63 (50-73) vs 36 (23-55), p=0.012) and weakly acidic reflux episodes (8 (4-17) vs 4 (4-5), p=0.093). The total acid exposure was reduced from 9% (6.5-13.8) to 5.3% (4.0-6.4) (p=0.036).
The 90-minute post-prandial measurement showed an acid exposure time of 16.6% (3.1-30.2) after treatment compared to 11.2% (4.6-33) at baseline (p=0.767). Number of acidic reflux episodes (6 (3-10) vs 8 (1.5-13), p=0.953) and weakly acidic reflux episodes (0 (0-1) vs 0 (0-0.5), p=0.680) were not significantly reduced. Treatment reduced the number of TLESRs after treatment (from 4 (1-7.5) to 2 (0.5-4.5), p=0.048).

Reflux symptoms were reduced substantially (RDQ from 3.8 (3.1-4.0) to 1.4 (0.6-2.8), p=0.008) and GERD-health related quality of life improved substantially as well (28 (21-32) to 15 (6-24), p=0.012). There was no effect of treatment on dysphagia symptoms (Brief Esophageal Dysphagia Questionnaire (BEDQ) of 8.9 (±7.4) vs 9.2 (±6.5) (p=0.880).

Endoscopy showed reflux esophagitis in 89% (8/9) (3 grade A; 5 grade B) prior to treatment, this was 56% (5/9) (1 grade A; 4 grade B) after treatment (p=0.250).

Impedance planimetry showed no changes in distensibility after treatment (3.6 (±1.2) mm^2/mmHg vs 4.4 (±1.2) mm^2/mmHg), p=0.375). One delayed post-procedural bleeding (11%, (1/9)) occurred requiring repeat endoscopy.

Conclusion: Preliminary results show that ARMS is a successful treatment option in PPI refractory GERD patients reducing both reflux episodes and symptoms. While the mechanism could not be explained by a difference in distensibility, a reduction in TSLERs might play a role.

Disclosure: RP consultancy for Medtronic BV and Micro-Tech Endoscopy. AB received research funding from Nutricia, Norgine, SST, Thelial, Sanofi, Dr Falk Pharma and Bayer and received speaker and/or consulting fees from Laborie, Medtronic, Dr. Falk Pharma, Calypso Biotech, Alimentiv, Regeneron/Sanofi, AstraZeneca. All other authors declare no competing interests.

PP0123

EFFECT OF STRETTA TREATMENT ON ESOPHAGEAL EPITHELIAL BARRIER FUNCTION

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Introduction: Stretta, a minimally invasive endoscopic procedure, has demonstrated efficacy in improving GERD symptoms by delivering radiofrequency energy to the lower esophageal sphincter. Despite its effectiveness, there is limited understanding of Stretta's impact on the epithelial barrier function.

Aims & Methods: This study aims to investigate changes in epithelial barrier function in GERD patients who underwent Stretta treatment. Tight junction gene expression levels, measurement of dilated intercellular spaces (DIS), and electrophysiological and permeability properties of the esophageal epithelium were investigated in order to determine the epithelial barrier function characteristics of patients treated with Stretta.

Six Stretta-treated (3 men, 38.5±4.9 years) patients and 15 (7 men, 36.2±6.3 years) healthy volunteers (HV) were included in the study. Esophageal epithelial biopsies taken during endoscopy were used as study material. In order to determine tight junction gene expressions, qRT-PCR method was used for the expression levels of 6 (E- cadherin, Zonula ocludens 1, Zonula ocludens 2, Claudin 1, Claudin 4, Occludin) genes. Ussing chamber system was used to determine the transepithelial resistance (TEER) of the esophageal epithelium and permeability properties were examined by a fluorometric method. In DIS measurements, For each patient, photographs were taken from 10 different areas without artifacts under the light microscope at 1000x magnification. Ten vertical measurements were made continuously around the single epithelial cell with the largest DIS between the upper part of the Stratum Basale and the six parts of the Stratum Spinosum. A total of 100 blind measurements were made by a single investigator for each patient.

Results: In comparing the gene expressions of tight junctions before (Pre-str) and after Stretta (Post-str), it was observed that only the expression of the Claudin 4 gene was 6.91 (p=0.02) fold higher in the Post-str group compared to the Pre-str group.

Similarly compared to the HV group, the Post-str group exhibited a 6.02-fold (p=0.001) increase in Claudin 4 expression.

Comparing the TEER results between the pre-str (110.8 Ω) and post-str (151.7 Ω) groups, although there is a numerical increase, no statistically significant difference was observed.

In addition, the TEER values of the HV (165,8 Ω) group were statistically significantly higher than the Pre-str group. Upon examining the permeability results, it was determined that the Post-str (30.1 pmol) group had lower permeability compared to the Pre-str (67.3 pmol) group (p=0.043), while there was no statistically difference observed between the HV (34.4 pmol) group and the Stretta groups.

According to the study findings, the group that exhibited the largest DIS was the Post-str (0.974±0.212) group. However, no statistically significant difference was observed between the Pre-str (1.030±0.266) and Post-str groups in terms of DIS. Notably, a significant difference (p=0.03) was only observed between the HV (1.374±0.269) group and the Post-str group.

Conclusion: In summary, our findings suggest that treatment with Stretta strengthens the epithelial barrier function, as evidenced by the increase in Claudin 4 expression and the corresponding decrease in fluorescent permeability. However, the lack of support from our DIS results in terms of gene expression and electrophysiological changes suggests the need for further investigation to fully understand the effects of Stretta treatment on the epithelial barrier.

Disclosure: Nothing to disclose.

PP0124

PROTON PUMP INHIBITORS SLIGHTLY DECREASE THE SEVERITY OF NON-SPECIFIC CHRONIC COUGH IN ADULTS, IRRESPECTIVE OF TREATMENT DURATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The Montreal consensus recognizes chronic cough as an extra-oesophageal manifestation of gastroesophageal reflux disease, for which acid-suppressive medications have been proposed as a treatment option.

Aims & Methods: We performed a meta-analysis to assess the therapeutic effects of proton pump inhibitors (PPIs) on cough severity and quality of life (QoL) in adults with non-specific chronic cough.

The protocol was prospectively registered on PROSPERO (CRD42022368769). Placebo-controlled randomized trials (RCTs) which assessed the impact of acid-suppressive medications on cough severity or QoL in adults with non-specific chronic cough were eligible for inclusion. The systematic search was performed on the 1st of November 2022 in three databases (PubMed, Embase, and CENTRAL), with additional cita-

tion searching. A random-effects model was used for the calculation of the results. The effect size was the standardized mean difference (SMD) with a corresponding 95% confidence interval (CI), for which Hedges' g was used. Heterogeneity was assessed using Higgins and Thompson I^2 statistics. The risk of bias was evaluated using the Revised Cochrane Risk-of-bias Tool for Randomized Trials (RoB 2).

Results: Eleven RCTs with more than 600 patients were eligible for inclusion. Compared to placebo, PPIs slightly decreased the cough severity (SMD 0.33; CI: 0.05, 0.61). This effect seemed greater in patients with abnormal reflux studies (SMD 0.49; CI: -0.41, 1.39). Time dependency analysis found that prolonged treatment durations do not result in greater symptomatic improvement (SMD 0.33 (CI: -0.22, 0.88), 0.31 (CI: -1.74, 2.35), 0.32 (CI: -0.29, 0.93), 0.34 (CI: -0.16, 0.85) following 4, 6, 8 and 12 weeks of treatment, respectively). PPIs seemed to moderately improve the QoL compared to placebo (SMD 0.39; CI: -0.51, 1.29); however, when an outlying trial was omitted, the resulting effect was relatively small (SMD 0.11; CI: -0.39; 0.62).

Conclusion: PPIs slightly decrease the severity of cough, irrespective of treatment duration. Symptomatic improvement seems to be greater in patients with abnormal results on reflux studies.

Disclosure: Nothing to disclose.

PP0125

IS IT NECESSARY TO CONTINUE ACID-SECRETION INHIBITATON DRUGS IN PATIENTS WITH CONTROLLED GASTROESOPHAGEAL REFLUX DISEASE SYMPTOMS?

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Introduction: Patients who have gastroesophageal reflux disease(GERD) on maintenance therapy with acid-secretion inhibition drugs, it is not clear what background factors allow patients to discontinue the drugs.

This study aimed to examine the relationship of the changes in the frequency and severity of gastrointestinal symptoms after discontinuation of acid-secretion inhibitors for erosive GERD (eGERD) with possible patient background factors and to identify factors that influence these changes.

Aims & Methods: This study was a multicenter, open-label, interventional, exploratory study. eGERD patients with mild mucosal injury whose symptoms were under control and who were on maintenance therapy with acid-secretion inhibition drugs were withdrawn from the drug treatment for 4 weeks.

We examined the relationship of patient backgrounds (sex, age, body mass index, alcohol consumption, smoking habits), esophageal hiatal hernia, Helicobacter pylori infection, pepsinogen I and II concentrations and I/II ratios, blood gastrin levels before and after drug discontinuation with total score change in Frequency Scale for the Symptoms of GERD (FSSG).

Results: Of the 92 patients whose symptoms could be evaluated before and after withdrawal, 66 patients (71.7% of the total) had an FSSG <8 and did not have a recurrence of symptoms after withdrawal. In addition, background factors that might be associated with recurrence or non-recurrence of patient symptoms were examined, but no associated factors were detected.

Maintenance medications prior to discontinuation in the above 92 patients were proton pump inhibitors (PPIs) and vonoprazan (VPZ, a potassium ion-competitive acid blocker); PPIs and VPZ were given incidentally but in approximately equal numbers, so additional patient relationships were examined.

Conclusion: There were no patient factors that are likely to affect the discontinuation of maintenance therapy for eGERD. There was no significant difference in the extent of disease or frequency of recurrence during the discontinuation period, regardless of whether the drug before discontinuation was PPIs or VPZ. Since 70% of patients did not experience recurrence for at least 4 weeks and there were no serious complications even in patients experiencing recurrence, temporary discontinuation of maintenance therapy with ASIDs, especially with PPIs, is acceptable for mild eGERD.

Disclosure: Nothing to disclose.

PP0126

THE USE OF ALGINATE DURING PROTON PUMP INHIBITOR WASHOUT IMPROVES PPI DEPRESCRIBING BY IMPROVING SYMPTOM BURDEN AND QUALITY OF LIFE

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Introduction: Approximately 40% of adults use Proton Pump Inhibitors (PPIs) for treating acid-related disorders, although a potentially inappropriate indication has been observed in 30%-80% of cases. Moreover, PPIs have been associated with adverse events. Therefore, PPI discontinuation should be encouraged, particularly when their use is inappropriate or in case of lack of benefit. However, past studies failed to provide sustainable ways for reducing inappropriate PPI administration and novel models of deprescribing have been developed

Aims & Methods: We aimed to evaluate whether the use of alginate during mandatory PPI washout prior to reflux testing in patients with reflux-like symptoms is helpful in sustaining PPI deprescription. In this retrospective study, consecutive patients with typical (i.e. heartburn and/or regurgitation) or atypical (i.e. chronic cough, asthma) symptoms potentially related to GERD, on long-term PPI therapy (>3months), referred to our outpatient clinic for reflux testing because of PPI refractoriness or to confirm long-term PPI administration were included. Demographic and clinical (endoscopy, esophagogram, symptoms) data were recorded before PPI withdrawal and after (within 6 months) functional testing. Patients were asked to stop PPIs at least 2 weeks prior to testing, while they were allowed to take alginate (Gaviscon Advance, Reckitt Benckiser, United Kingdom) or other rescue medications during PPI withdrawal, on as needed basis or as standardised treatment (after each meal and before night) according to disease severity. Symptoms were collected by means of the validated GerdQ questionnaire (positive for GERD when >8), in case of typical symptoms, and Reflux Symptom Index (RSI positive for laryngopharyngeal reflux disease when >13), in case of atypical symptoms. Moreover, data regarding Gastroesophageal Reflux Disease Health Related Quality of Life (GERD-HRQL) and the results of high-resolution manometry with impedance-pH monitoring were recorded

Results: Three-hundred and eighty patients with typical symptoms [222 male, mean age 59] and 240 patients with atypical symptoms [143 male, mean age 63] were recruited. According to GerdQ before testing, 243 pa-

tients (64%) reporting typical symptoms had GERD, while based on RSI, 173 patients (72%) reporting atypical symptoms had laryngopharyngeal reflux disease. Mean time of PPI withdrawal before testing was 18 days (range 13-21) and most patients (80%) took alginate as rescue therapy. At the follow-up visit after testing, 280 patients (74%) with typical symptoms (median follow-up time of 2 months) and 130 patients (54%) with atypical symptoms (median follow-up time of 3 months) did not resume PPIs.

According to GerdQ after testing, 182 patients (48%) reporting typical symptoms had GERD compared to 64% before testing (p=0.0001), while based on RSI, 146 patients (61%) reporting atypical symptoms had laryngopharyngeal reflux disease compared to 72% before testing (p=0.0118). Moreover, patients taking alginate on standardised treatment were able to stop PPI more frequently than patients taking alginate on as needed basis (76% vs. 48%, p<0.05).

Finally, GERD-HRQL improved in patients with both typical and atypical symptoms after testing (p<0.05).

Conclusion: Alginate administration favored PPI deprescribing by improving symptom burden and quality of life. Our findings highlight the potential use of alginate for reducing the impact of PPIs on the costs of health care system and their pharmacological misuse

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PP0127

A MULTICENTER, OPEN-LABEL RANDOMIZED CONTROLLED TRIAL OF *CURCUMIN LONGA* LINN VERSUS STANDARD DOSE OF OMEPRAZOLE IN TREATMENT OF GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: *Curcumin* longa Linn has been used in Asia as an herbal remedy for gastrointestinal disorder. However, the benefit of curcumin on GERD treatment is still not well evaluated.

Aims & Methods: The aim of this study was to compare efficacy of curcumin and omeprazole on GERD symptom relief over the course of 4 weeks and duration of symptoms relief after treatment. From July 2021 to December 2022, subjects diagnosed with GERD according to ROME IV criteria were enrolled. Subjects were randomized into curcumin, or omeprazole groups. The Gastroesophageal Reflux Disease Symptom Assessment Scale (GSAS) was used to evaluate clinical effectiveness after 4 weeks.

Results: A total of 62 subjects were randomized. Thirty and 32 subjects in the curcumin and omeprazole groups, respectively. At 4 weeks, no significant difference of the mean GSAS score was observed between curcumin and omeprazole groups (-2.53 ± 0.59 vs -2.37 ± 0.46; *P* = 0.83). Omeprazole group had greater improvement of number of subjects who had severe symptom than curcumin group (50% to 3.1% vs 16.6% to 10%). Mean duration of symptom improvement was 14 days in curcumin and 10 days in omeprazole groups. No report of adverse reaction or worsening of GERD symptoms in both groups.

	Curcumin (n=30)	Omeprazole (n=32)	p-value
	Mean ± SE	Mean ± SE	Mean ± SE
GSAS symptoms			
Entry	7.33 ± 0.60	6.44 ± 0.46	0.23
4 weeks	4.80 ± 0.74	4.06 ± 0.45	0.39
△ Entry - 4 weeks	-2.53 ± 0.59	-2.37 ± 0.46	0.83
GSAS frequency			
Entry	1.90 ± 0.16	1.87 ± 0.20	0.89
4 weeks	1.09 ± 0.22	0.68 ± 0.10	0.099
△ Entry - 4 weeks	-0.81 ± 0.16	-1.19 ± 0.18	0.13

Table 1 Comparison of mean GSAS (gastroesophageal reflux disease symptom assessment scale) at entry and after 4 weeks of treatment.

Conclusion: *Curcuma longa* Linn can improve GERD symptoms equivalent to omeprazole in treatment of GERD without worsening of symptoms. However, the effect of omeprazole was faster symptom improvement in our cohort.

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Disclosure: Nothing to disclose.

PP0128

DIFFERENT EFFECTS OF CHRONIC OMEPRAZOLE USE ON OSTEOPOROTIC FRACTURES RATE IN THE ELDERS

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Introduction: Proton pump inhibitors (PPIs) are widely used for the treatment of peptic ulcer and gastro-esophageal reflux diseases, and as mucosal gastric protectors in patients receiving anti-aggregation drugs for cardiovascular diseases.

Although PPIs are well tolerated, concerns have been raised that their chronic use may pose risks of dementia, gastric cancer, and pneumonia. Recently, researchers have suggested that chronic use of PPIs such as omeprazole may also be a risk factor for osteoporotic bone fractures,[1,2] but the findings are controversial.[3,4]

Aims & Methods: Aim: The aim of the study was to investigate the potential association of chronic use of omeprazole with the occurrence of osteoporotic fractures (OF) in community-dwelling elderly subjects.

Methods: The cohort consisted of community-dwelling residents aged ≥65 years registered with a large health maintenance organization in Israel between 01/2002 and 12/2016.

Data were retrospectively collected from the electronic medical files on demographics, parameters known to be associated with OF, diagnoses of osteoporotic hip, wrist, and vertebral fractures, and chronic use of omeprazole (≥11 prescriptions/year). Time to OF/death/end of study was

calculated from the beginning of the study (2002). The risk of fractures in omeprazole the chronic users was analyzed by multivariate Cox proportional hazard regression model.

Results: Included 46,805 subjects (41% men), mean age 83.4±6.4 years, of whom 10,272 (21.9%) were chronic users of omeprazole.

During 14 years of follow-up, OF were diagnosed in 414 (4.0%) omeprazole users and 1007 (2.8%) omeprazole nonusers (p<0.001). In a Cox regression model adjusted for age and gender only, chronic use of omeprazole was associated with a 16% excess of osteoporotic fractures.

However, when parameters known to be associated with osteoporotic fractures were entered into the multivariate Cox regression model, chronic use of omeprazole was not found to be an independent risk factor for osteoporotic fracture, either overall (aHR=0.965, 95% CI 0.86–1.08, *p*=0.55) or specifically, in the ≥85-year age group (aHR=0.780, 95% CI 0.635–0.958, *p*<0.05) in which an inverse correlation between omeprazole use and osteoporotic fracture, was demonstrated.

Conclusion: Chronic use of omeprazole wasn't associated with the occurrence of osteoporotic fractures in community-dwelling elders.

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Disclosure: Nothing to declare.

PP0129

RETROSPECTIVE CHART REVIEW OF 79 SUBJECTS WITH GASTROESOPHAGEAL REFLUX DISEASE MANAGED WITH THE REFLUXSTOP PROCEDURE: A REPORT OF THE SAFETY AND EFFICACY

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Introduction: The RefluxStop device is a novel surgical implant that aims to manage gastroesophageal reflux disease (GERD) by reinstating the normal structure of the antireflux barrier. The nonactive implantable device achieves this by restoring the acute angle of His and gastroesophageal flap valve while acting as a mechanical stop to prevent migration of the lower esophageal sphincter into the chest cavity.

This study reports the safety and efficacy of 79 subjects that underwent the RefluxStop procedure.

Aims & Methods: After informed consent was obtained, a retrospective chart review of 79 GERD subjects managed by the RefluxStop procedure was performed at a single institution in Germany between July 2021 and November 2022.

Outcome measures included assessment of symptoms and associated conditions, parameters of proton pump inhibitor (PPI) usage, evaluation of perioperative adverse events or complications, and GERD health-related quality of life (GERD-HRQL) score.

These measures were used to evaluate the feasibility, safety, and clinical outcomes of the RefluxStop procedure in management of active GERD.

Results: 79 subjects aged 49.8±14 years were followed after undergoing the RefluxStop procedure. The mean body mass index of subjects was 25.8±4.5. 49 of the subjects were male. Associated conditions observed preoperatively included esophagitis (45.6%), Barrett's esophagus (17.7%), and hiatal hernia (57%). Hiatal hernias had a mean size of 2.9 cm with 35% of cases classified as large.

Symptoms at baseline included general GERD symptoms (35.4%), heartburn (29.1%), cough (13.9%), regurgitation (11.4%), retrosternal burning (10.1%), hoarseness (5.1%), abdominal pain or pressure (3.8%), nausea (2.5%), and other less frequent manifestations. Preoperative GERD-HRQL score was 21.5±5.2 and patients had been using PPIs for a mean of 4.7±6.8 years before surgery. At a follow-up of 10.7±3.1 months postoperatively, all subjects demonstrated significant improvement in GERD-related symptoms including dysphagia.

No subjects required postoperative esophageal dilatation or reoperation and only 2.5% of subjects required PPIs to manage persistent symptoms after surgery.

Furthermore, no severe perioperative complications occurred. The mean GERD-HRQL score was significantly reduced to 1.6±3.2 at follow-up, exhibiting a 92.6% improvement from baseline.

Conclusion: This study provides additional evidence to support RefluxStop as a safe and effective management option in patients with GERD. Significant improvements in PPI use and health-related quality of life outcomes were observed after intervention. Further studies are needed to validate the role of RefluxStop in GERD management.

Disclosure: Nothing to disclose.

PP0130

COMPLICATIONS OF INSUFFICIENCY OF THE ANTI-REFLUX FUNCTION OF THE PHYSIOLOGICAL CARDIA IN HIATAL HERNIAS:DIAGNOSIS AND TREATMENT

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Introduction: The most common among surgical antireflux methods for the treatment of hiatal hernias (HH) are Nissen, Toupet, or Dor surgery. Among the disadvantages of these interventions, the greatest importance is the destruction of the physiological cardia, which is accompanied by the recurrence of HH, dysphagia, gas-bloat syndrome and heartburn recovery. Despite the advances in HH surgery, the performance of antireflux operations remains debatable.

Aims & Methods: To improve methods of diagnosis and treatment of complications of insufficiency of the physiological cardia in HH.In 2017-2022, 78 patients with HH were diagnosed and treated surgically in the digestive surgery department of the institute.

The type and degree of HH were determined during X-ray examination. An endoscopic examination was performed to determine the condition of the mucous membrane of the esophagus and the degree of violations of the physiological cardia. Endoscopic balloon manometry was used to study pressure in the lower esophageal sphincter (LES) and monitor the effectiveness of antireflux surgery.

Results: Axial HH (I type) was diagnosed during X-ray examination – in 60 (77.0%); paraesophageal (II type) – in 9 (11.5%); mixed (III type) – in 9 (11.5%) patients. Depending on the amount of penetration of organs into the chest cavity, HH of the 1st degree was established – in 42 (53.8%), 2nd degree – in 27 (34.6%) and 3rd degree – in 9 (11.5%) patients.

Changes in the mucous membrane of the esophagus – in 40 (51.3%) patients with type I and III HH: non-erosive reflux esophagitis – in 9 (11.5%), erosive reflux esophagitis – in 16 (20.5%), esophageal ulcer – in 6 (7.7%), peptic stricture of the esophagus on the background of esophagitis – in 3 (3.8%), Barrett's esophagus - in 6 (7.7%) patients.

During endoscopic balloon manometry, the pressure in the LES is reduced: axial HH – (11.39±2.44) mmHg, paraesophageal – (13.54±3.32) mmHg, mixed – (8.06±3, 64) mm Hg (the norm is 14-21 mm Hg).

The first stage of treatment for patients with reflux esophagitis was conservative therapy, for peptic stricture of the esophagus – endoscopic balloon hydrodilatation, for Barrett's esophagus – argon plasma ablation.

As a second stage, 78 patients underwent standard laparoscopic antireflux operations according to Nissen – in 32 (41.1%), Toupet – in 7 (8.9%), Dor – in 5 (6.4%), and in 34 (43.6%) patients, according to the proposed method, which preserves the connections of the diaphragm, esophagus, and stomach, and performing cardiocrurorrhaphy, fundocruroesophagorraphy, cardiogastroplication with gastrodiaphragmopexy restores the antireflux function of the physiological cardia.

In the long term, from 6 months to 4 years, significantly more complications were diagnosed after standard antireflux operations compared to the proposed method - gas bloat-syndrome (X^2=4.65, p=0.031) pylorospasm (X^2=4.03, p=0.045), dysphagia (X^2=4.30, p=0.038) and recurrence of HH – 11 (25.0%) vs 3 (8.8%) cases (p<0.05).

Conclusion: The proposed two-stage method of surgical treatment of patients with HH is highly effective.

The application of the proposed method ensures the elimination of pathological changes in the mucous membrane of the esophagus, the restoration of the physiological cardia, the preservation of the anatomical relationships of the diaphragm and the zone of the esophageal-gastric transition.

In the postoperative period, the proposed method reduces the frequency of recurrence of HH, occurrence of gas bloat-syndrome, pylorospasm, and dysphagia.

Disclosure: Nothing to disclose.

PP0131

EVALUATION OF GASTRIC MUCOSAL CHANGES AND HYPERGASTRINEMIA IN LONG-TIME PPI USERS

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Introduction: Proton pump inhibitors (PPIs) have become clinically essential agents as a treatment strategy for gastroesophageal reflux diseases (GERD). PPI use has increased over time including continuous and longer-time users, which leads growing concern about PPIs side-effect.

Endoscopic gastric mucosal changes possibly associated with PPIs use, such as fundic gland polyps (FGPs), hyperplastic polyps, multiple white and flat elevated lesions (MWFL), cracked or cobblestone-like mucosa (CCLM) and black spots, have been reported in recent years.

Histopathologically, these endoscopic features are suggested to be associated with parietal cell enlargement, cystic dilation of fundic glands and foveolar epithelial hyperplasia. It is also well known that Gastrin level is hormonally elevated resulted from acid inhibition in PPIs users.

Considering that gastrin has a trophic effect on the gastric epithelial cells including enterochromaffin-like (ECL) cell and parietal cell, PPI-related gastric mucosal changes might be related with hypergastrinemia. Yet, little is known about the relationship between these gastric epithelial changes and gastrin level among PPI users.

Aims & Methods: We hypothesized that hypergastrinemia in long-time PPI users might be associated with endoscopic gastric mucosal changes. The patients who have been taken PPI over 1 year between January 2021 and March 2022 in Hattori clinic and Hirano clinic were enrolled.

Fasting blood samples were collected from participants just before oesophagogastroduodenoscopy (EGD) and serum gastrin level was measured. 3 endoscopists retrospectively evaluated the presence of PPI-related gastric mucosal changes. The participants were classified into 3 groups by tertiles of gastrin level: <255 pg/mL(Low), ≥255 pg/mL, <495 pg/mL(Middle), ≥495 pg/mL(High) and evaluated for the PPI-related gastric mucosal change.

Results: A total of 57 patients were enrolled in the present study. Median (IQR) age was 73.0 (68.0-77.0) years, 22 (38.6%) were male, 6 (10.5%) was current smokers, and 18 (31.6%) were alcohol users. Of 57 patients, 26 (45.6%) had been taking PPI over 10 years. Median (IQR) gastrin, pepsinogenI and pepsinogenII level were 310(190-510)pg/mL, 117.0 (79.1-166..0) ng/mL and 17.9 (11.4-22.4)ng/mL.

The overall prevalences of FGPs, CCLM, hyperplasticity polyps, MWFL and black spots were 34 (59.6%), 23 (40.4%), 23 (40.4%), 10 (17.5%) and 4 (7.0%), respectively.

Among 3 groups, there were significant differences for the prevalences of CCLM and FGPs. Regarding CCLM, higher gastrin group had higher prevalence than the low gastrin group, i.e. the middle gastrin group vs the low gastrin group (OR, 5.28; 95% CI,1.28-21.78; P = .021) and the high gastrin group vs the low gastrin group (OR,7.13; 95% CI,1.58-32.14; P = .011) (p-trend=.0218).

On the contrary, lower prevalence of FGPs was observed in the high gastrin group, i.e. the high gastrin group vs the low gastrin group (OR,0.24; 95% CI,0.06-0.96; P = .043) (not significant difference for trend). There were not significant differences for the prevalences of hyperplastic polyps, MWFL and black spots.

Conclusion: In the current study, it was suggested that higher gastrin level might promote cracked or cobblestone-like mucosal change and inhibit fundic gland polyp formation. Hypergastrinemia resulting from PPI use might affect the gastric mucosal changes.

Disclosure: Nothing to disclose.

PP0132

BUCCO-DENTAL MANIFESTATIONS OF GASTROESOPHAGEAL REFLUX DISEASE: A PROSPECTIVE STUDY

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Introduction: Gastroesophageal reflux disease (GERD) and its long-term complications are a common condition that affects the quality of life of patients. Reflux can reach the oral cavity and affect the teeth and oral mucosa. Dental erosions represent the main oral risk of GERD.

Our research aimed to evaluate the prevalence and severity of oral manifestations in patients with GERD.

Aims & Methods: It was a prospective, descriptive and analytical study, over 4 years (January 2019 to January 2023). We enrolled 40 subjects with GERD and 40 healthy patients (control group). All patients were assessed for oral status by using a survey on oral hygiene habits and a meticulous clinical investigation (assessment of dental erosion, mucosal lesions and measurement of salivary pH). P < 0.05 was considered significant.

All clinical data were collected and analyzed by SPSS20 software.
Results: The results showed that the mean age of our patients was 39.5 ± 14.2 years. The sex ratio M/F was 0.5. There was a significant association between the presence of GERD and the presence of oral mucosal lesions (p=0.02) as well as the presence of dental erosions (p<0.001 for the upper right and lower sectors and p<0.01 for the upper left sector).
The presence of dental erosions in the lower sectors was significantly associated with the presence of mucosal lesions (p=0.05).
Patients with GERD had on average a more acidic salivary pH than the control group (6.53 vs 7.17; p=0.03) and patients with dental erosions had a more acidic salivary pH than those without erosions (6.61 vs 7.15; p=0.01).
Conclusion: GERD is the cause of oral manifestations, of which dental erosion is considered to be the most important. We emphasize the importance of collaboration between gastroenterologists and dentists in the management of the complications associated with this condition.
Disclosure: Nothing to disclose.

PP0133

COMPUTER AIDED DETECTION SYSTEM FOR REAL-TIME DETECTION OF BARRETT'S NEOPLASIA: A MULTI-CENTER PILOT AND FEASIBILITY STUDY

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Introduction: Computer Aided Detection (CADe) systems have the potential to enhance the detection of early neoplasia in Barrett's Esophagus (BE) patients during endoscopic procedures.
In this study, we aimed to evaluate a recently developed CADe system during live endoscopic procedures.
Aims & Methods: The CADe system was developed using a large and diverse training data set from 15 international endoscopy centers, comprising 6,237 neoplastic images from 1,304 patients and 7,595 non-dysplastic images from 1,103 patients. Multiple extensive ex-vivo benchmarking studies were performed for validation. The CADe system displayed consistent and reliable performance, leading to a significant improvement in the detection rate of neoplasia by endoscopists.
During this pilot study, the CADe system was evaluated in live endoscopic procedures of BE patients with neoplastic lesions or non-dysplastic Barrett's esophagus (NDBE) in two tertiary hospitals. The protocol involved a series of white light endoscopy videos obtained by an expert endoscopist with real-time evaluation and feedback provided by the CADe system. First, the Barrett's segment was comprehensively visualized using a standardized *"pullback video"*, spanning from the gastric folds to the maximum extent of the Barrett's segment.
Subsequently, at 2 centimeter intervals, a series of 10-second *"level videos"* was recorded, starting from the retrograde position. Ground truth, referring to the presence or absence of visible abnormalities requiring targeted biopsy, was determined by the endoscopist prior to starting the protocol.
This was followed by post-hoc histopathological confirmation through targeted biopsies, endoscopic resection, or acquisition of random biopsies. The primary outcome measure focused on the standalone performance of the CADe system, which was evaluated in terms of per-patient sensitivity and specificity.
Results: A total of 15 neoplastic patients and 15 NDBE patients were included in the study (mean age of 67 years; mean Barrett length of C7M9; 25 males; no significant differences between groups). The CADe system exhibited a 100% sensitivity on a per patient basis, correctly identifying all neoplastic lesions. 14 out of 15 visible lesions were correctly diagnosed in the pullback videos. The initially missed lesion was detected in the subsequent level video. The system incorrectly predicted neoplasia in 8 NDBE patients.
If applied in a clinical setting, this would result in a maximum of one additional targeted biopsy per patient, compared to the 16 random biopsies dictated by the mean Barrett length in this study. Histopathological examination confirmed neoplasia in 13 cases, with 11 cases being adenocarcinoma and 2 cases being high-grade dysplasia. Two cases did not contain any dysplasia. Additionally, in 4 cases from the non-dysplastic group, low-grade dysplasia was found through the random biopsy protocol.
Conclusion: This study represents one of the first evaluations of a CADe system for real-time detection of neoplasia in Barrett's esophagus in the endoscopy suite. The system accurately detected all neoplastic lesions, with an acceptable number of false positive detections.
Disclosure: This study received financial and logistical support from Olympus Tokyo.

PP0134

ADENOCARCINOMA IN LONG SEGMENT BARRETT'S ESOPHAGUS IS DIFFICULT TO DIAGNOSE LATERAL MARGIN, BUT THE WIDTH OF WHITE ZONE MAY BE A KEY FINDING: A MULTICENTER RETROSPECTIVE STUDY

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Introduction: The endoscopic diagnosis of lateral margin of superficial Barrett's esophageal adenocarcinoma (BEA) has been reported as challenging due to chronic inflammation. However, accurate lateral diagnosis is crucial when endoscopic treatment is indicated, as en bloc resection is necessary to prevent local recurrence. Nevertheless, the features of BEA with unclear demarcation remain poorly understood. Therefore, we aimed to clarify the clinicopathological characteristics and cause of BEA with unclear demarcation.

Aims & Methods: In this retrospective study, we reviewed cases of BEA resected by endoscopic submucosal dissection or surgery between January 2010 and September 2022 at two institutions. The lesions were classified into two groups; the clear demarcation group (CD group) and the unclear demarcation group (UD group). We then compared clinicopathological findings between the two groups. Furthermore, we aimed to elucidate the differences in pathological structures between the cancerous mucosa and the surrounding mucosa. To achieve this, we measured the length and width of the foveolar, as well as the width of marginal crypt epithelium (MCE). Subsequently, we compared these measurements in both cancerous and surrounding mucosa in each CD and UD group.

Results: We analyzed 68 cases of BEA, with 47 in the CD group and 21 in the UD group. Univariate analysis showed that long-segment Barrett's esophagus (OR; 8.44, 95% CI;2.64-27.00, p=0.00) and macroscopic type, 0-IIb (OR; 8.43, 95% CI;1.36-52.06, p=0.022) as the significant risk factors for the UD group. Subsequently, multivariate analysis revealed long-segment Barrett's esophagus as the sole significant risk factor (OR; 10.38, 95% CI;2.14-50.19, p=0.004) (Table.1).

Regarding pathological analysis, while the length and width of foveolar between the cancerous and surrounding mucosa in the CD group showed significant differences (p=0.03, and 0,00), these were not significantly different in the UD group (p=0.53, and 0.72). However, the width of MCE in the cancerous area was significantly shorter than that in the surrounding mucosa in both CD and UD group.

		HR	95%CI	*p* value
Use of PPI	Negative	1	Reference	
	Positive	1.39	0.35-5.58	0.634
Reflux esophagitis	Negative	1	Reference	
	Positive	0.83	0.14-4.82	0.841
Barrett's esophagus	SSBE	1	Reference	
	LSBE	10.38	2.14-50.19	0.004
Morphology	0-IIa	1	Reference	
	0-IIc	4.06	0.83-19.83	0.083
	0-IIb	6.97	0.75-64.69	0.087

Table.

Conclusion: The significant risk factor for BEA with unclear demarcation was the long-segment Barrett's esophagus. Additionally, we revealed that the primary pathological cause of unclear demarcation was the similarity of pathological structures between cancerous and surrounding mucosa. However, the width of MCE, which is recognized as white zone in endoscopy, was significantly different between the cancerous and surrounding mucosa in both groups, and this may be a key finding of endoscopic lateral diagnosis for all BEA lesions.

Disclosure: Nothing to disclose.

PP0135

A RETROSPECTIVE REVIEW STUDY OF POST-GASTROSCOPY BARRETT'S ADENOCARCINOMA: CHARACTERISTICS AND RISK FACTORS

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Introduction: Although the issue of post-colonoscopy colorectal cancer (PCCRC) has been widely discussed, the characteristics of overlooked Barrett's adenocarcinoma (BAC) remain unclear.

Aims & Methods: We aimed to identify the characteristics of BAC that were missed during screening gastroscopy. A retrospective review of 28 patients with superficial BAC who had undergone gastroscopy within three years prior to diagnosis was conducted.

The patients were divided into two groups: "misdiagnosis of detection" (no images were appropriately taken of the area where the BAC was eventually diagnosed) and "misdiagnosis of malignancy" (the BAC was overlooked despite endoscopists having taken images of the location where the BAC eventually diagnosed).

Results: The study included 24 male patients with a mean age of 65. The interval months between endoscopy at diagnosis and the last endoscopy before diagnosis were less than 12 months (n=3, 11%), 12-23 months (n=23, 82%), and 24-36 months (n=2, 7%). Background Barrett's esophagus was short-segment (SSBE, n=18, 64%) and long-segment (LSBE, n=10, 36%). The Paris classification of the lesions was 0-I (n=2, 7%), 0-IIa (n=13, 46%), 0-IIb (n=4, 14%), and 0-IIc (n=9, 32%). The median tumor size was 14.5mm (range 3-107). Tumor locations were located at 0-3 o'clock position (n=17, 61%), 3-6 (n= 5, 18%), 6-9 (n=2, 7%), 9-12 (n=3, 11%) and circumferential (n=1, 4%). Most cases were classified into "misdiagnosis of malignancy" (n=19, 68%).

Comparing misdiagnosis of malignancy with misdiagnosis of detection groups, lesions located at the 0 to 3 o'clock position were more likely to be missed due to misdiagnosis of malignancy (15/19 vs. 3/9, P=0.03). In contrast, lesions within LSBE were more likely to be overlooked due to misdiagnosis of detection (6/9 vs. 4/19, P=0.03).

Conclusion: Our findings suggest that lesions located at the 0 to 3 o'clock position were frequently missed due to misdiagnosis as esophagitis, highlighting the importance of careful differential diagnoses between esophagitis and BAC at such sites.

In contrast, most lesions within LSBE were likely missed due the lack of adequate observation. Therefore, careful observation of LSBE using all available modalities is recommended.

Disclosure: Nothing to disclose.

PP0136

DETECTION OF INTESTINAL METAPLASIA AND DYSPLASIA BY ENDOSCOPIC BIOPSIES OF BARRETT'S ESOPHAGUS IN ASIAN POPULATION

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Introduction: The prevalences of Barrett's esophagus (BE) are gradually increasing in recent decades in some Asia-Pacific regions, thus an accurate diagnosis of BE is important to determine the surveillance program.

However, most endoscopists in Asia did not adhere to the Seattle biopsy protocol, and the optimal numbers of endoscopic biopsies and their yield rates of intestinal metaplasia (IM) and dysplasia had never been elucidated.

Aims & Methods: The aim of this study is to investigate the yield of IM and dysplasia according to the biopsy numbers. We retrospectively reviewed the upper gastrointestinal endoscopic reports from the database of outpatient setting from January 2008 to December 2020 at E-Da hospital in Taiwan. The numbers of biopsy, length of columnar-lined esophagus (CLE) and the corresponding histology were analyzed to assess the yield rates of IM and dysplasia per-biopsy in patients with endoscopic CLE and without visible cancerous lesions.

Results: A total of 120,362 endoscopies were reviewed, and 5,963 (5.0 %) cases in 3,135 patients were diagnosed as endoscopic CLE (Length, mean:1.4±0.97cm; range, 1-10). The time-trend of cases of endoscopic CLE and BE were slightly increasing in recent decades. Among them, 4,675 (78.4%) cases received a total of 8887 biopsies (number, median: 1; range, 1-9). The histology from biopsies revealed that 1,642 (35.1%) cases and 217 (4.6%) cases per-endoscopy yielded the IM and dysplasia, respectively (Table 1). Among the 913 patients with histology-confirmed BE, the mean age was 53.2 (53.2±15.1) years old and short-segment (<3cm) Barrett's esophagus (SSBE) were predominated (91%).

Overall, the yields of IM (75% vs. 33%) and dysplasia (17% vs. 3.5%) were both higher in the long-segment than those in short-segment CLE. The yield rates were positively correlated with the numbers of biopsies for both IM and dysplasia in short-segment CLE. Taking one biopsy only revealed a 26% yield of IM and 3.5% yield of dysplasia, respectively. On the contrary, one biopsy could get a 53% yield of IM and 14% yield of dysplasia in long-segment CLE.

Number of biopsies per endoscope	Number of endoscopies (total n=4677)	Yield of IM, n (%) n=1642 (35.1%)
1	2502 (53.5%)	649 (25.9%)
2	975 (20.8%)	385 (39.5 %)
3	324 (6.9%)	164 (50.6%)
4	823 (17.6%)	412 (50.1%)
5	37(0.8%)	20 (54.1%)
6	10 (0.2%)	6 (60%)
7	2 (0.04%)	2 (100%)
8	2 (0.04%)	2 (100%)
9	2 (0.04%)	2 (100%)

Table 1. yields of intestinal metaplasia according to the number of biopsies per-endoscopy

Conclusion: Sampling bias is a major concern in current clinical practice for diagnosis and management of Barrett's esophagus. The yield rates of IM and dysplasia were suboptimal by taking one biopsy, especially for short-segment CLE. A randomized study is required to determinate the optimal biopsy number for SSBE-predominant Asian populations.

Disclosure: There was no conflict of interest.

PP0137

DEVELOPMENT OF EVIDENT BARRETT'S ESOPHAGUS IN ASIAN PATIENTS WITH IRREGULAR Z LINE: THE RATE, ASSOCIATED FACTORS, AND APPLICATION OF MUCOSAL PATTERNS

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Introduction: For patients with irregular Z-lines (IrrZ), current guidelines disadvise routine biopsies at the columnar-appearing distal esophagus and endoscopic follow-ups based on the rarity of malignant changes but not on the risk of progression to evident Barrett's esophagus (BE). The rates of BE development in patients with IrrZ vary widely in limited reports from the US and Europe, ranging from 0% to 25.8%.

This study aimed to elucidate the rates and factors associated with BE progression in Asian patients with IrrZ.

Aims & Methods: Patients diagnosed with IrrZ, defined as a columnar-lined esophagus less than 1 cm, by endoscopies with biopsies, and received at least one endoscopic follow-up, were included. The primary endoscopists reappraised the endoscopic images and consensually verified the endoscopic characteristics.

We referenced the mucosal patterns applied to BE and classified those over IrrZ as gastric metaplasia (GM) patterns, which comprised round, short straight, or circular pits, and intestinal metaplasia (IM) patterns, including ridged, villous, obscured, or irregular pits. Univariate and multivariate analyses were performed to identify the factors associated with progression to BE or emergence of IM.

Results: A total of 156 patients (106 males) with a median age of 53.9 (interquartile range 46.1–61.3) years, receiving 2 (1–2.8) follow-up endoscopies during a period of 43.3 (24.7–54.4) months, were included. IM was detected at baseline in 54 patients. BE, all short-segmented, developed in 15 patients (9.6 %) during follow-up.

No significant association was found between age, gender, body-mass index, abdominal girth, history of diabetes mellitus, gastroesophageal reflux disease (GERD), smoking, fasting glucose, HbA1c, use of proton pump inhibitor, maximum length of mucosal tongues, hiatal hernia, gastroesophageal flap valve, reflux esophagitis, and mucosal patterns, and the development of BE in the entire cohort or the subgroup with baseline IM. The first follow-up endoscopy effectively identified patients with BE development.

Only 1 of the 85 patients (1.2%) receiving ≥ 2 follow-up endoscopies was diagnosed with BE after their first follow up. In the subgroup without baseline IM, known GERD was significantly associated with subsequent BE, while smoking and IM pattern were linked to IM emerging.

The IM pattern was significantly associated with the maximum length of mucosal tongue and presence of reflux esophagitis. It also correlated with baseline IM, except in the subgroup with reflux esophagitis and maximum length 0.5cm–0.9cm.

Conclusion: A small proportion (9.6%) of Asian patients with IrrZ progressed to BE. Following endoscopy once could identify the patients BE developed and reassure patients without BE. In patients without baseline IM, endoscopic follow-up may be spared in the absence of known GERD. IM pattern could predict the emergence of IM, and in most patients, it correlated with the presence of IM.

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Disclosure: Nothing to disclose.

PP0138

USEFULNESS OF LINKED COLOR IMAGING (LCI) WITH TRANSNASAL ENDOSCOPY TO DETECT SHORT SEGMENT BARRETT'S OESOPHAGUS (SSBO)

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Introduction: Repeated endoscopy is recommended to detect early-stage cancer or Barrett's oesophagus known as a precancerous lesion at the gastro-oesophageal junction (GOJ) in GERD patients. Transnasal endoscopy is considered suitable for this repeated endoscopy because of less discomfort in the throat compared to conventional (peroral) endoscopy. Thus, improvement of imaging technique at the GOJ by transnasal endoscopy is one of important issues.
Aims & Methods: To evaluate the usefulness of trasnasal endoscopy equipped with high-resolution imaging, blue laser imaging (BLI) bright and linked color imaging (LCI) for the detection short-segment Barrett's oesophagus (SSBO). We analyzed 300 images at the GOJ acquired from 100 consecutive endoscopies performed at our medical check-up center. Each endoscopy includes white light imaging (WLI), BLI bright and LCI. Ten endoscopists independently interpreted the images on SSBO and endoscopic findings related Barrett's oesophagus, including palisade vessels of squamo-columnar junction (SCJ) oral side (PV-O), palisade vessels of anal side (PV-A), squamous island (SI) and columnar island (CI).
The quality of images for visualization was judged as: excellent visibility (score of 4), good visibility (3), fair visibility (2), or not detectable (1) were evaluated.
Results: The detection rates of each image were as follows (WLI, BLI bright and LCI respectively): SSBO 28.3%, 32.7% and 38.8%; PV-O 88.5%, 83.1% and 90.5%; PV-A 47.3%, 51.1% and 63.2%; SI 9.2%, 9.5% and 9.8%; CI 18.4%, 28.7% and 28.7%. The detection rates of LCI were significantly higher than that of WLI on SSBO, PV-O, PV-A, SI and CI, and that of BLI-bright on PV-A and PV-O. The mean visibility scores (± standard deviation) were as follows: SSBO 1.59 ± 1.02, 1.65 ± 1.03 and 1.86 ± 1.18; PV-O 3.23 ± 1.05, 3.00 ± 1.15 and 3.36 ± 1.01; PV-A 1.99 ± 1.18, 1.98 ± 1.13 and 2.40 ± 1.25; SI 1.18 ± 0.60, 1.21 ± 0.66 and 1.20 ± 0.63; CI 1.43 ± 0.95, 1.74 ± 1.19 and 1.84 ± 1.43. The visibility scores for LCI were significantly higher than that for WLI and BLI-bright on SSBO and all items of related findings (<0.001). Moreover, PV-A showed the strongest correlation with SSBO on visibility score among endoscopic findings related to SSBO (R=0.500; p<0.001).
Conclusion: These results suggest that LCI with transnasal endoscopy is quite effective for the observation GOJ and detecting SSBO.
Disclosure: Nothing to disclose.

PP0139

A COMPARISON OF PATIENT SATISFACTION AND HEALTHCARE RESOURCE USE IN PATIENTS WITH BARRETT'S ESOPHAGUS USING CONFOCAL LASER ENDOMICROSCOPY BASED APPROACH VERSUS STANDARD OF CARE

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Introduction: Barrett's esophagus (BE) is the sole precursor for esophageal adenocarcinoma (EAC), a solid tumor with a lethal 5-year survival rate. Given the rise in incidence of EAC, it is imperative to determine an efficient and effective surveillance protocol for BE. Currently, the standard of care for BE management consists of endoscopic surveillance utilizing the Seattle protocol.
However, no studies compare the healthcare resource use and patient preference of this approach to other approaches.
Aims & Methods: The aim of this study was to compare the healthcare resource use and patient satisfaction of this method to that of a Confocal Laser Endomicroscopy (CLE) based approach. A retrospective chart review of 80 patients with dysplastic BE was conducted across multiple centers. The patients were split into 1 of 2 cohorts on whether they received CLE or standard of care until there were 40 patients within each cohort. Demographics including age, gender and 12 comorbidity indicators were captured as covariates. Bivariate differences in variable means across the 2 groups were assessed using the Kruskal-Wallis equality of populations test.
Finally, linear multivariate models of the 8 health services measures were estimated. Patients were also given a survey to rank the satisfaction of their procedure from 1 (would not undergo again) to 10 (highly recommend).
Results: Compared to those receiving standard of care, CLE patients were older (71 versus 63 years; p=0.002). No other statistically significant differences in gender or comorbidities were detected. Controlling for covariates, while patients in the CLE cohort had greater use of CLE and fluorescein (3.94 more of each than standard of care; p< 0.001), they also had 1.04 fewer endoscopies and anesthesia services (p=0.001), 7.49 less biopsy jars (p< 0.001), 1.30 fewer ablations (p< 0.001) and 1.46 less brush cytology services (p< 0.001). The patient's surveys also revealed a satisfaction score of 8.5 with CLE and 6.3 with standard of care.
Conclusion: BE, the precursor to EAC, is a common condition with increasing global prevalence and burden. Our study concludes that the use of CLE is associated with lower healthcare resource use including endoscopy, anesthesia, biopsies, ablation and a higher patient satisfaction.
References: Table revealing variables (gender, hospital, comorbidities) for non-cellvizio and cellvizio with compared p-values.
Disclosure: Nothing to disclose.

PP0140

EFFICACY AND SAFETY OF ARGON PLASMA COAGULATION (APC) STANDARD CATHETER USE, AFTER SUBMUCOSAL INJECTION FOR BARRETT'S ESOPHAGUS (BE) ABLATION

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Introduction: Radiofrequency ablation is considered the standard therapy for flat dysplastic BE. Hybrid APC is a newer under evaluation, less expensive technique, but with the need of a special injection device and catheter. Aim of the study: To evaluate the efficacy of a standard APC catheter after submucosal injection for BE ablation.

Aims & Methods: To evaluate the efficacy of a standard APC catheter after submucosal injection for BE ablation. Naïve or after previous treatments patients with BE and low - grade dysplasia (LGD) were prospectively evaluated. Sodium chloride solution 0.9% was injected submucosally with a 23 G needle followed by APC application with a standard catheter (ERBE APC 300, 45Watts) on the created cushion. The same procedure was repeated for most of BE surface to be cauterized, with special attention not to ablate large circumferential areas. Patients were under high dose PPIs. Biopsies were taken according to the Seattle protocol during the follow-up.

Results: 31 patients, 28 males (90.3%), 56.7±12.5 years old. Their initial diagnosis was: 19 patients with LGD (61.3%), 7 with high grade dysplasia (22.6%), and 5 with intramucosal cancer (16.1%). Eleven patients (35.5%) had previous endoscopic mucosal resection (EMR) while 7 (22.6%) had received radiofrequency ablation (RFA). Median BE length with LGD at the beginning of APC was 4cm (25th-75th:2-7, min-max:1-10). Median follow-up:10.1(1-108) months. In total 20 (64.5%) patients completely eradicated BE. For the remaining 11 patients APC led to a substantial reduction of BE length [Initial Median: C3M6 (Min: C0M1, Max: C6M8) to a final median: C0M2 (Min:C0M1, Max:C2M5] but the study is ongoing. Initial BE length was correlated to APC sessions needed (r= 0.54, p<0.01) but was not a limiting factor for complete BE eradication. Instead, smoking was an aggravating factor for BE complete eradication (HR=3.12, 95%CI.: 1.2-8.12, p=0.02). No death, hospitalization, severe hemorrhage, or perforation were observed. In 7 patients moderate pain requiring paracetamol, resolved after a few hours of in hospital supervision while 11 patients had mild dysphagia the following days without permanent stenosis.

Conclusion: Conclusions:

1. Standard APC after submucosal injection is safe and tolerable for BE ablation.
2. It may be applied in naïve patients or if other techniques were previously used.
3. Length increases the number of sessions needed but does not seem to be a limiting factor for APC application.

Disclosure: Nothing to disclose.

PP0141

B-PROM: DEVELOPMENT AND VALIDATION OF A NOVEL BARRETT'S OESOPHAGUS PATIENT REPORTED OUTCOME MEASURE

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Introduction: Patients with Barrett's esophagus (BE) carry significant cancer worry, burden of symptoms, and lack disease specific knowledge. Currently there is no validated BE patient reported outcome measure (PROM) for use in clinical practice and research, hence we devised a novel, validated Barrett's specific tool, B-PROM.

Aims & Methods: Literature review, quantitative and qualitative research informed the initial item generation(1,2,3). The item bank (49items) was refined to 31 items through an online modified Delphi process involving patients, patient representatives and clinicians. The PROM was then tested through rounds of cognitive interviews and validated via multicentre testing across four UK hospitals.

Results: B-PROM covers key themes of disease-specific knowledge, trust in clinicians, burden of symptoms, cancer worry and burden of surveillance.

During the modified Delphi process, out of the 49 items, 24 reached consensus and were kept unchanged. 14 were borderline or needed rewording were revised with acknowledgement of comments from the Delphi group. Nine items were merged with other items. Two items which were clearly not favoured by the group were reviewed and removed from the draft PROM. After round 2, a further 8 items achieved consensus, the other items did not achieve consensus and final agreed items were reviewed by the steering group.

Cognitive interviews to refine the PROM tool to confirm patients comprehension resulted in changes to the formating of the knowledge section responses, and rewording of some items to more lay appropriate language.

Multicentre validation results from 387 participants (response rate 40.8%) showed 93.3% of participants completed >95% of B-PROM. All individual items scored a completion rate of >95%.

Mean completion time was 5mins 34s for a sample group. Nineteen items showed a ceiling effect, 3 items showed a floor effect. Internal consistency overall demonstrated a Cronbach Alpha of 0.846, while predetermined subsections showed Cronbach alphas of 0.335, 0.718, 0.736, and 0.896.

Inter-item analysis found 2 pairs of items with strong correlation, with only 6 items correlating weakly. Item-total correlation showed 19 items correlated well. EFA with principal component analysis produced 5 components with Eigenvalues >1 of which 4/5 had satisfactory Cronbach alphas. Test-retest reliability showed no significant differences across single and average measures (p=<0.001).

Conclusion: B-PROM is the first BE-specific PROM to be systematically evaluated. B-PROM's psychometric properties show strong internal consistency and low missingness, it covers the important priorities of BO patients found at systematic review of qualitative research. B-PROM is ready for use in clinical trials and clinical practice.

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PP0142

GENDER DIFFERENCES OF ESOPHAGEAL CANCER IN KOREA

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Introduction: Esophageal cancer is known to be a strongly male dominant disease. However, the gender differences have not been well understood. We aimed to evaluate the differences between male and female esophageal cancer in Korean population.

Aims & Methods: We retrospectively analyzed patients confirmed as esophageal cancer in Asan Medical Center between January 2005 and December 2015. The clinical features of patients, histopathologic characteristics of tumor, treatment response, and survival were investigated between male and female patients respectively.

Results: A total of 2,068 patients were analyzed. The median age was younger in female (62 years; interquartile range [IQR] 38-85) than male (64 years, IQR 37–90), and the male to female ratio was 13.4:1. Squamous cell carcinoma was major pathologic type (99.0% in male and 93.1% in female), however, the proportion of adenocarcinoma was higher in female than male (5.6% *vs*. 0.8%, $p<0.001$). Female patients smoked less (22.2% *vs.* 86.5%, $p<0.001$) and drank less alcohol (26.4% vs 89.9%, $p<0.001$) than male patients.

Female had upper and middle esophagus dominant tumor location (75.0%), whereas middle and lower dominant in male (81.7%). Multivariate analysis showed that gender (Hazard ratio [HR], 0.77; 95% CI, 0.60 to 0.99; $p=0.044$), age (HR, 1.03; 95% CI, 1.02 to 1.03; $p<0.001$), and advanced tumor stage (stage 4, HR, 14.3; 95% CI, 8.43 to 24.4; $p<0.001$) were independent prognostic factors for overall survival. The 5-year overall survival rate of female was higher than those of male (53.5% *vs*. 44.5%, $p=0.038$). Cancer recurrence rate in complete remission patients were significantly lower in female than male (15.3% *vs*. 25.1%, $p=0.03$).

Conclusion: The gender is an independent prognostic factor for esophageal cancer, with favorable survival outcomes in female than male. Further research is warranted to determine the cause of prognostic difference in esophageal cancer in male and female.

Disclosure: There is no conflict of interest.

PP0143

LONG-TERM OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION USING A SCISSOR-TYPE KNIFE FOR MUSCULARIS MUCOSA/SUBMUCOSA ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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Introduction: According to the 2022 edition of the Japanese guideline for esophageal cancer, the necessity of additional treatment for muscularis mucosa/submucosa (MM/SM1) esophageal squamous cell carcinoma is comprehensively decided after endoscopic treatment. At our hospital, esophageal endoscopic submucosal dissection (ESD) is performed using a scissor-type knife, which is considered highly safe; however, few studies have reported its long-term outcomes.

Therefore, the study aimed to compare the short- and long-term outcomes of esophageal ESD treatment using a scissor-type knife for MM/SM1 cancer and epithelium/lamina propria mucosae (EP/LPM) cancers in our hospital.

Aims & Methods: Patients diagnosed with esophageal squamous cell carcinomas who underwent ESD at our hospital between December 2009 and November 2019 were recruited, followed up for >3 years, and classified into two groups: 61 patients with 91 lesions diagnosed as EP/LPM cancer (group A) and 22 patients with 22 lesions diagnosed as MM/SM1 cancer (group B). Short- and long-term outcomes were compared. In all cases, only scissor-type knives were used.

Results: The mean ages were 69 ± 8.9 and 70 ± 8.8 years in groups A and B, respectively. Gender (male/female) was 78/13 and 20/2 patients in groups A and B, respectively. The mean tumor sizes were 16.8 ± 11.3 and 26.8 ± 18.1 mm in groups A and B, respectively, with significant differences ($p = 0.0011$). The R0 resection rates were 100% in both groups; lymphovascular invasion was observed in two cases with pT1a-MM cancers and one case with pT1b-SM1 cancer. Chemoradiation therapy (CRT) was added to one case with pT1a-MM cancer and two with pT1b-SM1 cancers, and only chemotherapy was added to one case with pT1a-MM cancer. The average observation period was 55 ± 30 and 60 ± 38 months in groups A and B, respectively, and no local recurrence was observed in either group.

Lymph node recurrence was observed in one case with pT1a-MM cancer with lymphovascular invasion who received chemotherapy alone and one with pT1b-SM1 cancer with lymphovascular invasion who received CRT. Twenty-five and nine patients in groups A and B died from other diseases, respectively, but only one SM1 case with lymph node recurrence was the primary cancer death.

The overall survival rate (3 years) was 80.2% and 77.3% ($p = 0.85$), and the disease-specific survival rate (3 years) was 100% and 95.5% ($p = 0.30$) in groups A and B, respectively.

Conclusion: The short-term outcomes of ESD for MM/SM1 cancer using a scissors-type knife were as good as those for EP/LPM cancer, and no local recurrence occurred even in the long-term outcomes.

In addition, pT1a-MM tumors without lymphovascular invasion have progressed without recurrence and were considered appropriate as ESD-adaptive lesions.

Disclosure: Nothing to disclose.

PP0144

CLINICAL OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR ESOPHAGEAL SQUAMOUS CELL CARCINOMA WITH ESOPHAGEAL VARICES

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Introduction: Endoscopic submucosal dissection (ESD) for esophageal squamous cell carcinoma (ESCC) with esophageal varices (EVs) is one of the most challenging endoscopic procedures due to the high risk of bleeding and fibrosis caused by prior treatment of varices.

However, due to the small number of such cases, the clinical outcomes of ESD for ESCC with EVs have been reported in only a limited number of cases at single centers[1-3].

Aims & Methods: We conducted a multicenter, retrospective, cohort study to clarify the safety and efficacy of ESD for ESCC with EVs.Eleven institutions in the Tohoku region of Japan participated in this multicenter, collaborative, retrospective study.

We performed endoscopic resection for 3619 patients with esophageal carcinoma at the participating institutions during the period from January 2010 to April 2022. Among those, 30 patients who underwent ESD for ESCC with EVs were recruited for the present study.

Rates of *en bloc* resection and R0 resection, procedure time and adverse events were evaluated as indicators of the feasibility and safety of ESD. Additional treatment, recurrence and metastasis of the lesions were evaluated as indicators of the long-term efficacy of ESD.

Results: Portal hypertension was caused by cirrhosis, of which alcohol was the most common cause. *En bloc* resection was achieved in 93.3% and R0 resection in 80.0% of the patients. The median procedure time was 92 minutes. Adverse events included a case of uncontrolled intraoperative bleeding leading to discontinuation of ESD and a case of esophageal stricture due to extensive resection. During the follow-up period of a median for 42 months, a patient with local recurrence and another patient with liver metastasis were observed. One patient died of liver failure after receiving chemoradiotherapy as an additional treatment after ESD. No patient died of ESCC.

Conclusion: This multicenter, retrospective cohort study demonstrated the safety and efficacy of ESD for ESCC with EVs. Further studies are needed to establish appropriate treatment methods for EVs before ESD and additional treatments for patients with insufficient ESD.

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Disclosure: Nothing to disclose.

PP0145

MUSCULAR INJURY AS AN INDEPENDENT RISK FACTOR FOR ESOPHAGEAL STENOSIS AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION OF ESOPHAGEAL SQUAMOUS CELL CANCER

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Introduction: Stenosis after esophageal Endoscopic Submucosal Dissection (ESD) has a high incidence of ranks, and muscular injury might be an important risk factor for esophageal stenosis.

Aims & Methods: Our study aimed to classify muscular injury degree and investigate its association with postoperative stenosis. This retrospective study included 1,033 patients with esophageal mucosal lesions treated by ESD between August 2015 and March 2021. Demographic and clinical parameters were analyzed, and stenosis risk factors were identified using multivariate logistic regression.

A novel muscular injury classification system was proposed and further used to investigate the association between the different degrees of muscular injury and postoperative stenosis. Finally, a scoring system was established for the prediction of muscular injury.

Results: Of 1,033 patients, 118 (11.4%) had esophageal stenosis. The multivariate analysis demonstrated that the history of endoscopic esophageal treatment, circumferential range, and muscular injury were significant risk factors for esophageal stenosis. Patients with Type II muscular injuries tended to develop complex stenosis (n = 13, 36.1%, $p < 0.05$). Moreover, Type II muscular injuries were more likely to predispose patients to severe stenosis than Type I (73.3 and 92.3%, respectively).

According to the scoring system for predicting muscular injury, patients with high scores (3-6) were more likely to suffer muscular injury. The score model presented good discriminatory power in the internal validation (AUC: 0.706; 95% CI: 0.645-0.767) and goodness-of-fit in the Hosmer-Lemeshow test ($p = 0.865$).

Conclusion: Muscular injury was an independent risk factor for esophageal stenosis. The scoring system demonstrated good performance in predicting muscular injury during ESD.

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Disclosure: Nothing to disclose

PP0146

ENDOSCOPIC TREATMENT FOR SUPERFICIAL LARYNGOPHARYNGEAL CANCER

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Introduction: Recent improvements in endoscopic diagnostic techniques have made it possible to detect early-stage superficial laryngopharyngeal cancer, and endoscopic resection has become one of the standard treatments in Japan1).
However, it is not fully known to what extent endoscopic treatment alone is curative.
Aims & Methods: To clarify the relationship between depth and lymph node metastasis in superficial laryngopharyngeal cancer. From August 1996 to April 2023, we experienced 501 cases of 810 lesions of superficial laryngopharyngeal cancer.
Of these, 396 cases with 652 lesions (462 in the hypopharynx, 149 in the oropharynx, and 41 in the larynx) that were resected orally without prior treatment and followed for more than 1 year were included to investigate the relationship between depth and late lymph node metastasis.
Results: Endoscopic classification of the treated lesions was 81 lesions of type 0-I(protruded type), 164 lesions of type 0-IIa(elevated type), 391 lesions of type 0-IIb(flat type), and 16 lesions of type 0-IIc (depressed type). Type 0-IIb was the most frequent.
Histopathologically evaluated 174 cases of intraepithelial carcinoma with 249 lesions showed no metastasis. On the other hand, of the 403 lesions in 295 cases of subepithelial invasive cancer (T1, tumor size less than 2cm: 213 lesions, T2, tumor size 2-4cm or smaller: 159 lesions, T3, tumor size greater than 4cm: 31 lesions), 30 lesions in 28 cases(9.5%) had later lymph node metastasis.
Two of 305 lesions (0.65%) with tumor thickness less than 1000 µm were positive for metastasis. By size, 1 of 178 lesions in T1(0.6%), 1 of 111 lesions(0.9%) in T2, and 0 of 16 lesions in T3 were positive for metastasis. On the other hand, 28 of 98 lesions (28.6%) with tumor thickness greater than 1000 µm were positive for metastasis. By size, 6 of 35 lesions in T1(17.1%), 17 of 48 lesions(35.4%) in T2, and 5 of 15 lesions(33.3%) in T3 were positive for metastasis.
The frequency of lymph node metastasis by endoscopic type was 20 of 81 lesions(24.7%) for type 0-I, 8 of 164 lesions (4.9%) for type 0-IIa, 1 of 391 lesions(0.25%) for type 0-IIb, and 1 of 16 lesions (6.25%) for type 0-IIc, metastasis was seen more frequently in type 0-I.
The observation of brownish areas and brown dots with Image Enhanced Endoscopy is useful for detecting early-stage cancer. When examining the depth of the disease, the Valsalva method is recommended to focus on type 0-I lesions with a thickness of 1 mm or more and a well-stretched pharyngeal mucosa.
Conclusion: Superficial carcinomas with a thickness greater than 1 mm should be noted for late lymph node metastasis.

Reference: 1. Watanabe A, Taniguchi M, Kimura Y, et al. Synopsis of transoral endoscopic laryngopharyngeal surgery for superficial pharyngeal cancers. Head Neck 2017; 39: 1779-1787
Disclosure: The authors have no financial conflicts of interest disclose concerning the study.

PP0147

ENDOSCOPIC SUBMUCOSAL DISSECTION INTERVENTION FOR EARLY ESOPHAGEAL ADENOCARCINOMA: A PRELIMINARY SINGLE-CENTER EXPERIENCE

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Introduction: Endoscopic submucosal dissection (ESD) is a highly sophisticated and advanced endoscopic procedure that is primarily used to treat early esophageal cancer. This procedure enables the en-bloc resection of neoplastic lesions and is considered the standard treatment option for Esophageal adenocarcinoma (EAC). While EAC is common in western countries, it is relatively rare in Asian populations, leading to limited clinical data on ESD for EAC in Asian countries.
Aims & Methods: Our study aims to report our experiences with performing ESD for early EAC and evaluate the clinical outcomes of non-curative ESD. From January 2013 to December 2021, we conducted a unicentric, retrospective study of patients who received ESD for early EAC at Jiangsu Province Hospital, 78 patients diagnosed early esophageal adenocarcinoma and underwent ESD were retrospectively enrolled. The clinical outcomes of ESD, as well as the entirety en bloc, R0, and curative resection rates were considered as the primary outcomes. The secondary outcomes involved comparing the results between the T1a and T1b carcinomas.
Results: Based on postoperative pathology, the esophageal adenocarcinomas were staged into either T1a (n=67 or T1b (n=11 stage. The En bloc resection rate was achieved 100%. Compare to the T1b group, the T1a group had a significantly higher R0 rate (87.8% vs.18.1%, P < 0.05) and curative resection (98.5 % vs 36.4%, P<0.001).
Among the 11 noncurative ESDs, 6 patients (47.6%) underwent R0 esophagectomy, 2 patients (28.6%) are undergoing surveillance endoscopies without additional therapy, 2 patients (14.3%) underwent repeat curative ESD and 1 patient (4.76%) received radiotherapy.
Over median endoscopic follow-up of 23.8 months (IQR, 12.23–30.75), 2 patients with noncurative ESDs had recurrent disease. Besides, we found ESD can lead to a change in histologic diagnosis in 70.6% of cases (55/78), with all cases being upstaged.
Conclusion: ESD showed a higher rate of curative resection in T1a EAC as compared to T1b EAC. Patients with non-curative ESD may benefit from conservative multimodal therapies including repeat curative ESD, surveillance endoscopies, or R0 esophagectomy. Selective ESD, on the other hand, has the potential to be a diagnostic and staging tool, especially in patients with suspected invasive illness.
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Disclosure: Nothing to disclose.

PP0148

STEPWISE ESD CAN PREVENT SEVERE STRICTURE AFTER ESD FOR CIRCUMFERENTIAL ESOPHAGEAL TUMOR

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Introduction: ESD is a standard treatment for Dysplasia or T1a esophageal cancers. However, severe stricture after circumferential ESD is a remaining major problem. Various managements have been reported, such as steroid injection, oral administration, and application of polyglycolic acid sheets, but none of them are sufficiently effective. Recently, the authors performed stepwise ESD in patients with circumferential esophageal cancers to prevent severe stricture after ESD.

Aims & Methods: The aim of this retrospective study is to clarify the usefulness of Stepwise ESD for preventing severe stricture after circumferential resection for esophageal tumor. Patients who underwent additional surgery due to the depth of SM2 or positive vascular invasion as a result of performing circumferential ESD were excluded from this study. Subjects were patients with circumferential esophageal tumors pathologically diagnosed as Vienna classification 4 or 5, who underwent ESD at Saku Hospital from 2006 to 2022. Sixteen and forty-six lesions were adenocarcinoma (EAC) and Squamous cell carcinoma (SCC), respectively. In the EAC group, the invasion depth was T1a in 9 cases and T1b in 1 case. In addition, the depth of invasion in the SCC group was T1a in 38 cases and T1b in 7 cases. The patients were divided into the En bloc (EB) group and the Stepwise (SW) group, and the background, number of endoscopic balloon dilatation (EBD), complications, etc. were examined for each group.

Results: Sixty-two patients, including 55 in the EB and 7 in the SW group, who required circumferential ESD, were entered into this study. There was no significant difference in age and gender between two groups.

Of the 55 patients in the EB group, 47 (85%) had severe stenosis and required EBD, but none in the SW group required EBD. The median number of EBDs was 5 (0-33) in the EB group and 0 (0-0) in the SW group.

And, the duration of ulcer healing in both groups were 137 (42-1028) days and 42 (30-120) days. The duration to healing of ESD ulcers was significantly shorter in the SW group (p<0.0001). The volume of TA injection were 50 (0-150) mg and 50 (0-100) mg, respectively. There was no significant difference (p=0.88).

The long axis mucosal defect lengths in the EB and SW groups were 8(5-15) cm and 6(3-9) cm, respectively. There was a significant difference between two groups (p=0.0004).

The diameters of the tumors were 59 (30-130) mm and 40 (36-64) mm, respectively. The length of resected specimen were 68 (29-150) mm and 56 (27-92) mm, respectively. There was a significant difference between two groups p=0.0004 and 0.0007.

Complications: There were no perforation and bleeding which needed blood transfusion. And, one patient in the EB group had a perforation during EBD, which could be cured with conservative treatment without surgery.

Conclusion: It has been reported that a circumference excision of 5 cm or more may cause severe stenosis. In this study, a median of 6 cm was performed even in the SW group, and stenosis could be prevented in all 7 cases. Therefore, Stepwise ESD may be a useful method to prevent post-ESD stricture in circumferential superficial esophageal tumors.

Disclosure: Nothing to disclose.

PP0149

RISK FACTORS FOR EARLY RECURRENCE IN ESOPHAGEAL CANCER: ANALYSIS OF TUMOR-INFILTRATING IMMUNE CELLS

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Introduction: The recurrence rate after radical esophageal cancer resection is as high as 40-60%, and patients with early recurrence have a poor prognosis. Recently, the indication of immune checkpoint inhibitor (ICI) therapy for esophageal cancer has been expanded to adjuvant therapy based on the results of the CheckMate 577 trial, and its efficacy is expected to increase[1]. In addition to ICIs, immunotherapies such as cancer peptide vaccines and CAR-T cell therapy are also expected to be applied to esophageal cancer[2,3].

On the other hand, the response rate of ICI for esophageal cancer is limited to 10-30%[4], and the method of selecting patients who will benefit from immunotherapy is controversial.

Aims & Methods: Aims: we expect that elucidating the association between early postoperative recurrence of esophageal cancer and tumor immune microenvironment (TIME) will provide a biomarker for patient selection for immunotherapy, especially for patients who will benefit from immunotherapy in combination with adjuvant chemotherapy.

Methods: 63 patients with pStage II, III, or IV esophageal cancer who underwent radical surgery at our department between May 2014 and June 2020 were included in the study. 63 patients with recurrence within 1 year (ER group n=26) and 63 patients with non-early recurrence (NER group n=37) were retrospectively compared and evaluated for clinicopathological factors including TIME. The results were compared and examined.

Results: Analysis in clinical context: Univariate analysis for early recurrence showed more pStage III/IV in the ER group (RR: 5.04, (95%CI: 1.69-15.0), p<0.01) and more deaths in the ER group than the NER group (RR: 5.69(95%CI: 2.45-13.2), p<0.01).

Analysis of tumor-infiltrating lymphocytes: ROC analysis of CD8-, Foxp3, TIM3-, and PD1-positive lymphocytes in TIME was performed for early recurrence, with cutoffs set for each, and compared between the two groups. Results showed that CD8, Foxp3, and positive lymphocyte counts were significantly lower in the ER group than the NER group (relative risk: 2.07(95%CI:1.14-3.75), p=0.02,), (relative risk: 2.32(95%CI: 1.36-3.96), p<0.01). Multivariate analysis showed that CD8-positive lymphocyte count was a factor associated with early recurrence (odds ratio=5.17 (95%CI: 1.39-19.3), p=0.01).

Analysis in lymphocyte ratios: Kaplan-Meier curves were generated for Foxp3/CD8, TIM3/CD8, and PD1/CD8 with median cutoff and 1-year RFS between the two groups. 1-year RFS in Foxp3/CD8 tended to be worse in patients with predominant Foxp3 than with inferior Foxp3 (Foxp3/CD8>1.83:73%, Foxp3/CD8<1.83:50%, Log-rank test p=0.08). The 1-year RFS was significantly worse in group A (1-year RFS=A:43%, B:71%, Log-

rank test p=0.04). Similarly, for TIM3, when patients with CD8 low and TIM3/CD8 High were analyzed as group A and others as group B, group A had a significantly worse prognosis (1-year RFS=A:45%, B:70%, Log-rank test p=0.05).

Furthermore, PD1 patients with CD8 low and PD1/CD8 high were group A, and all other patients were group B. The prognosis was significantly worse in group A (1-year RFS=A:42%, B:69%, Log-rank test p=0.03).

Conclusion: In addition to CD8 infiltration in TIME, the balance of expression of regulatory lymphocytes was suggested to be involved in early recurrence.

It is suggested that evaluation of TIME aid in patient selection for adjuvant treatment of esophageal cancer.

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PP0150

SCREENING ENDOSCOPY IN PATIENTS WITH HEAD AND NECK NEOPLASM: A PILOT STUDY

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Introduction: Patients with head and neck neoplasms (HNN) are at an increased risk of synchronous gastro-esophageal neoplasia (GEN) due to shared risk factors such as smoking, alcohol consumption, and HPV infection. Several scientific societies recommend screening HNN patients for synchronous esophageal neoplasms. Nevertheless, particularly in Western centers, few studies evaluated the impact of an organized screening program.

Aims & Methods: We conducted a prospective study that evaluated an organized GEN screening program in HNN patients diagnosed between 01/06/2020 and 31/12/2022, in a tertiary reference hospital. Patients were proposed to do an upper gastrointestinal endoscopy (UGE) with narrow-band imaging (NBI) and/or Lugol chromoendoscopy.

Results: We evaluated 34 patients, 82.4% male, with a median age of 64.5 (IQR: 57,5-70) years. 82.4% had a history of tobacco use, and 35.3% presented active alcohol consumption. The most common primary HNN sites were the larynx (50.0%) and the tonsil (14.7%), and the most frequent histological type was squamous cell carcinoma (SCC) (88.2%). The median time between HNN and UGE was 4.5 (IQR: 1.25-10) months, and 91.2% of the patients had already started treatment for HNN. The prevalence of synchronous GEN was 14.7% (Esophageal SCC n=4; Cardia adenocarcinoma n=1). One patient underwent ESD of two synchronous SCC (SCC pT1b), with adjuvant radiotherapy, other (T1/T2N0M0) underwent chemotherapy and radiotherapy, and two patients are waiting ESD. The patient with cardia adenocarcinoma underwent ESD (pT1b with lymphatic permeation) and total gastrectomy, with no evidence of residual lesion. All patients with synchronous GEN remain alive in the follow-up.

Conclusion: In our study the prevalence of synchronous GEN in HNN patients was significant and most lesions were detected in an early stage, still amenable for endoscopic resection. This study showed that the implementation of this screening strategy may potentially lead to a better prognosis for these patients and its cost-efficacy should be evaluated .

Disclosure: Nothing to disclose.

PP0151

ASSOCIATION OF INTENSIVE ENDOSCOPIC BURDEN WITH ESOPHAGEAL CANCER DETECTION

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Introduction: When esophageal cancer is diagnosed at an advanced stage, it requires a highly invasive treatment, and its prognosis is poor. Although the number of endoscopic examinations has been increasing globally, esophageal cancer is still difficult to diagnose at an early stage. The rapidly increasing number of endoscopic examinations performed over a short period might influence diagnostic performance. Accessing the association between calendar month and esophageal cancer detection rates might improve policy and guide institutional support.

Aims & Methods: We aimed to evaluate the association between the increased number of examinations over a certain period and esophageal cancer detection rates (EDR) among a large population in the Korean National Cancer Screening Program (KNCSP). We performed a retrospective population-based study using the KNCSP database for gastric cancer between 2015 and 2019. We included 28,032,590 Koreans aged ≥40 years. We assessed monthly EDR and performed a negative binomial regression model and least square mean evaluation to evaluate the association between the screening month and EDR.

Results: In total, 28,032,590 subjects underwent upper endoscopy, according to KNCSP. The monthly number of subjects who underwent examinations was the highest in December (n=4,819,606, 17.2%). EDR tended to decrease towards the end of the year, and EDR was the lowest in December 2015 – 2019 (0.06 – 0.08).

In the multivariable logistic model, the association of calendar month with detected cancer remained after adjusting for other confounding factors (December 2015: odds ratio, 0.58; 95% CI, 0.43 – 0.79; P < .001; 2016: odds ratio, 0.51; 95%CI, 0.38 – 0.67; P < .001). The age group adjusted the calendar month, and the predicted detection rate significantly decreased at the end of the year compared with the beginning of the year in 2015, 2016, and 2017 respectively.

Conclusion: In the KNCSP, the workload of endoscopists increased excessively, with an increasing number of examinations towards the end of the year, as demonstrated by decreased EDR during this period.

Disclosure: Nothing to disclose.

PP0152

BODY COMPOSITIONAL CHANGE PREDICTS CHEMORADIOTHERAPY RESPONSE AND PROGNOSIS OF ESOPHAGEAL CANCER PATIENTS: A COHORT STUDY

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Introduction: Patients with esophageal cancer are prone to poor nutrition. Concurrent chemoradiation therapy (CCRT) further influence body compositions including skeletal muscle and adipose tissue which are key indicators of nutritional status.

Aims & Methods: This study aimed to evaluate whether body compositional change during CCRT could be a predictor of prognosis in esophageal cancer patients. From 2006 to 2018, esophageal cancer patients who re-

ceived CCRT as initial treatment were consecutively enrolled. We assessed body compositions, including subcutaneous fat (SCF), intramuscular fat (IMF), and skeletal muscle (SM) mass by measuring the cross-sectional area (CSA) of the fourth thoracic vertebral body on computed tomography (CT) scan.

The body compositional change was assessed by comparing baseline and post-CCRT CSA. The association of body compositions and their changes during CCRT with patient prognosis was analyzed.

Results: A total of 178 patients were enrolled with a mean baseline BMI of 22.0 (SD 3.4). Compared to baseline, a significant decrease in the mean bodyweight (BW), SCF, IMF, and SM after CCRT was noted (p<0.001). Baseline or post-CCRT BMI and body compositions were not significantly associated with patient prognosis.

Patients with SCF loss during CCRT had poorer CCRT response (OR 3.7, p<0.001), shorter time to tumor progression (8.5 *vs* 23.7months, p=0.011), and overall survival (13.7 *vs* 25.9months, p<0.001) than patients with SCF gain/stable. IMF, SM, and BW change did not correlate with CCRT response or survival.

In multivariate Cox regression analysis, SCF loss (HR 1.49, 95%CI: 1.03–2.14, p=0.033) during CCRT was an independent poor prognostic factor after adjusting baseline BMI, cancer stage, treatment modality, and CCRT response.

Conclusion: Body compositional change is more sensitive than weight in predicting CCRT response and survival of esophageal cancer patients. SCF loss during CCRT is associated with worse CCRT response and survival in esophageal cancer patients.

Disclosure: Nothing to disclose.

PP0153

EARLY CLINICAL RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH ESOPHAGEAL CANCER AFTER NEOADJUVANT CHEMORADIOTHERAPY WITH VINORELBINE PLUS CISPLATIN

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Introduction: Esophageal cancer (EC) is the eighth most common cancers in the world. In Belarus over 90% of patients have esophageal squamous cell carcinoma (ESCC). The prognosis of patients with ESCC remains poor after surgery. Neoadjuvant chemoradiotherapy (NCRT) has been shown to potentially improve survival.

Aims & Methods: The study presents data on the treatment of 40 patients suffering from squamous cell esophageal carcinoma cT1-4aN0-3M0. By randomization, 20 patients were assigned to the study group, 20 - to the comparison group. Patients in the study group underwent two courses of chemotherapy (cisplatin and vinorelbine) and concurrent radiotherapy (single focal dose of 2 Gy, a total focal dose of 40 Gy). Eight weeks after completion of treatment, patients underwent re-staging of the tumor process. When a complete, partial regression or stabilization of the tumor process was detected, surgical intervention was performed. Patients in the comparison group underwent surgery alone.

Results: In the study group, there was a satisfactory tolerance of preoperative chemotherapy and radiation therapy. There were 60 toxic reactions. All toxic effects were stopped by conservative measures. The most common were leukopenia 45%, thrombocytopenia 40%, anemia 30%.

In the chemoradiotherapy–surgery group, radical surgical treatment was performed in 19 patients, trial surgery - in 1 patient. In 3 (15%) patients after radical surgery, due to postoperative complications, emergency surgical interventions were performed. In the surgery group, radical surgical treatment was performed in 14 patients, trial operations - in 6 patients. In 1 patient after radical surgery, due to postoperative complications, emergency surgery was performed.

Postoperative mortality in the chemoradiotherapy–surgery group was 10%, in the surgery alone group - 15%.

Conclusion: The method of neoadjuvant chemoradiotherapy for squamous cell carcinoma of the esophagus based on cisplatin and vinorelbine has satisfactory tolerance, allows to achieve complete tumor regression in 40% of patients, does not lead to an increase in the number of postoperative complications and postoperative mortality.

Disclosure: Nothing to disclose.

PP0154

EFFICACY AND COMPLICATIONS IN PALLITVE OESOPHAGEAL STENTING, 7 YEARS EXPERIENCE FROM A DGH IN THE UK

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Introduction: Oesophageal stent placement is a nonsurgical alternative for palliation of malignant obstruction. It is now established as a major treatment for dysphagia resulting from inoperable oesophageal cancer.

Aims & Methods: A retrospective study of all patients undergone oesophageal stent insertion at a single endoscopy unit under fluoroscopy from July 2015 to Nov 2022 was undertaken.

Aim: Evidence of immediate or late complications, repeat interventions, and for survival statistics after stent insertion.

Results: 95 oesophageal stents were placed in 7 years. There were 28% Female (28/95) and 69% Males (68/95), mean age 73 (Range 47-91). The mean Indication dysphagia due to oesophageal stricture. Histology revealed: 64 adenocarcinoma, 22 squamous cell carcinoma, 5 high grade dysplasia. Location of malignancy:81 distal oesophagus, 6 proximal oesophagus, 5 Gastro-oesophageal junction and 3 Mid oesophagus. Types of stent used: 84 Fully Covered, 2 Uncovered.

No immediate complications reported apart from 2 stents moved on reintubation or extubation. The endoscopy was repeated in 43 patients.

Late complications 13% (13/95): 6 patients had Tumour overgrowth, 6 patients had Stent migration and one patient had a Food bolus. The 30 days mortality is 13%.

Conclusion: Palliative Oesophageal stent insertion in our hospital proved to be an effective treatment for patients with malignant dysphagia.

Outcomes compare favourably with published data in terms of complications and mortality.

It is a relatively safe procedure with no immediate complications and a low rate of serious acute complications.

Steps to improve post-procedure monitoring with prospective collection of data could be useful in future service development.

References: Esophageal stenting for benign and malignant disease: European Society of Gastrointestinal Endoscopy (ESGE) Guideline – Update 2021

Disclosure: Nothing to disclose.

PP0155

THE DIFFERENCE OF GASTRIC MUCOSAL INJURY BETWEEN CLOPIDOGREL USER AND PRASUGREL USER IN PATIENT RECEIVING DUAL ANTI-PLATELET THERAPY (DAPT)

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Introduction: It is known that Dual Anti-Platelet Therapy (DAPT) is a risk of gastrointestinal bleeding. Recently, it has been reported that concomitant use of proton pump inhibitor (PPI) can reduce the gastrointestinal bleeding risk [(1)]. However, it is still unclear how DAPT affects the gastric mucosa. Actually, few reports have examined the relationship between DAPT and gastric mucosal injury [(2)].

Aims & Methods: The aim of this study is to reveal the difference of gastric mucosal injury between clopidogrel user and prasugrel user in patient receiving DAPT. This is a case-controlled study conducted at our department. Data were extracted from the records of subjects who underwent upper gastrointestinal endoscopy at our department between April 2015 and March 2022.

We focused on the subjects taking both low-dose aspirin and P2Y12 receptor antagonist (DAPT). We compared the severity of gastric mucosal injury, between cases using clopidogrel (group C) and prasugrel (group P) individually according to the P2Y12 receptor antagonist used. Severity of gastric mucosal injury was evaluated endoscopically according to the modified LANZA score (MLS)[(3, 4)].

Statistical analyses were performed by using Mann–Whitney *U* test. We evaluated separately for cases with concomitant use of potassium-competitive acid blocker (P-CAB) or PPI (user) and cases without concomitant use of P-CAB, PPI nor histamine H2 receptor antagonist (H2RA) (nonuser).

Results: 82 cases out of 6,863 were receiving DAPT.

In group C (45 men, 8 women; mean age 72.1 years), average MLS was 0.94±1.66 (user: n=33, score0=22, score1=4, score2=1, score3=2, score4=1, score5=3) and 1.82±1.88 (nonuser: n=17, score0=8, score1=0, score2=1, score3=4, score4=3, score5=1). In group P (21 men, 8 women; mean age 74.3 years), average MLS was 0.23±1.07 (user: n=22, score0=21, score1=0, score2=0, score3=0, score4=0, score5=1) and 0 (nonuser: n=6, score0=6, score1=0, score2=0, score3=0, score4=0, score5=0). There was a statistically significantly difference between group C and group P for both user(p=0.016) and nonuser(p=0.031). These results suggested that regardless of the concomitant use of antacids, prasugrel users had significantly less gastric mucosal injury than clopidogrel users in DAPT.

Conclusion: We found that prasugrel is more user-friendly agent than clopidogrel in terms of gastric mucosal injury in DAPT.

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Disclosure: Nothing to disclose.

PP0156

MITOCHONDRIA-TARGETED DELIVERY OF HYDROGEN SULFIDE (H_2S)-PRODRUG COUNTERACTS GASTROTOXICITY OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS. INVOLVEMENT OF HEME OXYGENASE PATHWAY

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Introduction: Endogenous hydrogen sulfide (H_2S) and H_2S-prodrugs contribute in the maintenance of gastrointestinal (GI) integrity and redox balance. Biological effects of any H_2S-donor was predominantly mitochondrial. However, even non-targeted H_2S-releasing compounds were shown to decrease the non-steroidal anti-inflammatory drugs (NSAIDs)-induced gastrotoxicity but when applied in relatively high doses. Importantly, new derivatives of NSAIDs, such as H_2S-naproxen (ATB-346, Antibe Therapeutics Inc., Canada) or H_2S-ketoprofen (ATB-352) exerted GI safety compared to mother compounds in preclinical or clinical studies.

However, mitochondria were not considered as a direct molecular targets for H_2S-prodrugs in terms of attenuation of NSAIDs gastrotoxicity. Targeted delivery of H_2S to gastric mitochondria to improve NSAIDs-pharmacology remains overlooked.

Aims & Methods: Thus, we aimed here to evaluate for the first time if i.g. treatment with mitochondria-targeted and H_2S-releasing AP39 counteracts development of NSAIDs-induced gastric mucosal injuries. Wistar rats were treated i.g. with vehicle, AP39 (0.004-0.5 mg/kg), AP-219 (0.02 mg/kg) as structural control without H_2S-releasing ability, or AP39 + SnPP (10 mg/kg) as a heme oxygenase (HMOX) inhibitor. Next, animals were administered i.g. with acetylsalicylic acid (ASA, 125 mg/kg) as NSAIDs representative to induce translational hemorrhagic gastric lesions. NSAIDs-gastrotoxicity was assessed micro- and macroscopically.

Gastric mucosal activity of mitochondrial complexes IV and V, as well as DNA oxidation were assessed biochemically. Gastric mucosal and/or serum content of IL-1b, IL-10, TNF-a, TGF-b1/2/3, ARG1, GST-a, or phosphorylation of NF-κB, ERK, Akt, JNK, STAT3/5 were evaluated by microbeads-fluorescent xMAP®-assay. Gastric mucosal mRNA level of HMOX-1/2, COX-1/2, SOD-1/2 were determined by real-time PCR.

Results: AP39 (but not AP219) dose-dependently (0.02 and 0.1 mg/kg) diminished the development of NSAID-induced gastric lesions and DNA oxidation, restoring mitochondrial complexes activity, ARG1, GST-a protein levels and increasing anti-oxidative HMOX-1 and SOD-2 expression. AP-39 decreased proteins levels or phosphorylation of state-of-the-art gastric mucosal inflammation/oxidation-sensitive markers. Pharmacological inhibition of HMOX-1 attenuated AP39-gastroprotection.

Conclusion: We showed that mitochondria-targeted H_2S, released from very low i.g. doses of AP-39 improved gastric mucosal capacity to cope with NSAIDs-induced mitochondrial dysfunction and redox imbalance, mechanistically requiring the activity of anti-oxidative HMOX-1 and mitochondrial SOD-2.

We assume that mitochondria-targeted H_2S moieties could significantly increase the GI-safety of NSAIDs-pharmacology.

Disclosure: Nothing to disclose.

PP0157

GASTRIC CANCER INCIDENCE BASED ON ENDOSCOPIC KYOTO CLASSIFICATION OF GASTRITIS: A COHORT STUDY

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Introduction: Gastric cancer (GC) incidence based on the endoscopic Kyoto classification of gastritis has not been systematically investigated using time-to-event analysis. Therefore, we examined GC incidence in an endoscopic surveillance cohort.

Aims & Methods: This study was retrospectively conducted at the Toyoshima Endoscopy Clinic. Patients who underwent two or more esophagogastroduodenoscopies (EGDs) were enrolled. GC incidence was based on Kyoto classification scores, such as atrophy, intestinal metaplasia (IM), enlarged folds (EF), nodularity, diffuse redness (DR), and total Kyoto scores. Atrophy was classified using the Kimura-Takemoto classification.

Non-atrophy and Closed I, Closed II and III, and Open I to III were scored as atrophy scores of 0, 1, and 2, respectively. IM scores of 0, 1, and 2 were defined as the absence of IM, IM limited to the antrum, and IM extending into the corpus, respectively.

The absence and presence of EF were scored as 0 and 1, respectively. The absence and presence of nodularity were scored 0 and 1, respectively. DR scores of 0, 1, and 2 were defined as the absence of DR, mild DR and/or DR with partial regular arrangement of collecting venules (RAC), and severe DR without RAC, respectively.

The endoscopists diagnosed the Kyoto classification scores on-site during the index EGD. Hazard ratios [HRs] adjusted for age and sex were calculated using a Cox hazard model. This study was approved by the institutional review board of the Yoyogi Mental Clinic (approval no. RKK227).

Results: A total of 6718 patients were enrolled (mean age 55.0 years; men 44.2%). Of them, 3754, 2264, 700 patients were in *H. pylori* uninfected, eradicated, and currently infected status, respectively.

Patients were followed up for up to 5.02 years. The mean Kyoto classification scores for atrophy, IM, EF, nodularity, DR, and total Kyoto were 0.585, 0.284, 0.039, 0.026, 0.312, and 1.247, respectively. During the follow-up period, 37 GCs occurred in 34 patients. All GCs were superficial and within the submucosal depth. Lauren's intestinal type made up 89.1% of GCs.

The annual incidence rates of GC were 0.04%, 0.17%, and 0.73% for atrophy scores of 0, 1, and 2; 0.07%, 0.25%, and 1.10% for IM scores of 0, 1, and 2; 0.17% and 0.92% for EF scores of 0 and 1; and 0.06%, 0.55%, and 0.74% for DR scores of 0, 1, and 2, respectively. The annual incidence rate of GC was 0.19%. The GC incidence rates were 0.05, 0.07, 0.47, and 1.27%/year for the total Kyoto scores of 0-1, 2-3, 4, and 5-8, respectively.

Multivariate analysis showed that Kyoto atrophy scores 1 (HR with score 0 as reference: 3.66, 95% confidence interval [CI]: 1.06-12.61), 2 (11.60, 3.82-35.27), IM score 2 (9.92, 4.37-22.54), EF score 1 (4.03, 1.63-9.96), DR scores 1 (6.22, 2.65-14.56), and 2 (10.01, 3.73-26.86) were associated with GC incidence, whereas nodularity scores were not.

The total Kyoto scores of 4 (HR with total Kyoto scores 0-1 as reference: 6.23, 95% CI: 1.93-20.13) and 5-8 (16.45, 6.29-43.03) were more likely to develop GC, whereas the total Kyoto scores 2-3 were not, as shown in table. The HR of the total Kyoto score for developing GC per 1 rank was 1.75 (95% CI: 1.46-2.09, *P*<0.001).

Total Kyoto score	Gastric cancer patients, no.	Non-gastric cancer patients, no.	Hazard ratio	95% confidence interval	*P* value
0-1	6	4615		Reference	
2-3	2	1008	1.12	0.22-5.63	0.887
4	6	473	6.23	1.93-20.13	0.002
5-8	20	588	16.45	6.29-43.03	<0.001

Conclusion: A high total Kyoto score (≥ 4) was associated with GC incidence. The endoscopy-based diagnosis of gastritis can stratify GC risk.

Disclosure: All authors disclosed no personal conflicts of interest.

PP0158

INCIDENCE OF GASTRIC NEUROENDOCRINE TUMORS IN PATIENTS WITH CHRONIC ATROPHIC AUTOIMMUNE GASTRITIS

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Introduction: The incidence of type I gastric neuroendocrine neoplasms (gNEN) has increased substantially over the past 50 years, although studies evaluating the association with chronic autoimmune gastritis (AIG) in the long term have been inconsistent.

Aims & Methods: The main aim was to evaluate the incidence of type I gNENs in a cohort of AIG patients enrolled from October 2020 to May 2022, with a histologic diagnosis of CAAG; circulating levels of chromogranin A (CgA) and gastrin were assessed at enrollment. Included patients underwent regular endoscopic follow-up, to assess for gastric neoplastic lesions, enterochromaffin-like (ECL) cell hyperplasia, and the development of gNEN.

Results: We included 176 patients [142 women, median age 64 years (51-41)], diagnosed with AIG from January 1990 to June 2022. At enrollment, 116 patients (65.9%) had ECL hyperplasia, of which 29.5% had simple/linear, 30.7% had micronodular, and 5.7% had macronodular. The median follow-up was 5 years (3-7.5).

After 1032 person-years, 33 patients developed a total of 33 gNEN type I, with an incidence rate of 0.032 person-years, corresponding to an annual cumulative incidence of 3.2%. Circulating gastrin levels were significantly higher in AIG patients who developed gNENs [median 992 pg/mL IQR=449-1500 vs 688 pg/mL IQR =423-1200, p=0.03]; similarly, circulating CgA levels were significantly higher in patients with gNENs [median 227 ng/mL IQR=124-421 vs 174 ng/mL IQR= 77-265, p=0.01].

Conclusion: Type I gNENs represent a non-negligible complication in patients with AIG, and they are related to hypergastrinemia. Also elevated circulating CgA levels are associated with the presence of gNENs.

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Disclosure: Nothing to disclose.

PP0159

ENDOSCOPIC AND CLINICOPATHOLOGICAL FEATURES OF NON-AMPULLARY DUODENAL EPITHELIAL TUMOR BASED ON THE MUCIN PHENOTYPES

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Introduction: Non-ampullary duodenal epithelial tumors (NADETs) have been reported to exhibit specific endoscopic and clinicopathological features based on mucin phenotypes: the gastric phenotype (GP) and the intestinal phenotype (IP)[1].
However, NADETs with the gastrointestinal mixed phenotype (MP) are often observed in clinical practice. And, the endoscopic and clinicopathological features including subclassification of NADETs with MP have not been well investigated.
Aims & Methods: The aim of this study is to clarify the endoscopic and clinicopathological features of each phenotype group; GP, IP, and MP. NADETs were collected from a database of endoscopic and surgical resections performed between February 2010 and December 2021 at our hospital. All NADETs were classified into three groups immunohistochemically: GP, IP, and MP. In addition, we subclassified MP into the gastric predominant phenotype (GPP) and the intestinal predominant phenotype (IPP) based on the predominance of gastric or intestinal phenotypic expression. The endoscopic and clinicopathological findings were compared between each phenotype group; GP, GPP, IPP, and IP.
Results: A total of 148 NADETs in 142 patients were classified into GP (n=16), GPP (n=16), IPP (n=43), and IP (n=73). As for the tumor location (first/second/third portion), GP (10/6/0) and GPP (9/5/2) were significantly more often located in the first portion compared to IPP (10/30/3) and IP (12/55/6) ($p < 0.01$). The mean tumor size of GP (14.4 mm) and GPP (19.4 mm) were significantly larger than IPP (11.0 mm) and IP (10.7 mm) ($p < 0.01$).
In Vienna classification (Category 3/4 or 5), the proportion of category 4 or 5 was significantly higher in GP (7/9) and GPP (2/14) than in IPP (35/8) and IP (71/2) ($p < 0.01$). Regarding the endoscopic findings (Table), the frequency of reddish coloration, 0-I macroscopic type, and lobular/granular pattern in white-light imaging was significantly higher in GP and GPP than in IPP and IP ($p < 0.01$). The frequency of irregular microsurface pattern, negativity of white opaque substance, positivity of oval-shaped marginal epithelium and dilatation of the intervening part in magnifying endoscopy with narrow-band imaging was significantly higher in GP and GPP than in IPP and IP ($p < 0.01$). In summary, the endoscopic and clinicopathological features of IPP were similar to those of IP, and GPP were similar to GP. The malignant potential of NADETs was presented in the descending order as follows; GPP › GP › IPP ≒ IP, and GPP demonstrated the highest malignant potential among 4 types.

	GP	GPP	IPP	IP
White-light imaging	**n=16**	**n=16**	**n=43**	**n=73**
Coloration (red/white)	13/3	11/5	17/26	21/52
Macroscopic type (0-I/0-IIa/0-IIc)	11/1/3	10/4/1	5/21/17	11/38/23
Lobular/granular pattern (%)	62.5%	62.5%	7.0%	11.0%
Magnifying endoscopy with narrow-band imaging	**n=12**	**n=14**	**n=41**	**n=70**
Microsurface pattern (regular/irregular/absent)	11/1/0	5/9/0	34/7/0	59/11/0
White opaque substance (%)	25.0%	64.3%	90.2%	90.0%
Oval-shaped marginal epithelium (%)	58.3%	64.3%	9.8%	4.3%
Dilatation of the intervening part (%)	75.0%	64.3%	22.0%	12.9%

Conclusion: NADETs exhibited specific features based on mucin phenotypes as previous reports[1], and MP (GPP and IPP) demonstrates the endoscopic and clinicopathological features of its predominant mucin phenotype (GP or IP). The accurate endoscopic diagnosis based on mucin phenotypes is necessary for appropriate treatment approach of NADETs, since the malignant potential of NADETs may differ between each mucin phenotype.
References: 1. Akazawa Y. et al. Digestion 2021;102:663–670 DOI: 10.1159/000508040
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PP0160

THE IMPACT OF PROTON PUMP INHIBITOR OR POTASSIUM-COMPETITIVE ACID BLOCKER FOR PREDICTING THE CURALITY OF ENDOSCOPIC RESECTION IN ULCERATIVE EARLY GASTRIC CANCER

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Introduction: Early gastric cancer (EGC) accompanied by ulcers is considered to have a higher malignant potential. Although some EGCs are indications for endoscopic submucosal dissection (ESD), their curability is determined by the risk of lymph node metastasis, which is assessed based on post-ESD pathological diagnosis including submucosal invasion depth and lymphovascular invasion.
Endoscopic diagnosis is essential to predict the curability of EGC (R0 resection) before treatment, but the relationship between ulcerative lesions and clinical outcomes remains unclear.
Aims & Methods: The aim of this study is to investigate the effect of proton pump inhibitor (PPI) or potassium-competitive acid blocker (P-CAB) on morphological changes of ulcerative EGCs and the relevance to clinical outcomes.
We retrospectively reviewed the database at Nagoya City University Hospital from January 2011 to July 2022 and identified 673 patients with gastric neoplasms who were resected with ESD. Among them, 448 EGCs were differentiated adenocarcinoma, of which 143 ulcerative EGCs were enrolled in this study.

Ulcer changes were assessed at initial and follow-up endoscopies, and ulcerative EGCs were categorized into two groups: the improved group is defined as complete or partial healing of ulcers, or unchanged scars; the unimproved group is defined as no change or exacerbation of ulcers, or exacerbation of scars.

The analysis was divided into two cohorts; those who received PPI or P-CAB before ESD (the PPI/P-CAB cohort) (n = 76) and those who did not (the non-PPI/P-CAB cohort) (n = 67).

Results: The improved and unimproved groups were 45 and 31 EGCs in the PPI/P-CAB cohort, and 37 and 30 EGCs in the non-PPI/P-CAB cohort, respectively. Baseline characteristics of the two groups were well balanced. In the PPI/P-CAB cohort, deep submucosal invasion rate, lymphovascular invasion rate and R0 resection rate were significantly higher in the unimproved group than in the improved group.

On the other hand, no significant differences were found between the improved and unimproved groups in the non-PPI/P-CAB cohort. Especially, the significance of PPI/P-CAB administration was prominent in the ulcerative EGCs with open-type atrophy, and R0 resection rate of ulcerative EGCs with PPI/P-CAB was significantly higher in the improved group than in the unimproved group (improved vs. unimproved, 90.9% vs. 48.0%, p = 0.001). When improved ulcer with PPI/P-CAB administration is the indication of endoscopic resection in the ulcerative EGC with open-type atrophy, this strategy can lead to a high sensitivity (78.9%) and accuracy (76.3%) for the curability, which was higher than conventional endoscopic diagnosis alone (p = 0.021).

Conclusion: PPI or P-CAB administration may contribute to potential selection of ulcerative EGCs enabling endoscopic curative resection.

Disclosure: Nothing to disclose.

PP0161

GASTRIC REMNANT CANCER AND LONG-TERM SURVIVAL IN CENTRAL NORWAY 2001 TO 2016 – A POPULATION-BASED STUDY

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Introduction: Gastric remnant cancers (GRC) are adenocarcinomas arising in the residual stomach after partial gastrectomy and has been considered a distinct clinical entity. GRC has been reported to account for 1-8% of all gastric adenocarcinomas. The advent of proton pump inhibitors and H. pylori eradication therapy have led to marked decline in distal gastrectomies for benign ulcer disease.

However, there is a long latency period between surgery for benign disease and development of GRC. The clinical relevance of GRC as a separate entity has been questioned since the prognosis of GRC does not seem to differ from that of primary gastric cancers overall.

In the current study we aimed to characterize patients with GRC and their prognosis in a large Western population-based cohort.

Aims & Methods: Patients with gastric adenocarcinoma in Central Norway between 2001 and 2016 (n=1217) were identified from combined searches in the Norwegian Cancer Registry (NCR) and Norwegian Patient Registry (NPR) with subsequent manual assessment of all patient records. GRCs were defined as gastric adenocarcinomas in patients previously operated with a distal gastrectomy for either benign or malignant disease (n=78). GRC patients were compared to non-GRC overall (n=1139) as well as to patients with proximal non-GRC (n=586).

Patient, tumour and treatment characteristics, including indication for previous distal gastrectomy and reconstruction method, TNM stage, Lauren histological type and treatment were recorded. Minimum follow-up time was 6 years and 7 months. Survival was analysed by the Kaplan-Meier method. The Cox proportional hazard method was used in a multivariable analysis to identify factors independently associated with survival.

Results: The proportion of GRC was 6.4% for the entire cohort (78 of 1217 patients). The indication for primary distal gastrectomy was benign disease in 76 (97.4%) patients and median time to GRC was 37.6 (range 15.7-68.0) years. The annual number of GRC (p=0.002), number of non-GRC (p=0.032) and GRC/non-GRC ratio (p=0.003) all declined during the study period. GRC patients were older at diagnosis (78.7 years) compared to non-GRC (74.9 years) and proximal non-GRC (72.7 years) patients. GRC patient were more frequently males (83.3%), compared to non-GRC (62.9%) and proximal non-GRC (71.6%) patients. A higher proportion of GRC (23.1%) were diagnosed in stages 0+I compared to non-GRC (12.8%) and proximal non-GRC (10.9%). Lauren histological classification did not differ significantly between groups. R0/R1 resection was performed in 41.6%, 41.7% and 39.7% of GRC, non-GRC and proximal non-GRC patients, respectively. The overall survival of GRC patients did not differ from non-GRC and proximal non-GRC, with median survival of 10.4 (9.3-11.5) months, 7.4 (5.1-9.9) months and 10.3 (8.6-12.1) months, and 5-year survival of 23.1%, 18.5% and 24.9%, respectively.

In a multivariable Cox analysis, age (HR 1.01, 95%CI 1.00-1.02, p<0.001), Lauren diffuse histology (HR 1.25 95%CI 1.07-1.45, p=0.006), TNM stage (HR 1.45, 95%CI 1.40-1.50, p<0.001) and neoadjuvant chemotherapy (HR 0.68, 95%CI 0.54-0.85, p=0.002) were independently associated with mortality, whereas sex, proximal tumour location and GRC were not.

Conclusion: GRCs declined during the study period, but the latency between distal gastrectomy and GRC diagnosis was long. GRC patients were more often male and older than other gastric cancer patients, but GRC *per se* was not independently associated with survival after adjusting for TNM stage and tumour location.

Disclosure: Nothing to disclose.

PP0162

THE USEFULNESS OF TWO-STAGE ENDOSCOPIC RESECTION (TSER) FOR A HUGE PROTRUDING TUMOR IN THE DUODENAL BULB

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Introduction: In recent years, endoscopic resection of superficial non-ampullary duodenal epithelial tumors (SNADETs), which are considered difficult, has become more widespread due to improvements in techniques and devices. However, large lesions are still highly challenging to treat, and surgical resection may be chosen. Especially endoscopic treatment of protruding lesions that occupy the lumen of the duodenum, is extremely difficult due to the lack of field of view and space for manipulation.

On the other hand, large lesions are more likely to be cancerous lesions, and pathological evaluation of R0 resection or not is important. For accurate pathological evaluation, it is necessary to resect the base en bloc. Therefore, we devised two-stage endoscopic resection (TSER)[1] and evaluate its outcomes.

Aims & Methods: From July 2021 to January 2023, TSER was performed in all 4 cases of type 0-I SNADETs that occupied the lumen of the bulb and could not be observed and manipulated space experienced at our

hospital. In the first stage, the bulges were divided by piecemeal polypectomy, and their volume was reduced. It is important that piecemeal polypectomy is performed without damaging the base and surrounding mucosa. Immediately after the piecemeal polypectomy, it was difficult to accurately resect the base en bloc due to bleeding and edema caused by the polypectomy.

One month later, the bases became flat lesions with a clear demarcation line. Hence, en bloc resected by endoscopic submucosal dissection (ESD) was performed safely one month later.

Results: 4 patients were included. Male: female=3:1, mean age=76.3 (70-82) years. 2 patients were on antithrombotic drugs and were off them during the perioperative period. One patient was on warfarin and was heparinized.

All lesions were at the bulb, anterior/posterior/lesser curvature/greater curvature=1/1/1/1, 0-IIa: 0-IIa+Is=2: 2 at ESD, and the length of the resected specimen was 42.5(25-60)mm. All post-ESD ulcer bottoms were covered with polyglycolic acid sheets and fibrin glue.

Pathological findings; first/second stage = adenoma 1: adenocarcinoma in situ3/ adenocarcinoma in situ 4, second stage lesion length diameter 27.3(9-48)mm, no lymphovascular invasion, and R0 resection.

The histological type was tub1:tub1>pap=1:3, and the mucus type was gastric: mixed (predominantly intestinal) = 3:1. One post procedural bleeding occurred.

Conclusion: TSER can be safely performed for giant protruding tumors at the bulb, with accurate pathologic evaluation and curative results. TSER has the potential to be one of the treatment strategies for ESD of protruding tumors in other organs.

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Disclosure: Nothing to disclose.

PP0163

SAFETY AND EFFICACY OF USING ONLY HEMOCLIPS FOR DEFECT CLOSURE OF CAP ASSISTED ENDOSCOPIC MUCOSAL RESECTION IN DUODENUM

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Introduction: Recent advances in endoscopic imaging have improved the diagnostic accuracy for superficial non- ampullary duodenal epithelial tumors (SNADETs). Endoscopic resection is the treatment of choice for these lesions and endoscopic mucosal resection (EMR) is the commonly used technique. Endoscopic resection with the use of a specific distal attachment (cap-assisted EMR (CEMR)) has been reported as a safe and effective method for SNADETs.[1]

However, there is limited data on the technical aspects of the same. Duodenal resections have a high risk of delayed bleeding and perforation probably due to direct exposure of ulcer to biliary and pancreatic juices.

Hence, appropriate closure is absolutely essential. We have previously reported safety of closure of duodenal endoscopic resections using over-the-scope and conventional clips.[2] We now report on the safety and efficacy of using only hemoclips for defect closure of CEMR of SNADETs.

Aims & Methods: This prospective study aimed to evaluate the safety and efficacy of using only hemoclips for closure of SNADETs resected by CEMR. 21 patients from December, 2022 to March, 2023 who underwent the procedure at our center for lesions <10mm in size were included in the study. The pimary outcome was post procedural adverse events that included the rate of delayed bleeding and perforation, and ulcer dehiscence.

The secondary outcomes were en bloc and R0 resection rates, complete closure rate, number of clips used, total procedure time, and duration of hospital stay. Descriptive statistics were used to summarize the outcomes.

Results: 16 males and 5 females with median age of 59(38-75) years underwent CEMR for SNADETs and closure with hemoclips only. Paris classification morphology of 67.7% lesions was 0-IIa and 33.3% lesions was 0-IIc. All lesions of median size 4(2-6) mm were successfully resected en bloc. The median specimen size was 14(12-25) mm and the median number of hemoclips used for complete closure were 7(5-11). The mean resection and closure times were 5.7±1.8 and 9.3±3.9 minutes respectively. The mean total procedure time was 14.9±4.9 minutes. Complete closure rate was 100% with no dehiscence seen on check endoscopy (done one day post index procedure).

Pathology revealed 42.9% of the lesions having low grade dysplasia and 57.1% having high grade dysplasia with R0 resection rate being 100%. There was no delayed bleeding or perforation. The mean duration of post procedure hospitalization was 2.2±0.9 days.

En bloc resection rate, n(%)		21(100)
R0 resection rate, n(%)		21(100)
Specimen size, median(range), mm		14(12-25)
Pathological findings, n(%)	Low grade dysplasia High grade dysplasia	9(42.9) 12(57.1)
Total Procedure Time, mean ± SD(range), minutes		14.9±4.9(8-32)
Complete closure rate, n(%)		21(100)
Number of hemoclips used, median(range)		7(5-11)
Adverse events, n%	Delayed perforation Delayed bleeding Ulcer dehiscence	0(0) 0(0) 0(0)
Post procedure hospitalization, mean ± SD(range), days		2.2±0.9(1-4)

Table. Outcomes of closure of CEMR for SNADETs with hemoclips only.

Conclusion: Our single center study is the first to demonstrate an excellent safety profile for the use of only hemoclips in closing post CEMR defects of SNADETs. It is easy to perform, requires no additional accessories, and reduces procedure time and cost compared to other available methods of closure.

Furthermore, in lesions under 10mm, CEMR was effective at en-bloc resection with favorable procedure time and duration of post procedural hospital stay. Larger scale studies may be warranted to confirm this method of resection for SNADETs and safety of closure technique.

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Disclosure: Nothing to disclose.

PP0164

SURVEILLANCE AND TREATMENT OF UPPER GASTROINTESTINAL TRACT LESIONS IN FAMILIAL ADENOMATOUS POLYPOSIS: THE STOMACH MUST NOT BE FORGOTTEN!

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Introduction: Duodenal cancer is the 2nd cause of mortality among Familial Adenomatous Polyposis (FAP) patients, and surveillance and treatment of duodenal lesions is recommended. Uncertainty persists regarding the risk of gastric cancer in this population.

Aims & Methods: This study aims to ascertain the frequency of gastroduodenal alterations in FAP patients. We conducted a retrospective single-centre study in FAP patients under surveillance (n=79), with analysis of endoscopic findings, respective treatment and histology, in esophagogastroduodenoscopy (n=64).

Results: The included patients, most of which presenting a classic phenotype (n=44; 69%), had a mean age of 46.6 years (standard-deviation 1.8), equal distribution between sexes, and a median follow-up time of 8.5 years (interquartile range 6). Thirty patients (47%) presented duodenal lesions (of which 14 had Spigelman stage III-IV), with endoscopic treatment performed in 7 patients (13 lesions).

Of the 51 patients (80%) with endoscopic description of the papilla, 20 presented adenoma (16 with low grade dysplasia), having 4 of them been proposed to endoscopic or surgical treatment (2 ampulectomy, 1 duodenopancreatectomy, 1 refused treatment).

Thirty two patients (50%) presented fundic gland polyps (10 with diffuse polyposis); 4 polyps from 3 patients were endoscopically removed given their size or presence of dysplasia.

Eight patients (13%) had gastric adenomas with dysplasia (a total of 36 lesions), with 5 patients already treated. Two patients (3%) developed gastric adenocarcinoma (1 underwent total gastrectomy and 1 was treated endoscopically).

Conclusion: Our series presents a prevalence of duodenal lesions in line with that reported in the literature, and seems to show an increased risk of gastric cancer, underlining the need for high-quality endoscopic surveillance in FAP patients.

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Disclosure: Nothing to disclose.

PP0165

EFFICACY OF ANTRECTOMY FOR PATIENTS WITH MULTIPLE TYPE I GASTRIC NEUROENDOCRINE TUMORS

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Introduction: Type I gastric neuroendocrine tumors (T1-GNETs) are caused by auto-immune gastritis and often occur in multiple lesions. Although endoscopic resection, such as endoscopic submucosal dissection (ESD), is often used for treatment of a small number of T1-GNET, antrectomy is also performed for multiple lesions. However, to date, the efficacy of antrectomy remains unclear.

Aims & Methods: Type I gastric neuroendocrine tumors (T1-GNETs) are caused by auto-immune gastritis and often occur in multiple lesions. Although endoscopic resection, such as endoscopic submucosal dissection (ESD), is often used for treatment of a small number of T1-GNET, antrectomy is also performed for multiple lesions. However, to date, the efficacy of antrectomy remains unclear.

	N=7
Age, median (range), years	54 (44-67)
Number of tumor (preoperative), n (%)	
< 10	2 (28.6)
10-20	1 (14.3)
> 20	4 (57.1)
Size of largest tumor (preoperative), median (range), mm	6 (4-8)
Number of tumor (resected specimen), n (%)	
< 10	4 (57.1)
10-20	2 (28.6)
> 20	1 (14.3)
Size of largest tumor (resected specimen), median (range), mm	5 (1.5-8)
Serum gastrin levels, median (range), pg/ml	
Pre Antrectomy	3900 (2400-8000)
Post Antrectomy	73 (26-120)
Post Antrectomy status of residual tumors, n (%)	
Stable	0 (0.0)
Progression	0 (0.0)
Regression	1 (14.3)
Disappearance	6 (85.7)
Period between Antrectomy and tumor disappearance, median (range), months	
After Antrectomy	20 (5-49)
Follow-up period after Antrectomy, median (range), month	Follow-up period after Antrectomy, median (range), month

Results: The median age of all patients was 54 years (range, 44–67 years). The ratio of male to female patients was 2:5. The number of tumors preoperatively observed in endoscopy was <10 in two patients, 10–20 in one, and >20 in four. The median size of largest tumor was 6 mm (range, 4–8 mm).

Antrectomy was performed in three patients as initial treatment and in four as additional treatment after ESD. The number of tumors pathologically evaluated in resected specimens was <10 in four patients, 10–20 in two, and >20 in one. All tumors were limited to the submucosa. The medi-

an diameter of the largest tumor was 5 mm (range, 1.5–8 mm). The median gastrin levels significantly decreased from 3900 pg/mL (range, 2400–8000 pg/mL) to 73 pg/mL (range, 26–120 pg/mL) after antrectomy.

Regarding postoperative assessment, tumor regression was observed in one patient and disappearance was observed in six at the follow-up endoscopy. The median period between antrectomy and tumor disappearance was 20 months (range, 5–49 months). No recurrence or cause-specific death occurred in all patients, with a median follow-up period of 48 months (range, 24–60 months).

Conclusion: Based on our findings, antrectomy does not only control local disease but also may lead to prevention of recurrence and regression of tumor persistence. Antrectomy was an effective treatment that could avoid total gastrectomy in patients with multiple T1-GNETs.

References: NCCN Clinical Practice Guidelines in Oncology: Neuroendocrine Tumors Version 2.2016

Disclosure: Nothing to disclose.

PP0166

CLINICOPATHOLOGICAL CHARACTERISTICS OF GASTRIC ADENOCARCINOMA WITH ENTEROBLASTIC DIFFERENTIATION AND GASTRIC ADENOCARCINOMA WITH ENTEROBLASTIC MARKER EXPRESSION

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Introduction: Gastric adenocarcinoma (GA) with enteroblastic differentiation (GAED) is a special type of gastric carcinoma with aggressive biological behavior, which is histologically characterized by a glycogen-rich clear cytoplasm and fetal gut-like structures. GAED shows the expression of at least one of the following enteroblastic markers (EMs): glypican-3 (GPC3), spalt-like transcription factor 4 (SALL4), and α-fetoprotein (AFP) (Murakami T et al. Gastric Cancer. 2016;19(2):498-507.)[1]. Despite the absence of clear cytoplasm, we often encounter GA with EMs expression (GA with EM); however, the clinicopathological characteristics of GA with EM remain unclear.

Regarding this point, we reported that the status of clear cell differentiation within tumors do not affect any clinicopathological or molecular pathological differences in colorectal carcinoma with the expression of enteroblastic markers which is a colorectal counterpart of GEAD (Yamashiro Y et al. Histopathology. 2020;77(3):492-502.)[2].

In addition, CAED has similar clinicopathological and molecular pathological characteristics to GAED, including aggressive behavior, high rates of lymphovascular invasion and liver metastasis and high frequency of *TP53* mutation[2].

Therefore, we speculated that the same phenomenon could also be observed in GA.

Aims & Methods: A total of 688 GA samples on tissue microarray were examined for immunohistochemical (IHC) expression of three EMs (AFP, GPC3, and SALL4), and the correlations between EM expression and clinicopathological factors were analyzed. According to the status of the clear cytoplasm of tumor cells, GA showing IHC expression of EMs was classified as either GAED or GA with EM.

Results: Histological and IHC analysis revealed 94 GAEDs (13.7%), 58 GAs with EM (8.4%), and 536 conventional GAs (CGAs). Both GAED and GA with EM showed frequent lymphovascular invasion, lymph node metastasis, and liver metastasis compared to CGA. However, venous invasion was more frequent in GAED, and vice versa in GA with EM. The five-year overall survival rates for GAED, GA with EM, and CGA were 46.6%, 47.9%, and 58.2%, respectively. GAED and GA with EM showed similar trends in overall survival rates (p = 0.78). GAED had a poorer prognosis than CGA with statistical significance (p = 0.035); however, not for GA with EM (P = 0.157). Furthermore, GA with EM-positive group (GAED and GA with EM) showed a worse overall survival rate than CGA (p = 0.018).

	GAED n=94 (13.7%)	GA with EM n=58 (8.4%)	p value
Age (years) (mean±SD)	72.5±10.6	70.2±9.9	0.189
Sex (male/female)	76/18	48/10	0.832
Tumor location (U/M/L)	34/21/39	28/17/13	0.056
Tumor size (mm) (mean±SD)	60.9±32.3	65.3±40.6	0.483
Lymphatic invasion (+) n (%)	57 (60.6%)	45 (77.6%)	<0.05
Venous invasion (+) n (%)	63 (67.0%)	29 (50.0%)	<0.05
Lymph node metastasis (+) n (%)	72 (76.6%)	36 (62.1%)	0.067
Liver metastasis (+) n (%)	39 (41.5%)	9 (15.5%)	<0.01
Growth patterns (Solid/Non-solid)	29 (30.9%)/65 (69.1%)	8 (13.8%)/50 (86.2%)	<0.05

Conclusion: Interestingly, the tumor size tended to be smaller in the EM-positive group than that for CGA group, however, clinicopathologically EM-positive group was more aggressive than CGA group such as higher rate for venous invasion and liver metastasis. These findings suggest that GAED and GA with EM can be clinically classified together as aggressive tumors but can pathologically seem to be slightly different.

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Disclosure: Nothing to disclose.

PP0167

FEATURES OF NON-CARDIA GASTRIC CANCER AND DYSPLASIA IN PATIENTS WITH MULTIFOCAL AND CORPUS-RESTRICTED ATROPHIC GASTRITIS: A MULTICENTER, CROSS-SECTIONAL STUDY

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Introduction: Atrophic gastritis(AG) is mainly caused by *Helicobacter pylori*(Hp)infection or autoimmunity. Hp-related AG affects both corpus and antral mucosa resulting in multifocal AG(MF-AG), whereas AG driven by autoimmunity is corpus-restricted(CR-AG).

Corpus mucosa gastric atrophy carries an increased risk of gastric dysplasia(GD) and cancer(GC); the neoplastic risk in CR-AG is considered lower, but still debated. GD-GC lesions in AG may arise in the antrum, *incisura angularis* or, less frequently, the corpus. Data on characteristics and potential differences of GD-GC lesions between MF-AG and CR-AG are lacking.

Aims & Methods: This study aimed to assess clinical, endoscopic, and histological characteristics of GD-GC in MF-AG and CR-AG pts.

A multicenter,cross-sectional study was conducted across 14 Italian GI centers. Data on GD-GC in patients with MF-AG or CR-AG(2001-2023) were retrospectively collected based on clinical, endoscopic, and histological charts: site, dimension,endoscopic,and histologic features of GD-GC, perilesional gastric antral and corpus mucosa (updated Sydney system),and patients' clinical data (age,sex,outcome after GD-GC diagnosis, Hp infection, parietal cell antibodies(PCA), family history for GC).

Inclusion criteria were: patients with MF-AG or CR-AG and GD or GC diagnosis, aged ≥18 years, availability of endoscopic and histological description of GD-GC and perilesional gastric mucosa, completeness of clinical data.Data were stratified for MF-AG/CR-AG and the GD-GC, perilesional mucosa, and clinical characteristics were compared.

Results: A total of 84 pts[(F46[54.8%]; age 70(33-90yrs)] were included. MF-AG and CR-AG were observed in 45(53.6%) and 39(46.4%) pts, respectively. High-grade (HG)-GD, low-grade(LG)-GD, and non-cardia GC were diagnosed in 6(7.1%), 31(36.9%), and 47(56.0%)pts.

Age, GC family history, smoking habits, and PCA positivity were similar between MF-AG and CR-AG. Women(69.2% vs 42.2%,p=0.01) and pernicious anemia(29% vs 9.1%,p=0.04) were more frequent in CR-AG than in MF-AG. The proportion of GD and GC in MF-AG and CR-AG pts was similar: HG-GD was present in 4(8.9%) vs 2(5.1%),LG-GD in 17(37.8%) vs 14(35.9%),GC in 24(53.5%) vs 23(59.0%)pts(p>0.05).

Compared to MF-AG,in CR-AG pts GD-GC were more frequently polypoid lesions (51.6% vs 27.3%,p=0.048) and more frequent in the corpus (55.3% vs 28.6%,p=0.02), but also occurred in the antrum(34.2%) and *incisura*(10.5%).The intestinal-type GC was the most prevalent and was more frequent in MF-AG than in CR-AG (87%vs60.9%,p>0.046), while diffuse GC was 2 times more frequent in CR-AG than in MF-AG, albeit not reaching statistical significance (26.1% vs 13%, p=0.27).

Concerning GC differentiation grade and staging, no significant differences were observed between MF-AG and CR-AG.Endoscopic treatment of GD-GC was similar in both groups. CR-AG patients underwent surgery more frequently than MF-AG(48.6% vs 23.1%,p=0.0207), but outcome was similar with 90.7% MF-AG and 92.1% CR-AG pts being alive.

Histopathological features of corpus mucosa (acute-chronic inflammation, severity of atrophy, pseudopyloric and intestinal metaplasia) were similar between MF-AG and CR-AG (p>0.05). The histological–evidence of Hp in the antrum and corpus was low in both groups (2.3% vs 2.9%, p=0.87).

Conclusion: Non-cardia GC and GD may occur in both, MF-AG and CR-AG, displaying differences in topography and endoscopic presentation, but similarities in perilesional gastric corpus mucosa, differentiation, staging and outcome.

Endo-histological surveillance should be considered in pts with gastric corpus atrophy, irrespective of its etiology and extension.

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PP0168

GASTROINTESTINAL AUTOIMMUNE DISEASES IN PATIENTS WITH COMMON VARIABLE IMMUNODEFICIENCY: A COHORT STUDY

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Introduction: Common variable immunodeficiency (CVID) is the most prevalent primary immune deficiency. Two-thirds of CVID patients present concomitant autoimmune disorders, including gastrointestinal autoimmune disease, other than being at risk for gastric cancer.

Aims & Methods: We aimed to assess the prevalence of autoimmune gastrointestinal manifestation in patients with CVID and to evaluate the diagnostic yield of EGDS for the screening of gastric pre-neoplastic lesions in

a prospective cohort of patients with CVID. From June 2020 to June 2022, we prospectively enrolled patients with CVID diagnoses from a tertiary referral center. At enrollment, patients underwent a gastroenterological screening consisting of clinical evaluation and laboratory tests for the screening of autoimmune gastrointestinal disease.

Moreover, all patients were proposed to undergo an esophagogastroduodenoscopy (EGD) regardless of the presence of GI symptoms to rule out pre-neoplastic gastric lesions and upper gastrointestinal disease in the presence of clinical suspicion. Patients with lower GI symptoms were proposed for colonoscopy.

Results: We included 94 patients with CVID, of whom 58 (61.7%) were females, with a mean age of 44.3 years old [standard deviation (SD) 16.3]. Overall, 12 patients (12.8%) were diagnosed with one or more gastrointestinal autoimmune diseases. Eight patients (8.5%) had ongoing therapy with intravenous immunoglobulin, while 24 (25.5%) with subcutaneous immunoglobulin. Four patients (4.3%) had a previous celiac disease diagnosis, with a negative serology at screening, and only 1 (1.1%) patient had evidence of villous atrophy and duodenal inflammation at the time of EGD. Three (3.2%) patients were diagnosed with autoimmune atrophic gastritis with negative serology and evidence at biopsies taken during EGD of atrophic gastritis. One patient (1.1%) was diagnosed with ulcerative colitis, one patient (1.1%) with Crohn's disease, and 5 patients (5.3%) with autoimmune hepatitis. Sixteen (16, 17%) patients reported inhalant allergy, 5 (5.3%) reported food allergy, and 26 (27.7%) reported drug-related allergy. Eleven (11.7) patients reported previous Helicobacter pylori (HP) infection, while only 1 (1.1%) patient was diagnosed with an ongoing HP infection. Fifty-eight patients underwent EGD, with endoscopic evidence of esophagitis in 8 patients (13.8%), gastritis in 45 (77.6%), and duodenal atrophy/inflammation in 23 (39.7%), of whom 41.4% had histological evidence of duodenal lymphocytosis.

No patient was diagnosed with gastric cancer. Twenty-three patients underwent colonoscopy according to clinical indication, which showed at biopsy sampling ileal nodular follicular hyperplasia in 2 patients (8.7%), microscopic (lymphocytic) colitis in 2 patients (8.7%), ulcerative colitis in 1 (4.3%) and Crohn's disease in 1 (4.3%).

Conclusion: Celiac disease, atrophic gastritis, and autoimmune hepatitis were the most common gastrointestinal autoimmune overlaps of patients with CVID. Autoimmune gastrointestinal diseases in patients with CVID may pose a particular diagnostic challenge since autoantibodies are often absent. Five percent of CVID patients screened with EGD was found with a gastric pre-neoplastic lesion.

Further data are needed to define the optimal timing of endoscopic follow-up of these patients for the screening of pre-neoplastic and neoplastic lesions.

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PP0169

ACCURACY AND FEASIBILITY OF A NOVEL, SIMPLE SCORING SYSTEM FOR ENDOSCOPIC DIAGNOSIS OF SUPERFICIAL DUODENAL TUMORS

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Introduction: Recent advances in high definition endoscopy have increased the diagnostic accuracy for superficial non- ampullary duodenal epithelial tumors (SNADETs). Appropriate endoscopic categorization of these tumors as low grade adenoma (LGA)/high grade adenoma (HGA)/adenocarcinoma (AC) is of extreme importance to plan appropriate management. We report the accuracy and feasibility of a novel 'Simple Scoring System' (SSS) for SNADETs to differentiate LGA from HGA/AC.

Aims & Methods: The aim of this prospective study was to evaluate the accuracy of SSS for diagnosis of SNADETs and to assess the feasibility of its understanding and usage among beginner and expert gastroenterologists.

SSS includes four sections which are evaluated and scored: 1. Tumor diameter (10-20mm: +1, >20mm: +2); 2. Color on white light imaging (redness: +1); the presence/absence of irregular surface pattern by magnifying endoscopy using narrow band imaging (ME-NBI) (Present: +1); 4. The presence/absence of irregular vascular pattern on ME- NBI (Present: +1).

The score is on a 5-point scale. A score of 3 or more is diagnosed as HGA/AC.

Study 1: 319 SNADETs were preoperatively evaluated with SSS from June 2019 to February 2022 and were compared with postoperative pathological results. Diagnostic accuracy according to histological type (gastric, intestinal, or mixed gastrointestinal) was also evaluated.

Study 2: Diagnostic accuracy of 20 lesions (10 LGA and 10 HGA/AC lesions) selected randomly were compared before and after a lecture on SSS for 26 expert and beginner gastroenterologists in 7 hospitals. Experts were defined as those with minimum 5 years of endoscopic experience and 3 years of experience with magnifying endoscopy. A total of 4 images of each lesion (white light imaging; indigo carmine; ME-NBI distant view; ME-NBI near view) were presented for evaluation. T test was used to analyze the pre and post lecture outcomes.

Results: Study 1: The overall diagnostic accuracy was 258/319 (80.8%), sensitivity 80.7%, and specificity 81.2%. Diagnostic accuracy for each tissue type was 83.3% for gastric type, 80.3% for intestinal type, and 100% for mixed type.

Study 2: The mean diagnostic accuracy before and after the lecture changed from 71% to 79% overall, 70% to 81% for HGA/AC, 72% to 78% for LGA. Diagnostic accuracy of both experts (13) and beginners (13) improved significantly (p value expert: <0.01, beginner: <0.01) after the lecture.

	Type of legion	Diagnostic accuracy n (%)	Sensitivity (%)	Specificity (%)
Study 1 n=319	Gastric n=12	10 (83.3)	80.7	81.2
	Intestinal n=300	241 (80.3)		
	Mixed n=7	7 (100)		

	Physician experience	Pre-lecture accuracy n (%)	Post-lecture accuracy n (%)	P value
Study 2 n=20	Beginner (13)	13.2 (66)	15.6 (78)	P<0.01
	Expert (13)	15 (75)	16.2 (81)	P<0.01

Conclusion: SSS can be understood and used easily. It is an accurate method to diagnose SNADETs endoscopically.

Disclosure: Nothing to disclose.

PP0170

GASTRIC DYSPLASIA IDENTIFIED IN RANDOM GASTRIC BIOPSIES: THE INFLUENCE OF *HELICOBACTER PYLORI* INFECTION AND ALCOHOL CONSUMPTION IN THE PRESENCE OF A LESION

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Introduction: Gastric dysplasia in the absence of an endoscopically defined lesion is rare, usually either a false positive diagnosis or a previously unidentified precancerous lesion during esophagogastroduodenoscopy (EGD).

Aims & Methods: The aim of this study was to evaluate factors associated with the presence of an endoscopically visible lesion during follow-up in patients with histologic diagnosis of gastric dysplasia in random biopsies. Retrospective cohort study including patients referred to our institution for gastric dysplasia detected in random biopsies during EGD (Index EGD). In our institution, endoscopic evaluation was performed with a high-definition endoscope using narrow band imaging (HD EGD-0). If no lesion was detected, endoscopic surveillance (HD EGD-FU) was conducted, depending on the originally detected dysplasia: within 6 months for high grade dysplasia (HGD), 12 months for low grade dysplasia (LGD) or indefinite for dysplasia (IFD).

Results: Regarding Index EDG, from a total sample of 96 patients, most patients had LGD (87.4%), 10 patients had IFD (10.4%) and 2 HGD (2.1%), while the location of the dysplasia was the corpus in 8 patients (8.3%), the antrum in 65 (67.7%) and both in 23 (24%).

During the HD EGD-0, 5 (5.2%) presented with an endoscopically visible lesion, while 10 lesions (10.4%) were identified during HD EGD-FU; 80% of the identified lesions were in the antrum.

Patients with *Helicobacter pylori* infection identified at Index EDG were 8 times more likely to have an endoscopically visible lesion on HD EGD-FU (OR 8.000, 95%CI 1.588-40.299, *p*=0.012). Additionally, patients with a regular alcohol consumption (≥25 grams daily) were 4 times more likely to have an endoscopically visible lesion on HD EGD-FU (OR 4.063, 95%CI 1.048-15.748, *p*=0.047). In fact, both *Helicobacter pylori* infection identified at Index EGD, and regular alcohol consumption were independent predictors of the presence of gastric lesion on HD EGD-FU in binary logistic regression (OR 9.284, 95%CI 1.724-49.979, *p*=0.009 and OR 5.025, 95%CI 1.136-22.222, *p*=0.033, respectively).

The grade of dysplasia and location of the biopsies with dysplasia were neither associated with the presence of lesions during follow-up, nor family history of gastric cancer.

Conclusion: The presence of an endoscopically visible lesion occurred in 15.6% of patients with the previous histologic diagnosis of gastric dysplasia in random biopsies and most lesions were identified in the HD EGD-FU. Both *Helicobacter pylori* infection identified at Index EGD, and regular alcohol consumption were significant predictors of the presence of gastric lesion on HD EGD-FU.

Disclosure: Nothing to disclose.

PP0171

THE INFLUENCE OF PROCEDURAL VOLUME ON THE OUTCOME OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTRIC NEOPLASM: A NATIONWIDE POPULATION-BASED STUDY USING ADMINISTRATIVE DATA

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Introduction: For gastric neoplasms, endoscopic submucosal dissection (ESD) is a well-known therapeutic option. Our study aimed to investigate the influence of procedural volume on the outcome of gastric ESD.

Aims & Methods: Patients who received ESD for gastric cancer or adenoma from November 2011 to December 2017 were identified using the Korean National Health Insurance Service database. The diagnostic and procedure codes were combined to develop operational definitions, which were validated using individual hospital medical record data.

Outcomes included bleeding, perforation, pneumonia, 30-day mortality, composite outcome comprising all these adverse outcomes, and additional resection. Hospital volume was categorized into four groups: very high-, high-, low-, very low-volume hospitals (VHVH, HVH, LVH, VLVH). The outcomes of ESD were compared in relation to hospital volume.

Results: A total of 89,780 patients underwent 95,411 procedures during the research period. There were 5,607 composite events, which included 5,098 bleeding, 601 perforation, and 712 pneumonia cases, respectively. Additional resection occurred within 180 days in 7,900 cases. There were significant differences in ESD-related adverse outcomes among the four hospital volume categories.

Multiple logistic regression revealed that VHVH, HVH, and LVH were associated with lower risk of a composite outcome, when compared to VLVH (OR, 0.627, 95% CI, 0.445-0.885, p=0.008; OR, 0.542, 95% CI, 0.406-0.722, p<0.001; OR, 0.697, 95% CI, 0.548-0.886, p=0.003). Similar tendencies were also shown for bleeding, perforation, and pneumonia, although this was not evident in additional resection.

Conclusion: The procedural volume at an institutional level was closely associated with clinical outcomes, such as bleeding, perforation, pneumonia, and a composite outcome, in patients with ESD for gastric cancer or adenoma. The outcomes of gastric ESD should be closely and systemically monitored in a nationwide level, to ensure the quality of procedures and the safety of patients.

Disclosure: Nothing to disclose.

PP0172

CLINICAL CHARACTERISTICS AND PROGNOSIS FOR EARLY-ONSET GASTRIC CANCER

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Introduction: There is little knowledge available to date about early-onset gastric cancer (EOGC). Gastric cancer has been reported to have a poorer prognosis in younger patients, but that notion remains controversial. Several reports are available that were conducted by a small number of institutions or were investigating only patients who had undergone surgery.

Aims & Methods: The aim of this study was to investigate the characteristics and prognosis of EOGC using a population-based large database. We reviewed Gunma prefectural cancer registry data on patients with gastric adenocarcinoma diagnosed between 2008 and 2018. A total of 18,436 patients were registered, of these, 158 patients under 40 years old were enrolled as EOGC group, and 6,738 patients of middle age (40-69) were identified as non-EOGC group. We analyzed the clinical characteristics of EOGC patients and, we did survival analysis comparing with the non-EOGC group.

Results: In the proportion of female patients was significantly higher in the EOGC than that in the non-EOGC group (93/158, 59% vs. 1801/6738, 27% P<0.001), the dominant histological type was undifferentiated type (127/158, 80% vs. 2573/6738 38%, p<0.001). The rate of detection by annual medical check-up was significantly less (41 cases (26%) vs. 2623 cases (39%), p<0.001), and the rate of accidental detection during following up on other diseases was also significantly less (9 cases (6%) vs 1083 cases (16%)) in the EOGC group. The Kaplan–Meier method showed that EOGC patients did not show any difference compared to non-EOGC patients. According to clinical stage, the EOGC group had a significantly better prognosis if their stage was the localized stage with or without regional lymph node metastasis.

However, a multivariate Cox regression for overall survival showed that only sex, clinical stage and pathological classification were the influencing factors on their survival.

Conclusion: This study showed that EOGC patients tended to have undifferentiated type and advanced stage at the time of diagnosis. Although the prognosis of EOGC patients was better than non-EOGC patients, if it was detected as localized to stomach and regional lymph node metastasis stage, the age (<40) at diagnosis was not a factor to affect the overall survival.

Disclosure: Nothing to disclose.

PP0173

INVESTIGATION OF FACTORS CONTRIBUTING TO TRAINEE COMPLETION RATE IN GASTRIC ESD

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Introduction: Gastric endoscopic submucosal dissection (ESD) has become a common treatment for early gastric cancer. Advances in endoscopic equipment and treatment strategies have made the procedure safe to perform, however often the trainee is unable to complete the procedure due to refractory resection or intraoperative bleeding. We also have several resection devices in gastric ESD, among which we often use the clutch cutter, which is a scissors-type forceps in our hospital after 2017. The clutch cutter can be used to safely perform ESD because it can maintain a distance from the muscle layer during energization. It can also be used for bleeding and prophylactic hemostasis, which we believe allows trainees to perform the treatment.

Aims & Methods: The aim of this study was to evaluate factors associated with trainee completion rates of gastric ESD.

This study was conducted as a single-center retrospective study. Eligible patients were defined as ESD for early gastric cancer performed in our hospital from April 2014 to March 2022, and treated by the trainee from the beginning. Patients whose device at the start of the incision was a clutch cutter were considered the clutch cutter group (CC group), and patients whose device was another device such as an IT knife or flash knife were considered the other group (O group), and the two groups were compared. If the procedure time exceeded one hour or if uncontrolled bleeding or perforation occurred, the surgeon was replaced by an expert.

The primary endpoint was trainee completion rate of gastric ESD. The secondary endpoints were procedure time and intraoperative perforation rate.

Results: This study was enrolled 919 cases. CC group were 488 cases and O group were 431cases. There were no differences of sex, history of antithrombotic agent, postoperative stomach, tumor location and tumor size. The median patient age was 74 years old (29-92) in the CC group and 73 years old (36-98) in the O group, which was higher in the CC group. The En block resection rate was 99.8% in the CC group and 100% in the O group. The median procedure time (IQR) was 50 minutes (7-245) minutes in the CC group and 67 minutes (10-313) minutes in the O group and was significantly shorter in the CC group. The completion rate of the trainees was 50.0% in the CC group and 32.0% in the other groups, with the CC group being significantly higher (*P* <0.001). Intraoperative perforation was 1.2 % in the CC group and 1.6 % in the O group, with no difference between the two groups. The first and second semester completion rates of long-term hospital-trained trainees were compared by initial training device. Trainees whose initial device was a clutch cutter increased the completion rate from 50.9% (29/57) to 60.4% (58/96), and those whose initial device was other increased from 25.6% (22/86) to 47.6% (100/210).

Multivariate analysis related to trainee completion rate identified that tumor location was in the lower third (OR 1.88, 95% CI 1.42-2.49, P<0.0001), stomach was not postoperative (OR 2.37, 95% CI 1.16-4.87, P=0.019), tumor diameter was less than 20 mm (OR 3.5, 95% CI 2.32-5.26, P<0.001), and a clutch cutter was used (OR 2.32, 95% CI 1.75-0.07, P<0.001).

Conclusion: ESD using a clutch cutter for lesions of 20 mm or less in the lower third of the stomach without a history of surgery was considered the best way to complete the trainee's procedure.

References: Dohi O, et al. Digestion 2019; 100: 201-209

Disclosure: Nothing to disclose.

PP0174 WITHDRAWN

PP0175

DIAGNOSTIC YIELD OF GASTRIC BIOPSIES OF THE INCISURA IN PATIENTS WITH GASTRIC INTESTINAL METAPLASIA IN A LOW INCIDENCE GASTRIC CANCER REGION

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Introduction: Patients with gastric intestinal metaplasia (GIM) can be stratified into non-extensive and extensive GIM. In patients with extensive GIM surveillance is recommended based on a higher risk of neoplastic progression. The updated Sydney protocol is the most widely accepted biopsy system to identify extended GIM, and includes, besides biopsies of the corpus and antrum also biopsies of the incisura angularis (IA). However, data on the added value of additional biopsies of the IA in patients with premalignant gastric lesions is scarce.

Our aim is to evaluate the yield and added value of the updated Sydney protocol in a low incidence gastric cancer region.

Aims & Methods: This prospective cohort study included patients with GIM who underwent follow-up endoscopies. Biopsies were taken according to the updated Sydney protocol.

Results: In total 177 patients with GIM were included. Median age was 62 (IQR 20) and 55.9% was male. During follow-up seven (4.0%) patients developed gastric neoplasia after a median follow-up of 37 months (IQR 38). At baseline 50 patients were classified as extensive GIM (28.2%), of which only one patient showed neoplastic progression. The other six patients that showed progression were classified as non-extensive GIM. At baseline, angular GIM was found in 97 (54.8%) patients of which six showed neoplastic progression; two patients had GIM in antrum and IA, two patients had GIM in IA and corpus, one patient had GIM in antrum, IA and corpus and in one patient there was GIM in the IA only.

Conclusion: In patients with gastric intestinal metaplasia angular GIM might be a better risk factor for neoplastic progression than the extension of GIM.

Disclosure: Nothing to disclose.

PP0176

DOES ONE AI FIT ALL? PERFORMANCE OF A DEDICATED BARRETT'S CADE FOR DETECTION OF GASTRIC NEOPLASIA

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Introduction: Developing Computer-Aided Detection (CADe) system requires a large number of videos and it is more challenging in rare condition such as gastric neoplasia. However, all neoplasia, irrespective of location, has morphological similarities. Our hypothesis is that Barrett's CADe should also be able to detect gastric neoplasia due to shared morphological similarities.

Aims & Methods: Three experts assessed prospectively collected videos to identify the best images demonstrating gastric neoplasia and similar gastric mucosa without neoplasia while using histology as a ground truth. We used a commercially available Barrett's CADe system (WISE VISION®,, NEC, Japan) to analyse these frames for neoplasia detection.

Results: Endoscopic videos were collected from 62 patients. Cases were divided into gastro-oesophageal (GOJ) and true gastric neoplasia. In GOJ group, there were 31 neoplastic (3 LGD, 2 HGD, 20 cancer) and 40 non-neoplastic while in gastric group, there were 20 neoplastic (2 LGD, 6 HGD, 12 cancer) and 19 non-neoplastic mucosae. Sensitivity and specificity for CADe for GOJ lesions were 83.87% and 82.50% while those for gastric neoplasia were 45.00% and 68.42% respectively. Further subgroup analysis was performed based on lesion morphology (polypoidal vs non-polypoidal). Table 1 showed that sensitivity of non-polypoidal GOJ lesion is 80% while that of non-polypoidal gastric lesions is 37.50%.

	GOJ		Gastric	
	Polypoidal (n=16)	Non-polypoidal (n=15)	Polypoidal (n=4)	Polypoidal (n=16)
Sensitivity	87.50	80	75	37.50

Conclusion: Our data demonstrates that Barrett's CADe can detect majority of the GOJ neoplasia and with further refinement, its performance can potentially be enhanced. Barrett's CADe is not suitable for gastric neoplasia detection and as it seems to be analysing more features than just morphology, a dedicated CADe will need to be developed for true gastric neoplasia.

Reference:

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Disclosure: Nothing to disclose.

PP0177

ESOPHAGEAL GRANULAR CELL TUMORS: CLINICAL OUTCOMES OF DIFFERENT METHODS OF ENDOSCOPIC RESECTION

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Introduction: Esophageal granular cell tumors (GCTs), the second most common subepithelial tumors (SETs) of the esophagus, are potentially malignant. Currently, no definite management guidelines exist, despite endoscopic resection being a valuable treatment option.

Aims & Methods: We evaluated the clinical outcomes of different methods of endoscopic resection of esophageal GCTs.

A total of 35 patients with endoscopically resected esophageal GCTs were retrospectively enrolled between December 2008 and October 2021. Several modified endoscopic mucosal resections (EMRs) were performed for treating esophageal GCTs. Clinical and endoscopic outcomes including complete histologic resection rate, and associated postoperative complications, were evaluated.

Results: The mean age of the 35 patients with endoscopically resected esophageal GCTs was 55.8 ± 8.2; the majority were men (57.1%). Mean tumor size was 7.2 mm ± 2.6, most (80.0%) were asymptomatic and present in the distal third of the esophagus (77.1%). Endoscopic characteristics

predominantly included broad-based (85.7%) and whitish-to-yellowish color changes (97.1%). Endoscopic ultrasound (EUS) of 82.9% of the tumors revealed homogeneous hypoechoic SETs originating from the submucosa. The five endoscopic treatment methods used were: ligation-assisted (77.1%), conventional (8.7%), cap-assisted (5.7%), and underwater (5.7%) EMRs and ESD (2.9%). Mean surgery time was 6.6 minutes ± 2.1, and no procedure-associated complications were noted. The en-bloc and complete histologic resection rates were 100% and 94.3%, respectively. No local recurrences were evident during follow-up, and no significant differences in the clinical outcomes of the different methods of endoscopic resection were found.

Conclusion: Based on tumor characteristics and therapeutic outcomes, modified EMR methods can be effective and safe. However, there were no significant differences in the clinical outcomes of the different methods of endoscopic resection.

Disclosure: Nothing to disclose.

PP0178

TRANSGELIN ACCELERATE GASTRIC CARDIA CANCER PROGRESSION AND ANGIOGENESISAS AND SERVE AS A POTENTIAL PROGNOSTIC BIOMARKER

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Introduction: Gastric cancer is a common malignancy worldwide. Gastric cardia cancer (GCC) is a type of gastric cancer. The Transgelin(TAGLN) is a protein that has been indicated to discriminate progression in some tumors. Tumor angiogenesis is a hallmark of cancer and is involved in the tumorigenesis of solid tumors. However, the role of TAGLN in Gastric cardia cancer and tumor angiogenesis remains unknown.

Aims & Methods: The gene expression profile of TAGLN and their corresponding clinical data were obtained from The Cancer Genome Atlas (TCGA) and Gene Expression Omnibus (GEO). The expression of TAGLN in GCC and non-cancerous tissue was detected by immunohistochemical staining. The correlation between TAGLN level and the survival rate of GCC patients was assessed. The TAGLN overexpression or knockdown model was constructed to evaluate its role in GC cell proliferation, migration, invasion, and angiogenesis. HUVECs were co-cultured with the conditioned medium of GC cells. A tubule formation experiment was done to examine the angiogenesis of endothelial cells. A series of in vivo experiments were conducted to help reveal the mechanisms of TAGLN in GCC.

Results: TAGLN was identified as a key risk gene in the TCGA dataset. TAGLN expression was higher in GCC tissues than in non-tumor tissues and was positively correlated with poor prognosis. TAGLN overexpression or knockdown could facilitate or inhibit the migration, invasion, proliferation, and angiogenesis of GC cells.

Finally, depletion of TAGLN inhibited tumor growth in a xenograft mouse model.

Conclusion: The study highlights that TAGLN can accelerate Gastric cardia cancer progression and angiogenesis and may hold promise as a potential prognosis biomarker for the diagnosis of GCC, which can be a novel therapeutic strategy against GCC.

Disclosure: Nothing to disclose.

PP0179

THE ROLE OF BIOPSY FROM THE INCISURA ANGULARIS IN STAGING OF ATROPHIC GASTRITIS ACCORDING TO THE OLGA SYSTEM

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Introduction: The protocol of the clinical trial OLGA (Operative Link for Gastritis Assessment) proposed in 2005 (M.Rugge & R. Genta, 2005) has become widely used in clinical practice as the method of unified assessment of the progression of atrophic gastritis and the risk of developing stomach cancer.

The protocol involves obtaining 5 fragments of the gastric mucosa: 2 fragments from the antrum, 2 fragments from the oxyntic part and 1 fragment from the incisura angularis. It was believed that the mucosa in this region, being in fact a transition zone between the location of the pyloric and oxyntic glands of the stomach, may be the place with the most pronounced probability of developing atrophic and dysplastic processes.

The purpose of this study was to establish the significance of histological changes in the gastric mucosa in the region of the incisura angularis to assess the degree of inflammation activity and the stage of atrophic gastritis.

Aims & Methods: 1146 patients (916 women and 230 men) with clinical manifestations of chronic gastritis aged 20 to 84 years were examined. Most patients were represented in the age group from 50 to 70 years (54.6%). Biopsy material was obtained during endoscopic examination in accordance with the OLGA protocol.

Histological assessment of the degree of inflammation activity and the stage of atrophy was carried out according to the standard OLGA protocol. Then the same samples were evaluated without taking into account histological changes in the incisura angularis.

Results: During histological examination more frequently (73.2%) was detected the mild severity of inflammation in gastric mucosa (grade II according to the OLGA system). This score practically did not change if the biopsy from the incisura angularis was not tested. Severe stages of gastric mucosa atrophy (stages III and IV according to the OLGA system) were detected in 465 patients (40.58%). If changes in the incisura angularis were not taken into account, then severe stages of atrophy (III and IV) were detected in 460 patients (40.1%).

In total, changes in the assessment of the stage of atrophy occurred in 53 patients (4.62%), and more often this was observed in patients with stages I and II of atrophy. Only in 8 patients stage IV of atrophy was changed to

III, and in 3 patients stage III was changed to stage II. Thus the stage of atrophy was changed in less than 0,5% of patients in groups with severe atrophy if the samples from the incisura angularis were excluded from the examination.

Conclusion: Evaluation of the histological changes in the gastric mucosa from the incisura angularis does not significantly affect the assessment of the grade and stage of chronic gastritis according to the OLGA system.

References: Rugge M, Genta RM. Staging and grading of chronic gastritis. Human Pathology (2005) 36, 228– 233

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PP0180

CLINICOPATHOLOGICAL CHARACTERIZATION OF EPSTEIN-BARR VIRUS ASSOCIATED GASTRIC CANCER: A LARGE-SCALE STUDY AT A TERTIARY INSTITUTION IN KOREA

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Introduction: Epstein-Barr virus (EBV) associated gastric cancer (GC) has been reported to be about 5-16% of all gastric cancers with good prognosis compared to EBV-negative GC.

The aim of this study was to evaluate the clinicopathological characteristics of EBV-positive GC including survival analysis in the prospective observational cohort study in a tertiary hospital in South Korea.

Aims & Methods: Total 4,586 patients who underwent EBV in situ hybridization (EBV-ISH) testing among 14,613 patients diagnosed with GC were prospectively enrolled at Seoul National University Bundang Hospital from 2003 to 2023. Data including age, sex, smoking, cancer type and stage, tumor size and location, histologic type, molecular features (p53 expression and MSI), and survival information including causes of death were collected and analyzed.

Results: EBV-positive cancer group showed significant differences compared to EBV-negative cancer group. That is, they showed higher proportion of males (p<0.001), predominant presence in the proximal stomach (p<0.001), higher proportion of undifferentiated cancer (p<0.001), and lower cancer stage (p=0.004) (Table).

Variables		Total patients (n=4,586) (%)	EBV positive (n=456) (%)	EBV negative (n=4,130) (%)	P value
Sex	Male	3028 (66)	404 (88.6)	2624 (63.5)	<0.001
	Female	1558 (34)	52 (11.4)	1503 (36.5)	
Location (n=4,579)	Cardia, Body	2076 (45.3)	367 (80.5)	1709 (41.5)	<0.001
	Antrum	2503 (54.7)	89 (19.5)	2414 (58.5)	
Histology type (n=3,799)	Differentiated	1891 (49.8)	123 (35.5)	1768 (51.2)	<0.001
	Undifferentiated	1908 (50.2)	223 (64.5)	1685 (48.8)	
TNM staging	1	2818 (61.4)	316 (69.3)	2502 (60.6)	0.001
	2	683 (14.9)	52 (11.4)	631 (15.3)	
	3 or above	1085 (23.7)	88 (19.3)	997 (24.1)	

Table.

In Cox multivariate analyses, age (HR 1.022, p<0.001), tumor size (HR 1.118, p<0.001) along with cancer stage (stage 2 HR 5.843, p<0.001; stage3 HR 15.570, p<0.001; stage4 HR 50.075, p<0.001, respectively) were significant risk factors for GC-specific mortality, while EBV positivity was inversely correlated (HR 0.537, p=0.023). In the survival analyses, EBV-positive cancer group showed statistically significant survival advantages over EBV-negative cancer group in both overall (p=0.016) and gastric cancer-specific survival (p=0.005)

Overall survival:
http://blog.naver.com/storyphoto/viewer.jsp?src=https%3A%2F%2Fblogfiles.pstatic.net%2FMjAyMzA0MjZfMzAw%2FMDAxNjgyNTEyMjEwNTU0.uOasrcyjhBVQiw4hhvxsgTRrt0tIMv9O_knOHEKCbOwg.n1DOLJ2sVhbhCpkrKHgjMxc2v0Jqt6cMOolVx1cbypkg.JPEG.jhkimkr96%2FOS.jpg

GC-specific survival:
http://blog.naver.com/storyphoto/viewer.jsp?src=https%3A%2F%2Fblogfiles.pstatic.net%2FMjAyMzA0MjZfMTU5%2FMDAxNjgyNTEyMjE0MTc0.Mdm5W1yUv__Hfufon-0KLjSeFQawUEsHDfzYC9W27pIg.pz7ZCB9wbzjZ5fT5SOufbWXow9nmdP8Ui2smGqMw7gg.JPEG.jhkimkr96%2FGCSS.jpg

Conclusion: EBV-positive GC group was associated with male sex, proximal location, poorly differentiated histology and lower cancer stage, and showed significantly better prognosis than EBV-negative gastric cancer. EBV might play a role in the gastric carcinogenesis to make less metastasis resulting in better survival.

Disclosure: Nothing to disclose.

PP0181

INTEGRATED MULTI-DIMENSIONAL ANALYSIS HIGHLIGHTS DHCR7 MUTATIONS INVOLVING IN CHOLESTEROL BIOSYNTHESIS AND CONTRIBUTING THERAPY OF GASTRIC CANCER

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Introduction: Genetic background plays an important role in the occurrence and development of gastric cancer (GC). With the application of genome-wide association study (GWAS), an increasing number of tumor susceptibility genes in gastric cancer have been discovered. While little of them can be further applicated in clinical diagnosis and treatment due to the lack of in-depth analysis.

Aims & Methods: A GWAS of peripheral blood leukocytes from GC patients was performed to identify and obtain genetic background data. In combination with a clinical investigation, key SNP mutations and mutated genes were screened. Via in vitro and in vivo experiments and a combination of molecular function studies and amino acid network analysis, co-mutations were discovered and further identified as potential therapeutic targets for GC.

Results: At the genetic level, the G allele of rs104886038 in DHCR7 was a protective factor identified by the GWAS. Clinical investigation showed that patients with the rs104886038 A/G genotype, age ≥60, smoking ≥10 cigarettes/day, heavy drinking and *H. pylori* infection were independent

risk factors for GC, with odds ratios of 12.33 (95% CI, 2.10~72.54), 20.42 (95% CI, 2.46~169.83), and 11.39 (95% CI, 1.82~71.21), respectively. Then molecular function studies indicated that DHCR7 regulated cell proliferation, migration, and invasion as well as apoptosis resistance via cellular cholesterol biosynthesis pathway.

Further amino acid network analysis based on the predicted structure of DHCR7 and experimental verification indicated that rs104886035 and rs104886038 co-mutation reduced the stability of DHCR7 and induced its degradation. DHCR7 mutation suppressed the malignant behaviour of GC cells and induced apoptosis via inhibition on cell cholesterol biosynthesis.

Conclusion: In this work, we provided a comprehensive multi-dimensional analysis strategy which can be applied to in-depth exploration of GWAS data. DHCR7 and its mutation sites identified by this strategy are potential theratic targets of GC via inhibition of cholesterol biosynthesis.

Disclosure: Nothing to disclose.

PP0182

RISK OF PRECANCEROUS CONDITIONS AND GASTRIC CANCER IN PATIENTS WITH 1ST DEGREE RELATIVE FOR GASTRIC CANCER: A SYSTEMATIC REVIEW AND A META- ANALYSIS

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Introduction: Gastric cancer (GC) is a leading cause of cancer-related deaths worldwide, ranking fourth in terms of mortality and fifth in terms of incidence, according to the 2020 GLOBOCAN report (1).

Early detection of preneoplastic conditions such as gastric atrophy and intestinal metaplasia is crucial to reduce GC mortality (2).

Moreover, its pathogenesis is a multifactorial process that is influenced by environmental and genetic factors. European guidelines (3) suggest shortening the interval of follow-up in patients with a family history. However, it is a weak recommendation with a low quality of evidence, as evidence regarding familiarity for GC and its related preneoplastic conditions is lacking.

Aims & Methods: To evaluate the risk of GC and preneoplastic conditions and lesions, including gastric atrophy, intestinal metaplasia, and dysplasia, in first-degree relatives for GC patients.

We conducted a systematic review and meta-analysis of case-control studies published on MEDLINE (PubMed and Embase) until November 2022. The primary outcome was the risk of GC in first-degree relatives for GC patients.

The secondary findings were the risk of preneoplastic conditions and dysplasia in these patients. Two independent reviewers blindly performed the systematic review and data extraction. The disagreements were resolved through discussion. Homogeneity of effects across studies quantified by I^2. Odds ratio (OR) and 95% confidence intervals (CIs) were expressed using random effects models.

Results: Of the 1642 studies initially found, 18 studies met the inclusion criteria for GC, and 6 studies were included for preneoplastic conditions. The pooled analysis included a total of 59490 patients for the risk of GC and 4463 patients for the risk of preneoplastic conditions.

The results showed a significantly increased risk of GC in first-degree relatives of GC patients (OR = 3.034; 95%CI 2.395 to 3.843; p <.001; I^2 85.66%, 95%CI 78.73 to 90.33, p<.001). The risk of gastric atrophy was also significantly increased (OR = 3.812; 95%CI 1.674 to 8.682; p <.001, I^2 78,26%, 95%CI 41.41 to 91.93; p = .003). However, the risk of intestinal metaplasia was not significant (OR = 1.207; 95%CI 0.937 to 1.555, p = .15). Furthermore, the risk of gastric dysplasia was found to be significant (OR = 5.480; 95%CI 1.054 to 28.482, p = .043, I^2 80.34%, 95%CI 48.18 to 92.55 p = .002).

Conclusion: Our meta-analysis showed that the risk of GC and preneoplastic conditions and lesions, including gastric atrophy and dysplasia, is significantly increased in first-degree relatives for GC patients, even if a significant heterogeneity between studies was found.

These findings highlighted the importance of identifying individuals at high risk to facilitate early detection and treatment of preneoplastic conditions, which could potentially reduce the burden of GC.

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Disclosure: Nothing to disclose.

PP0183

ESTABLISHMENT OF ORGANOIDS AND SCREENING OF NORCANTHARIDIN SENSITIVITY IN GASTRIC CANCER

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Introduction: Patient-derived organoids (PDOs) are a promising preclinical cancer model that has demonstrated an advantage in predicting drug susceptibility. Norcantharidin (NCTD) derived from traditional Chinese medicine has been used in the treatment of gastric cancer, but the sensitivity of different patients to NCTD has not been evaluated in human samples.

Aims & Methods: The purpose of this study was to use PDOs to predict the drug sensitivity of NCTD in gastric cancer, so as to guide clinical drug use. PDOs were established by surgical resection of gastric cancer patients. Hematoxylin-eosin staining and immunohistochemical staining were used to identify the pathological morphology and molecular characteristics of PDOs and original tumor tissues. Genome analysis of tumor tissue and PDOs was performed using whole exon sequencing. NCTD intervention PDOs were screened for sensitivity and area under the curve (AUC) and IC50 values were assessed.

Results: 10 PDOs conforming to the standard of drug sensitivity test were successfully constructed. The organoids were spherical and hollow with upper skin sac structure. The pathological and genomic features of the corresponding tumor were preserved, and the expression of related mo-

lecular markers was consistent with that of the original tissue. All PDOs could be stably passed through, frozen and resuscitated. After adding different doses of NCTD, 10 organoids showed different drug sensitivities to NCTD, among which PDO4, PDO7 and PDO10 were most sensitive to NCTD.

Conclusion: NCTD has significant anti-gastric cancer effect, but there is obvious heterogeneity in drug response. PDOs can be used as a preclinical drug screening platform to guide the development of individualized cancer treatment, and bring new hope for the research of TCM treatment of gastric cancer.

Disclosure: Nothing to disclose.

PP0184

TRANSLATIONAL IMPACT OF THE FOOD-DERIVED XENO-MIRNA MIR-168 IN GASTROINTESTINAL CANCERS AND PRENOPLASTIC CONDITIONS

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Introduction: Diet is one of the most important factors contributing to the multistep process of carcinogenesis. The functional role of exogenous xeno-microRNAs (miRNAs) in this context is poorly understood. Recently, we reported the detectability of food-derived xeno miRNAs in various foods and in the gastrointestinal and colonic mucosa.

However, little is known about the translational role of xeno-miRNA in the GI mucosa and specifically in GI diseases.

Aims & Methods: In this work, we aimed to evaluate the potential clinical relevance of the xeno-miRNA miR-168 in the gastric mucosa along the preneoplastic conditions and gastric carcinogenesis.

To this end, we performed quantitative analysis of miR-168 in different settings:

1. Samples from patients with normal mucosa (N), chronic non-atrophic (CNAG) and atrophic gastritis (CAG) and intestinal metaplasia (IM) (n=72); 2. Matched non-tumorous (NT-) and tumorous (T-) gastric cancer (GC) tissues (n=82) and 3) matched NT- and T-colorectal cancer (CRC) tissues (n=40).

Survival analysis was performed using Kaplan-Meyer analysis.

Results: MiR-168 was reproducibly detectable in the samples examined, with higher levels in stomach compared to colon tissue. In the stomach, a significantly higher level of miR-168 was observed in NT-GC compared to N, CNAG, AG/IM samples ($p<0.01$ each), but there was no difference related to H. pylori positivity or inflammation grade. Interestingly, miR-168 was higher in patients with moderate or severe AG/IM or OLGIM 3/4.

Despite a significant correlation of miR-168 expression, paired sample analysis revealed a higher level of miR-168 in NT-GC compared to T-GC, with the highest level observed in the cardia and the lowest in the gastric mucosa of the antrum.

Survival analysis showed only a small trend towards worse overall survival for patients with highest to lowest miR-168 levels, mostly during the first 3 years, but no long-term difference regardless of Lauren's classification.

MiR-168 levels in normal mucosa were not associated with overall survival.

In correlation with matched GC samples, NT-CRC showed higher miR-168 levels compared to T-CRC, although overall there was a positive correlation between matched tissues. No survival difference was observed for higher or lower miR-168 levels in CRC.

Conclusion: Food-derived xeno-miRNA are present in the gastric and colonic mucosa, with the highest levels in the stomach compared to the colon and in non-tumour compared to tumour tissues. While the potential impact of miR-168 on overall survival was weak, the higher level of miR-168 in patients with moderate and severe IM deserves further attention and further functional analyses are needed to better understand the functional role of xeno-miRNA in the GI tract.

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PP0185

PROGNOSTIC PROGRAMMED CELL DEATH AND GLYCOSYLATION-RELATED LONG NONCODING RNAS ASSOCIATED WITH IMMUNE INFILTRATION IN GASTRIC CANCER

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Introduction: Gastric cancer with high morbidity and mortality afflicts a significant proportion of the worldwide population. Long non-coding RNAs (lncRNAs) play an important role in the development of gastric cancer and are closely associated with programmed cell death (PCD), which can be influenced by post-translational protein modifications.

Aims & Methods: Sequencing data of lncRNAs in patients with gastric cancer were obtained from TCGA and ARCG database. Important prognostic lncRNAs were identified through LASSO algorithm and Kaplan–Meier survival curve analysis and receiver operating characteristic curve analysis were used to evaluate the prognostic power of this model. Their effects on the biological functions of gastric cancer cells were investigated by in-vitro experiments, as well as the relationship between these lncRNAs and PCD, glycosylation.

Results: WGCNA and correlation analyses identified 168 PCD and glycosylation-related lncRNAs, 36 of which were of differential expression and prognostic value by univariate Cox analysis. A 11-lncRNA signature including MIR4435-2HG, LINC02381, LINC00106, LSAMP-AS1, LINC01140, LINC01614, RPH3AL-AS1, LINC02864, LEF1-AS1, LINC00844 and DPH6-DT was established and showed good performance in both TCGA and ARCG set. Differences in immune cells, immune functions and gene mutation were also found between high-risk and low-risk groups. In vitro experiments showed that PCD and glycosylation were influenced by RPH3AL-AS1 and LINC00106 knockdown.

Conclusion: This PCD and glycosylation-related signature may be a promising biomarker for predicting clinical outcomes in patients with gastric cancer.

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Disclosure: Nothing to disclose.

PP0186

NOVEL MAGNIFYING ENDOSCOPIC FINDING, CAPILLARIES PUSHED UP BY CLOUDY MUCOSA (CPCM) MAY BE SUPPORTIVE MARKER FOR POST-*HELICOBACTER PYLORI* EARLY GASTRIC CANCER

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Introduction: Early gastric cancers after *Helicobacter pylori* (*HP*) eradication (*HP* eradicated EGC), which has become mainstream in Asian, is difficult to determine by even magnifying endoscopy with narrow band imaging (ME-NBI) due to the appearance of low atypical epithelium mimicking with noncancerous epithelial structure.
We found that scattered Capillaries Pushed up by Cloudy Mucosa (CPCM), which pathologically influence blood vessels pushed up by cancerous gland ducts, appeared in *HP* eradicated EGC.
Aims & Methods: Our objective is to investigate whether CPCM detected in ME-NBI can be a supportive marker to diagnosis *HP* eradicated EGC. This study was a retrospective observational study conducted by at 2 facilities in between 2020 and 2022 under ethical approval. Of 274 lesions confirmed by biopsy after ME-NBI, 238 lesions were included, excluding *HP*-uninfected lesions and lesions with unknown infection status. *HP*-infected lesion was designated as group A (42 cancers, 30 non-cancers), and *HP* eradicated lesion as group B (103 cancers, 63 non-cancers).
Sensitivity, specificity, positive predictive value, and negative predictive value of CPCM were calculated for each group, and differences between two groups were also examined by Fisher's exact test. The presence of CPCM was defined as when there were three or more cloudy mucosa in one image captured by ME-NBI with maximum magnification.
Results: CPCM were seen in 45.8% of group A and 33.7% of group B. The group A and B for CPCM diagnostic accuracy was as follows 66.7% and 53.4% for sensitivity, 83.3% and 98.5% for specificity, was 84.8% and 98.2% for positive predictive value, and 64.1% and 56.3% for negative predictive value, respectively. The *p*-values were 0.195, 0.0126, 0.0248, and 0.4528, respectively.
Conclusion: CPCM showed a higher specificity and positive predictive value for determining post-*HP* EGC compared with *HP*-infected EGC, suggesting the potential indicator.
Disclosure: Nothing to disclose.

PP0187

RESULTS OF THE INTERIM ANALYSIS OF A PROSPECTIVE, MULTI-CENTER, OBSERVATIONAL STUDY OF SMALL SUBEPITHELIAL LESIONS IN THE STOMACH

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Introduction: Long-term outcomes of gastric subepithelial lesions have not been elucidated. To reveal the natural history, we initiated a prospective, 10-year follow-up of patients with small (≤20 mm) gastric subepithelial lesions in September 2014.
Here, we report the results of an interim analysis of a prospective observational study.
Aims & Methods: In total, 567 patients with 609 lesions were prospectively registered between September 2014 and August 2016. The location, size, morphology, and number of subepithelial lesions were recorded on a web-based case report form.
Results: The endoscopic follow-up period was 4.60 ± 1.73 years (mean ± SD), and survival data were investigated for 5.28 ± 1.68 years. This interim analysis revealed that the estimated cumulative incidence of a size increase ≥5 mm, after accounting for patients' death and resection of the tumor as competing risk events, was 4.5%.
In addition, the estimated cumulative incidence of lesion size increase ≥5 mm or resection of lesions was 7.7% at 5 years, and that of size increase ≥10 mm or resection of lesions was 4.3% at 5 years.

Conclusion: These results indicate that approximately one in 13 patients with small (≤20 mm) gastric subepithelial lesions may require resection or further investigation for increased tumor size (≥5 mm) within five years under active surveillance.

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Disclosure: This study has been conducted as an Academic Committee Working Group of the Japan Gastroenterological Endoscopy Society.

PP0188

OUTCOMES OF ESD IN EARLY GASTRIC CANCER PATIENTS WITH ADVANCED MALIGNANT TUMORS OF OTHER ORGANS

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Introduction: In recent years remarkable progress has been made in the treatment of malignant tumors, including minimally invasive surgery[1], the development of chemotherapy including immune checkpoint inhibitors[2], drugs to prevent chemotherapy induced side effects[3].

As a result, the prognosis was improved, the number of patients with multiple primary malignant tumors increased. However, there is currently no evidence to support a specific treatment for multiple primary malignant tumors. Therefore, patient consent must be obtained, and options should be selected according to institution policies.

Aims & Methods: Aims: This study aimed to investigate the clinical outcomes and prognosis of patients who underwent endoscopic submucosal dissection (ESD) for early-stage gastric cancer (EGC) complicated with advanced primary malignant tumors of other organs, with 5-year absolute survival rate of less than 50 %.

Methods: This study enrolled 26 patients with advanced malignant tumors of other organs, with 5-year absolute survival rates of less than 50 %, who were selected from 3,703 patients with gastric cancer who underwent ESD at our hospital. Clinicopathological characteristics and outcomes of ESD were evaluated.

Results: Patient median age was 75.0 (50-90) years. The median tumor diameter was 20.0 (5-110) mm. Advanced malignant tumors of other organs included 5 patients with hepatocellular carcinoma, 5 with prostate cancer, 4 with esophageal cancer, 4 with colorectal cancer, 3 with lung cancer, 1 with renal cell carcinoma, 1 with breast cancer, 1 with gingival cancer, 1 with multiple myeloma, and 1 with malignant lymphoma.

The clinical stages were cStage II in 6 patients, cStage III in 2, and cStage IV in 18, all evaluated under treatment or before treatment. In terms of EGC locations, there were 6 (23 %) U region patients, 6 (23 %) M region, and 14 (54 %) L region. Macroscopic types were 0-I 2 (7 %), 0-IIa 9 (35 %), 0-IIa+I 1 (4 %), 0-IIc 13 (50 %), and 0-IIc+IIa 1 (4 %). The main histological types included 23 (88%) with differentiated type, 3 (12%) with undifferentiated type, 18 (69 %) with pT1a, 3 (12 %) with pT1b1, and 5 (19 %) with pT1b2. Rates of en bloc resection were 100 %, curative resection was 62 %, noncurative resection was 38 % (including 5 patients with pT1b2, 1 patient with UL positive, 3 patients with undifferentiated and lesion size bigger than 20 mm, and 1 patient was positive for vertical margin).

Adverse events included delayed bleeding in 1 (4%) patient, delayed perforation in 1 (4%), and postoperative pneumonitis in 1 (4%), all of which resulted in DIC and death within 30 days after ESD. The prognosis was death from advanced malignant tumors of other organs in 11 patients, death from other causes in 3 patients, and survival in 9 patients that did not suffer death due to EGC.

Conclusion: Although ESD was useful for local resection of EGC complicated with advanced malignant tumors, DIC triggered by an adverse event should be noted.

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Disclosure: Nothing to disclose.

PP0189 WITHDRAWN

PP0190

EXPLORING THE CHALLENGE OF EARLY GASTRIC CANCER DIAGNOSTIC AI SYSTEM FACE IN MULTIPLE CENTERS AND ITS POTENTIAL SOLUTIONS

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Introduction: Artificial intelligence (AI) showed various performance among test sets with different diversity due to sample selection bias, which can be a stumbling block for AI application. We previously tested AI named ENDOANGEL diagnosing gastric neoplasms and early gastric cancer (EGC) on single-center videos in a man-machine competition.

We aimed to retest ENDOANGEL on multi-center videos to explore challenges applying AI in multiple centers, then upgrade ENDOANGEL and explore solutions of solving the challenge.

Aims & Methods: ENDOANGEL was retested on multi-center videos retrospectively collected from 12 institutions and compared with performance in previously-reported single-center videos. We then upgraded ENDOANGEL to ENDOANGEL-2022 with more training samples and novel algorithms, and conducted competition between ENDOANGEL-2022 and endoscopists. ENDOANGEL-2022 was then tested on single-center videos and compared with performance in multi-center videos; the two AI systems were also compared with each other and endoscopists.

Results: Forty-six EGCs and 54 non-cancers were included in multi-center video cohort. On diagnosing EGCs, compared with single-center videos, ENDOANGEL showed stable sensitivity (97.83% vs. 100.00%) while sharply decreased specificity (61.11% vs. 82.54%); ENDOANGEL-2022 showed similar tendency while achieving significantly higher specificity (79.63%, p <0.01) making fewer mistakes on typical lesions than ENDOANGEL.

On detecting gastric neoplasms, both AI showed stable sensitivity while sharply decreased specificity. Nevertheless, both AI outperformed endoscopists in the two competitions.

Conclusion: Great increase of false positives is prominent challenge for applying EGC diagnostic AI in multiple centers due to high heterogeneity of negative cases. Optimizing AI by adding samples and using novel algorithms is promising to overcome this challenge.

Disclosure: Nothing to disclose.

PP0191

TECHNICAL DIFFICULTY AND CLINICAL COURSES OF ENDOSCOPIC HAND SUTURING AFTER GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION WITH SPECIAL REFERENCE TO THE LOCATION

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Introduction: Endoscopic hand suturing (EHS), which enables intraluminal running suturing by using a through-the-scope type needle holder and an absorbable barbed suture, is expected to be applied to various situations. This technique is sometimes difficult to complete according to location, and if successful in suturing, dehiscence sometimes occurs afterward.

Aims & Methods: We aimed to investigate the technical difficulty and clinical courses of EHS for mucosal defect closure after gastric endoscopic submucosal dissection (ESD). We collected 74 lesions in 72 patients (15 prospectively-enrolled lesions for this analysis and 59 lesions from published data), including 49 patients (68%) having antithrombotic agents without cessation perioperatively. EHS was performed to close the mucosal defect immediately after gastric ESD, by suturing the mucosal layer continuously.

A normal dose of antisecretory agents (proton-pump inhibitor or potassium-competitive acid blocker) was administered from the operative day to at least the postoperative day (POD) 28. A scheduled second-look endoscopy (SLE) was performed on POD 3 in 64 patients and on POD 7 in 8 patients, respectively.

Technical success, closure maintenance on SLE, suturing speed (min/stitch), delayed bleeding, and severe adverse events (SAE) were evaluated. Furthermore, the difficulty and the clinical courses in EHS according to the location were assessed.

Results: EHS was performed on the upper (U)/middle (M)/lower (L) stomach in 10/32/32 lesions, and on the anterior wall (AW)/lesser curve (LC)/posterior wall (PW)/greater curve (GC) in 14/28/14/18 lesions, respectively. The mean diameter of the mucosal defects was 33 mm.

The defect was completely closed in 73 lesions (99%), and the closure was maintained on SLE in 65 lesions (88%). The mean suturing duration and stitches were 41 min and 7 stitches, respectively, which indicated the suturing speed of 5.5 min/stitch. Delayed bleeding occurred in 2 lesions (3%), and no SAE was presented.

The technical success rates were U/M/L: 90%/100%/100% (p = 0.039), and AW/LC/PW/GC: 100%/96%/100%/100% (p = 0.645), respectively. The closure maintenance rates were U/M/L: 80%/84%/94% (p = 0.371), whereas AW/LC/PW/GC: 100%/75%/93%/95% (p = 0.062). The suturing speed was not significantly different among the location.

Conclusion: This study showed that EHS was technically difficult on the upper third and the closure was inclined to dehisce on the lesser curvature side. For lesions on the upper stomach, it is desirable to perform EHS after obtaining sufficient experience. Furthermore, EHS should be provided more carefully and precisely for lesions on the lesser curvature to avoid postoperative dehiscence.

Disclosure: Nothing to disclose.

PP0192

ENDOSCOPIC DETECTION OF ESOPHAGEAL SQUAMOUS CELL CARCINOMA (ESCC) USING NOVEL FLUORESCENCE PROBE TARGETING DIPEPTIDYLPEPTIDASE IV (DPP-IV)

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Introduction: Recent evolution of image-enhanced endoscopy (IEE) makes it possible to detect ESCC easily. However, we sometimes encounter the cases where IEE cannot detect ESCC. Iodine staining is a gold standard, but it cannot be used for those with allergy to iodine. We developed a novel fluorescence probe (EP-HMRG). EP-HMRG emits green fluorescence immediately after being cleaved by DPP-IV, which is overexpressed in ESCC.

The advantages are its ability to be applied topically and its fast reactivity. We confirmed that EP-HMRG achieved high accuracy for ESCC (> 90%) even 5 minutes after application using biopsy samples (Sci Rep, 2016).

Aims & Methods: Our aim of the present study is to investigate the safety and feasibility of EP-HMRG through a first-in-human trial. This is a phase 1 trial to assess the safety and efficacy of EP-HMRG for ESCC patients. Those who were scheduled to undergo endoscopic resection (ER) for ESCC were enrolled in this study. After 20 mL of 50 μM EP-HMRG solution was sprayed into the esophagus, one biopsy was taken from each fluorescent and non-fluorescent area under the observation with the prototype fluorescence endoscope. The biopsy specimens were blinded and diagnosed by one board-certified pathologist; ER was performed the day after EP-HMRG spraying, and the patient was discharged 5 days after treatment.

Results: A total of 6 patients were recruited between November 2019 and February 2021. 4 of the 6 patients complained of mild dysphagia and chest pain after ER, which were attributed to ER itself. No adverse events related to EP-HMRG occurred.

Fluorescence endoscopy revealed strong fluorescent areas in the esophagus in 3 patients and weak fluorescent areas in the remaining 3 patients. Biopsy pathology results showed that no cancer was proved in any of the non-fluorescent areas. SCC was proved in 4 of the 6 specimens of the fluorescent sites. In 2 cases where the fluorescence was weak, no cancer was proved in the biopsy specimens taken from fluorescent areas. Positive predictive value, negative predictive value and accuracy were 67%, 100%, and 83%, respectively.

Conclusion: Our first-in-human study of a novel fluorescent probe for ESCC revealed safety, whereas the diagnostic accuracy reached only 83%. One possible reason was that the detectability of the prototype endoscope did not reach the level of the dedicated fluorescent imaging device. The fluorescent endoscope used in this study was still under development, and the images were dark, which may have resulted in sampling errors or failure to capture fluorescence coloration. The development of a fluorescence endoscope that is comparable to a dedicated fluorescence imaging device is an issue to be addressed in the future.

Disclosure: Nothing to disclose.

PP0193

A PHASE III INVESTIGATOR-INITIATED CLINICAL TRIAL COMPARING REMIMAZOLAM WITH PLACEBO FOR SADATION IN JAPANESE PATIENTS UNDERGOING UPPER GASTROINTESTINAL ENDOSCOPY

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Introduction: The demand for sedation during endoscopic procedures in the gastrointestinal field has increased. However, few sedatives for endoscopy are covered by Japanese national health insurance. Remimazolam is a novel, ultrashort-acting benzodiazepine drug.

Aims & Methods: This study aimed to compare the efficacy of Remimazolam and placebo in achieving successful sedation during upper gastrointestinal endoscopy in Japanese patients. We conducted a multicenter, randomized, double-blind Phase III clinical trial, including 48 Japanese patients undergoing upper gastrointestinal endoscopy. Patients were randomized to receive either Remimazolam or placebo with a ratio of 4:1. The initial Remimazolam dose was 3mg, with additional doses of 1mg as determined in the Phase II clinical trial [1]. The primary endpoint was the successful sedation rate during gastrointestinal endoscopy, determined by the Modified Observer's Assessment of Alertness / Sedation score ≤4 before the start of endoscopy, the completion of gastrointestinal endoscopy, and two or fewer additional doses per six minutes.

Results: The Remimazolam group included 37 patients and the placebo group included 11 patients. The successful endoscopy sedation rate was significantly higher in the Remimazolam group (91.9%) compared to the placebo group (9.1%) ($p<0.01$). The median total Remimazolam dose was 4.0 (3.0-4.5) mg. The time from the end of endoscopy to arousal was 0.0 (0.0–0.0) minutes in the Remimazolam group and 0.0 (0.0–0.0) minutes in the placebo group. The time from the end of endoscopy to regaining the ability to walk was 5.0 (0.0–5.0) minutes in the Remimazolam group and 0.0 (0.0–0.0) minutes for the placebo group ($p=0.02$).

Conclusion: Remimazolam is more effective than placebo for achieving sedation during upper gastrointestinal endoscopy in Japanese patients. This study suggests that Remimazolam could be a potential option for sedation during endoscopic procedures.

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Disclosure: This study was founded by Mundi Pharma Co., Ltd. Authors declare no conflict of the interst for this study.

PP0194

COULD BEST-J ALSO BE BEST-E? VALIDATION OF A PREDICTING MODEL FOR DELAYED BLEEDING AFTER GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION ON A EUROPEAN SAMPLE

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Introduction: Delayed bleeding (DB) is a possible adverse event following gastric endoscopic submucosal dissection (ESD). The Bleeding after ESD Trend from Japan (BEST-J) score was created as a risk prediction model for DB following gastric ESD, but is yet to be validated in non-Asiatic populations.

Aims & Methods: We aimed to apply and validate the BEST-J score on a European sample.

We have conducted a longitudinal study of all consecutive patients undergoing gastric ESD on a European Endoscopic Unit. DB was defined as a hemorrhage with clinical symptoms and confirmed by emergency endoscopy from the time of completion of ESD to 28 days after ESD.

BEST-J score (use of vitamin K antagonists +4, direct oral anticoagulants +4, aspirin or P2Y12R antagonists +2; withdrawing antithrombotic drugs -1; chronic kidney disease +3; multiple lesions +1; lesion ≥30mm +1; lesion in lower-third of the stomach +1) was calculated in each patient and confronted with the outcome (DB).

Results: Final sample included 161 patients, 102 (63.4%) male, with a mean age of 68±8 years. From these, 10 (6.2%) presented DB following ESD, with a median time to bleeding of 7 days (IQR 6.8).

According to BEST-J score, bleeding risk was low (0-1 points) in 111 (68.9%), intermediate (2 points) in 29 (18.0%), high (3-4 points) in 16 (9.9%) and very high (≥5 points) in 5 (3.1%) patients.

BEST-J score presented an excellent accuracy predicting DB in our sample, with an AUC=0.907 (95%CI=0.801-1.000; $p<0.001$). The optimal cut-off value to predict DB was a BEST-J score ≥3, which matches the cut-off value for high-risk of bleeding in the original investigation. This value had a sensitivity of 90% and specificity of 92%.

Conclusion: The BEST-J score still presents excellent accuracy in risk stratification for post-ESD bleeding in European individuals. Thus, this score may help to guide which patients benefit the most from prophylactic therapies following gastric ESD in this setting.

Disclosure: Nothing to disclose.

PP0195

DECISION-TO-SCOPE (DTS) SCORE: PROSPECTIVE VALIDATION AS AN EXCELLENT TOOL FOR PREDICTION OF FOREIGN BODIES IN THE ESOPHAGUS

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Introduction: Suspected foreign body ingestion and food bolus impaction are common indications for urgent esophagogastroduodenoscopy. Nevertheless, most of the ingested foreign bodies (80 to 90%) pass spontaneously throughout the gastrointestinal tract. In 2022, the Decision-To-Scope (DTS) Score was developed, revealing an excellent accuracy in predicting foreign bodies in the esophagus.

Aims & Methods: Our aim was to prospectively evaluate the diagnostic accuracy of the DTS-Score.

We have prospectively included consecutive patients admitted for suspected foreign body in the upper gastrointestinal tract, for a 6-month period. Previously to endoscopic evaluation, the DTS-score - time since ingestion < 6 hours (+1pt); absence of any meal since the suspected ingestion (+2pts); dysphagia (+3pts); odynophagia (+1pt) and drooling (+4pts) - was applied in each patient. The maximal possible value was 11 points, with a DTS-Score ≥5 being considered to assign a high probability of endoscopic confirmation of the foreign body.

Results: Final sample included 47 patients, from which 26 (55.3%) were females, with a mean age of 60±16 years. From these, most (n=42; 91.5%) were evaluated for accidental ingestion of food-related foreign bodies (fish or chicken bones) or suspected food bolus impaction. A DTS-Score ≥5 was calculated in 11 (23.4%) of the patients, with an esophageal foreign body being confirmed in 12 (25.5%) of them. DTS-score presented an excellent accuracy in predicting the endoscopic confirmation of a foreign body in the esophagus (AUC=0.94; 95%CI 0.85-1.00; p<0.001).

The originally defined cut-off (DTS-Score ≥5) presented a specificity of 97.1%, a sensitivity of 83.3%, a positive predictive value of 90.9% and a negative predictive value of 94.4%.

Conclusion: When prospectively applied, the DTS-score demonstrated an excellent acuity in stratifying the probability of endoscopic confirmation of a suspected foreign body in the esophagus. This tool may be included in future clinical algorithms for suspected foreign bodies ingestion.

Disclosure: Nothing to disclose.

PP0196

A NOVEL ENDOSCOPIC MODALITY FOR MICROVASCULAR BLOOD FLOW RATE ANALYSIS USING MAGNIFYING ENDOSCOPY IN THE EARLY GASTRIC CANCER

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Introduction: There have been many reports on the usefulness of magnifying endoscopy with image-enhanced endoscopic techniques. In recent years, the magnifying endoscopy simple diagnostic algorithm for early gastric cancer (MESDA-G)[1] has been proposed as a unified diagnostic system.

However, it is a "static" diagnostic algorithm that uses still images. We focused on real-time red blood cell flow in subepithelial microvascular visualized by magnifying endoscopy, and clarified that microvascular blood flow rate was significantly lower in early gastric cancer (EGC) than in benign patchy redness in the pilot study[2].

Moreover, we uniquely developed an automated blood flow rate analysis system (hereinafter "analysis system") and calculated the cut-off value (1090.9um/sec) for endoscopic diagnosis of EGC using the test dataset. However, comparative studies on diagnostic accuracy between endoscopists and analysis system have not yet been analyzed.

Aims & Methods: The aim of this study was to compare the qualitative diagnostic accuracy of EGC between endoscopists and analysis system. We retrospectively reviewed magnifying endoscopy with blue laser imaging (M-BLI) videos of differentiated-type EGC and patchy redness at our hospital between December 2017 and September 2021.

M-BLI videos of 31 differentiated-type EGCs and 40 patchy redness in which red blood cell flow in subepithelial microvascular was visible were included in this study. In the analysis system group, the diagnosis was made according to the above-mentioned cut-off value (1.09 mm/sec) for cancer/non-cancer.

In the endoscopist group, 9 endoscopists (5 experts and 4 trainees) reviewed these M-BLI videos and made the diagnosis as cancer/non-cancer according to MESDA-G. We evaluated the diagnostic accuracy in each group, such as sensitivity/specificity/positive predictive value (PPV)/negative predictive value (NPV).

Results: In 31 EGCs, there were more men than women (22/9), the mean age was 72.2±9.5 years, the tumor location was U/M/L=2/8/21, the macroscopic type was elevated/depressed=8/23, the histological type was tub1/tub2/pap=24/6/1, and depth of invasion was M/SM=27/4. In 40 patchy redness, there were more men than women (28/12), the mean age was 69.0±9.7 years, and the location was U/M/L=3/12/25. With regard to diagnostic accuracy, sensitivity/specificity/PPV/NPV was 90.3/89.7/87.2/92.3% in the analysis system group, 85.9/87.2/80.0/85.5% in expert endoscopists, and 70.0/82.7/80.6/71.0% in trainees endoscopists, respectively.

	Analysis system	Endoscopists		
		Experts (n=5)	Trainees (n=4)	All (n=9)
Sensitivity % (95%CI)	90.3 (0.68-0.95)	85.9 (57.0-87.6)	70.0 (54.8-85.8)	77.9 (55.7-86.6)
Specificity % (95%CI)	89.7 (0.79-0.98)	87.2 (65.4-90.8)	82.7 (64.3-92.4)	85.0 (64.8-91.7)
PPV % (95%CI)	87.2 (0.74-0.98)	80.0 (55.5-84.0)	80.6 (59.8-90.8)	80.3 (58.0-87.9)
NPV % (95%CI)	92.3 (0.73-0.96)	85.5 (61.3-85.5)	71.0 (60.0-87.2)	78.3 (60.8-86.4)

Conclusion: The automated blood flow rate analysis system showed higher diagnostic accuracy in the differential diagnosis between differentiated-type EGC and patchy redness compared with endoscopists. It is suggested that the analysis system may be useful as a new diagnostic modality for EGC and could potentially diagnose lesions that are difficult for endoscopists to diagnose.

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Disclosure: Nothing to disclose.

PP0197 WITHDRAWN

PP0198

PREDICTION OF THE HILL CLASSIFICATION FOR HIATAL HERNIA USING ARTIFICIAL INTELLIGENCE

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Introduction: Hiatal hernia (HH) is a common finding in endoscopic examinations that can cause significant symptoms, depending on its severity. The Hill classification assesses the degree of HH (type II to IV) by considering the width of the cardia and the hiatus on visual inspection during gastroscopy.

Aims & Methods: Our goal was to train a deep learning (DL) model that determines the Hill classification using a novel active learning (AL) pipeline. A total of 21,970 gastroscopic images representing 14,885 examinations from two endoscopy centers were retrospectively identified as the training dataset. A novel AL pipeline was developed to train the DL model. For comparison reasons, a second model was trained with randomly selected images from the same training dataset. An external, publicly available collection of HH images was annotated using the Hill classification and used as test data. Outcomes are the ability of the models to diagnose and classify HH and the time spent by the expert for annotation. The proposed AL pipeline is provided as Open-Source.

Results: The AL-based model was generated in eight consecutive steps, covering about 10% of the unlabeled training data. The model achieved mean accuracy, sensitivity, specificity, and F1-score of 0.878, 0.692, 0.896, and 0.67 respectively, when classifying the four different types of Hill. In diagnosing the existence of a HH (type I vs II-IV), the model achieved 0.828, 0.749, 0.902, 0.808 for the same metrics. The median annotation time per image was 3.62s (Q1-Q3; 3.14-4.69). Obtaining a model via the random image selection that performs similarly, required at least 30% more annotations and thus expert time commitment.

Conclusion: In this work we present a novel AL pipeline, enabling examiners to develop new models for gastrointestinal endoscopy without requiring programming skills. Using the proposed pipeline resulted in a well performing model in less time spent by the expert annotator, compared to traditional model training.

Disclosure: Nothing to disclose.

PP0199

NON-SEDATIVE TRANSNASAL ESOPHAGOGASTRODUODENOSCOPY IN JAPANESE POPULATION-BASED SCREENING FOR GASTRIC CANCER IS INTOLERABLE FOR SOME PARTICIPANTS: REAL-WORLD DATA FROM A MULTICENTER ON-SITE QUESTIONNAIRE SURVEY

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Introduction: Esophagogastroduodenoscopy (EGD) has been performed as a population-based screening for gastric cancer (PBSGC) in Japan since 2015. Although non-sedative EGD (NSEGD) is recommended by the Japanese Society of Gastrointestinal Cancer screening considering the risk of adverse events caused by sedation, its tolerability is unclear.

This study aims to evaluate the tolerability of NSEGD among PBSGC participants in a real-world setting.

Aims & Methods: The paper-based questionnaire survey was conducted for the PBSGC participants who received NSEGD in 16 institutions in Sinagawa-ku Tokyo Japan from April 2021 to August 2022. The questionnaire items were filled out anonymously by the participants of PBSCG soon after they have undergone NSEGD.

The questionnaire items included; consented to answer this survey, age, sex, number of experienced EGD, the experience of sedation during EGD, discomfort regarding NSEGD, and willingness to take sedated EGD next time.

The discomfort regarding NSEGD was evaluated by the following 4 items,
A: impression of NSEGD,
B: whether you can take NSEGD again,
C: impression of examination time,
D: feeling after taking NSEGD.

They were evaluated by 6 steps face scale: 1 is the most comfortable, and 6 is the most uncomfortable. Medical staff in each institution filled out the inserting route (oral, or tans-nasal), a used endoscope (normal or thin), the presence of biopsy, and examination time.

Results: The consent to answer the questionnaire survey was obtained from 1011 out of 1063 participants. The median age was 68 years (range: 40-93). There were 434 men and 554 women (not answered=23). The number of experienced EGD was 133 participants for the first time, 672 participants for 1-5 times, and 203 participants for more than 6 times (not answered=3).

Regarding the experience of sedation during EGD, 184 participants had experienced the sedated EGD, whereas 660 participants had not experienced sedated EGD (first-time examination: not answered: unknown=133:30:4).

The proportion of participants who answered 3 points or less on the discomfort scales was 68%, 81%, 85%, and 84% respectively.

Regarding the willingness to take sedated EGD next time, 391 participants hoped to receive the sedated EGD next time, whereas 576 participants answered that they can take NSEGD again.

Inserting route and used endoscope were as follows: transnasal route with thin scope: peroral route with thin scope: peroral route with normal scope=594:232:63 (unanswered=122). A biopsy was performed with 53 participants. The examination time was as follows: less than 6min: 7min: 8min: 9min: more than 10min=176:190:146:133:129:133(unanswered=104).

Of the valid response from 564 participants who received the transnasal endoscopy, 218 participants (38.7%) hoped to receive sedated endoscopy next time.

Conclusion: Real-world data from on-site questionnaire surveys for the participants who received the NSEGD as PBSGC showed that non-sedative transnasal EGD is intolerable for some participants. The support for the participants who are intolerable to continue the current NSEGD in the PB-SGC program should be considered in Japan.

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Disclosure: There is Nothing to disclose.

PP0200

PERCUTANEOUS TRANSESOPHAGEAL GASTROTUBING (PTEG) FOR THE PATIENT THAT PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) INSERTION IS IMPOSSIBLE IN THE TUBE FEEDING

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Introduction: Percutaneous transesophageal gastrotubing (PTEG) was established as an alternative route to access the gastrointestinal tract for the patients that Percutaneous Endoscopic Gastrostomy was contraindicated. PTEG will be an ideal method of tube feeding for the patients without indication of PEG.

Aims & Methods: The aim of this study is to evaluate the clinical usefulness of PTEG for the patients who need tube feeding. A rupture-free balloon (RFB) catheter is inserted into the upper esophagus. Percutaneous balloon puncture with a specialized needle is then performed from the left side of patient's neck under ultrasonographic control.

A guide wire is inserted through the needle into the RFB, followed by a dilator and sheath. A placement tube is then inserted through the sheath, and the sheath is removed.

Double Balloons equipped Over tube type RFB were used instead of primary RFB in thirty-five cases that the puncture needle is punctured into the over tube trough the balloon.

We perform PTEG in a total of 115 patients (78 men and 37 women, mean age 77.7 years) in whom PEG was not feasible for nutrition. Sixty-one patients had prior gastrectomy, 30 patients had gastric herniation into the thoracic cavity, 6 patients had there stomach located behind the colon, 4 patients had ventriculo-peritoneal shunt tube in front of the stomach and 4 patients had peritoneal carcinoma.

Results: Satisfactory results were achieved in all 115 patients. Median follow-up was 322.0 days. There were no patients who needed a nasogastric tube after PTEG. Seven of 115 patients were able to free from tube feeding due to PTEG tube feeding support.

About the complications, there was 1 patient with severe bleeding requiring blood transfusion, one patient had tracheal penetration, which was managed conservatively.

Other complications were minor oozing bleeding in seven patients that did not require blood transfusion, subcutaneous emphysema in two patients, which were managed conservatively. Complication rate was 10.4%. No patient required surgical treatment or died after PTEG.

Conclusion: PTEG is feasible, safe, and useful for long-term nutrition for the patient who is contraindicated to PEG. PTEG may become the only procedure of the liberation from nasogastric tube for the patient who is contraindicated to PEG PTEG is the ideal solution for the patients with PEG contraindicated in the tube feeding.

Disclosure: Nothing to disclose.

PP0201

SPRAY COAGULATION REDUCES THE USE OF HEMOSTATIC FORCEPS FOR INTRAOPERATIVE BLEEDING IN GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION

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Introduction: In intraoperative bleeding during endoscopic submucosal dissection (ESD) by using a needle-tip type electrocautery knife, spray coagulation is considered helpful compared to swift coagulation. In this study, we compared the hemostatic effect of two coagulation modes (swift coagulation and spray coagulation) on intraoperative bleeding during gastric ESD in a propensity score analysis.

Aims & Methods: In an intraoperative bleeding strategy, we changed "swift-dependent" hemostasis to "spray-switching" one in 2021. Therefore, 202 bleeding events before April 2020 (33 lesions, Swift group) and 203 bleeding events after April 2022(36 lesions, Spray group) were consecutively collected. In the Swift group, hemostasis was attempted firstly by swift coagulation by using a retracted tip of the needle-type knife, and if hemostasis was not achieved, hemostatic forceps were used.

In the Spray group, when hemostasis was attempted several times by swift coagulation but hemostasis was not achieved or when hemostasis was not expected by swift coagulation, spray coagulation was used. If hemostasis was not achieved by spray coagulation, hemostatic forceps were finally used. The two coagulation modes were determined by one endoscopist who retrospective observed the difference of sparks that occurred in hemostasis on video. We performed a post-hoc propensity score-matched analysis to compare the two groups.

Results: In comparison of patient background (age, gender, whether or not intraoperative antithrombotic medication was taken) and lesion background (site of lesion occupation, resection diameter, depth, presence or absence of ulcer, histological type, etc.) between the two groups, the larger number of patients in the Swift group had antithrombotic agents on ESD (p=0.016), while no significant differences were observed in other parameters. A propensity score matching was performed in defining intraoperative administration of antithrombotic agents, location, resection size, pathology, and presence or absence of ulcer as covariates.

A total of 106 events were matched per event in the two group, respectively. There was no significant difference in the hemostatic duration per event in the two group (Swift vs. Spray: 48.2 sec. vs. 55.3 sec., p=0.22). The number of coagulations per event in the Swift group was less than that of Spray group (4.3 times vs. 5.8 times, p=0.008). The hemostatic forceps was significantly less frequently used in the Spray group than in the Swift group (31.1% vs. 17.0%, p=0.016).

The cumulative success rate of hemostasis with electrocautery knives was likely to be higher in the Spray group (p=0.104), although there was no significant difference between the two groups. In the Swift group, two patients had postoperative hemorrhage and one patient had delayed perforation, whereas no adverse events were observed in the Spray group.

Conclusion: The data suggested that spray coagulation by the tip of the needle-type knife could reduce the use of hemostatic forceps. In gastric ESD, spray coagulation may facilitate the hemostasis of intraoperative bleeding.
Disclosure: Nothing to disclose.

PP0202

ENDOSCOPIC RESECTION FOR GASTRIC SUBMUCOSAL TUMORS: A JAPANESE MULTICENTER RETROSPECTIVE STUDY

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Introduction: There is a paucity of information on the efficacy and safety of endoscopic resection (ER) of gastric submucosal tumors (SMT) in Japan where ER for early gastric cancer is extremely popular.
Aims & Methods: A multicenter retrospective study was conducted to elucidate the current situation of ER for gastric SMT in Japanese endoscopic practice. Clinicopathological data of consecutive patients with gastric SMT who underwent ER in 12 Japanese hospitals were collected from the first case until August 2020.
Results: A total of 117 patients with 118 lesions were enrolled. The number of patients with gastric SMT who underwent ER increased over the years. The mean (SD) endoscopic tumor size was 20 (7.2) mm. The growth type was primarily intraluminal (90%). 87 (74%) of the procedures were performed in an operating room under general anesthesia.
The tunneling method was used in 5 (4%) cases. The mean (SD) resection and wound closure times were 58 (38) min and 31 (41) min, respectively. Complete ER was achieved for 117 (99%) lesions. Full-thickness resection rate was 44%; however, only 12 (10%) patients required abdominal paracentesis for pneumoperitoneum.
Endoscopic treatments were completed in 115 (97%) lesions, while three lesions required conversions to laparoscopic surgery due to luminal collapse, uncontrolled bleeding, and difficulty in defect closure. Two cases of delayed bleeding were managed by endoscopic hemostasis, one of which required a blood transfusion. Gastrointestinal stromal tumors were the most common pathology (74%). The R0 resection rate was 76%.
Survival and recurrence on August 31, 2021, were confirmed in 112 patients (96%) with a mean (SD) follow-up period of 4.3 (2.9) years. 109 (94%) were confirmed alive, the vital status of five patients was unknown, and three patients had died of other diseases. No recurrence was observed. The 5-year overall survival rate was 98.9% (95% confidence interval, 97.8–100%).
Conclusion: The performance of ER for gastric SMT is increasing in Japan. The technique seems feasible in Japanese endoscopic practice, warranting further validation in a prospective study.
Disclosure: Nothing to disclose.

PP0203

FRENCH OBSERVATORY OF SPORADIC DUODENAL ADENOMAS: CHARACTERIZATION AND TWO-YEAR RESULTS OF ENDOSCOPIC MUCOSAL RESECTION. GRAPHE STUDY "MUCODUO"

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Introduction: Sporadic duodenal adenomas are rare. Resection is justified because of the risk of malignant transformation and endoscopic mucosectomy is recommended. However, this technique, although less morbid than surgery, is known to be associated with a higher risk of complications and one-year recurrence rates than those observed in the resection of colonic adenomas. In the absence of published prospective data, the purpose of this French multicenter study, performed in expert centers, was to investigate the 2-year recurrence and complication rates after standardized duodenal mucosectomy.
Aims & Methods: This prospective multicenter study was conducted in 21 French expert centers (N°IDRCB : 2016-A00931-51). The modalities of mucosectomy had been validated by the GRAPHE (Groupe de Recherche et d'Action des Praticiens Hépato-gastroentérologues en Endoscopie digestive) in order to standardize the procedures. Sporadic adenomas larger than 5 mm were included. Patients were monitored endoscopically at M3, M12, and M24, and further endoscopic treatment was performed if necessary.

Results: From 2017 to 2018, 124 patients were included (mean adenoma size 21.11mm (5-65mm)). Resection was performed as a monobloc in 47.2% of cases and 79.3% of monobloc resections had free lateral and deep margins. At 3 months, 25.4% (95% CI 14.9 -37.3%) of patients had an adenomatous residue that was treated endoscopically. At 12 months, 13.4% (95% CI 6 - 22.4) had a recurrence, which was also treated by endoscopy. The recurrence rate at 24 months was 11.9% (95% CI 4.5-20.9) in the 80 patients evaluated. Initial R1 resection was the only risk factor for recurrence at 24 months (p=0.03). The overall complication rate was 7.2% and was associated with lesion size (p=0.02).
Conclusion: This prospective study demonstrates for the first time that under standardized conditions, in an expert center, duodenal mucosectomy is a reliable and effective technique for the treatment of sporadic duodenal adenoma with, however, a recurrence rate at 2 years of 12% requiring a continuation of endoscopic follow-up.
Disclosure: grant from COOK MEDICAL.

PP0204

ENDOSCOPIC SUBMUCOSAL DISSECTION FOR SUPERFICIAL PHARYNGEAL CANCER FROM THE ULTRATHIN ENDOSCOPE PERSPECTIVE

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Introduction: Endoscopic submucosal dissection (ESD) is a challenging procedure for treating superficial pharyngeal cancer (SPC). While previous studies have utilized conventional endoscopes (CE), recent advancements in endoscopic equipment have made it possible to use ultra-thin endoscopes (UTE) for ESD. The purpose of this study was to evaluate the impact of using UTE on ESD for SPC.
Aims & Methods: A total of 97 lesions in 81 patients who underwent ESD for SPC between January 2021 and March 2023 were retrospectively analyzed. Patients who underwent ESD using UTE (1200N: Olympus, Tokyo Japan) were classified into the UESD group, while those who underwent ESD using CE (Q260J: Olympus, Tokyo Japan) were classified into the CESD group.
Results: Of the 81 patients, 24 underwent UESD for 30 lesions, while 57 underwent CESD for 67 lesions. In the UESD group, the mean age was 70 years, with 20 males and 4 females. The mean maximum lesion size and resection specimen size were 17.7 mm and 28.5 mm, respectively. The histologic depth was CIS/SEP 17/13. The average dissection time was 41.6 minutes, and the volume of local injection (glyceol) used was 4.2 ml. Traction was used in 28 cases. In the CESD group, the mean age was 70 years, with 52 males and 5 females. The mean maximum lesion size and resected specimen size were 18.4 mm and 29.2mm, respectively. The histologic CIS/SEP was 24/43. The mean dissection time was 32.3 minutes (p=0.099), and the volume of local injection used was 7.1 ml (p=0.002). Traction was used in all cases. Both groups had a 100% en bloc resection rate and zero treatment-related complications.
Conclusion: The use of UTE in ESD for SPC is a safe alternative to CE. The use of UTE resulted in a reduction in the amount of local injection required, and in some cases, traction was not necessary. However, the dissection time tended to be longer. From the surgeon's perspective, UTE made it easier to access the subepithelial layer and secure the dissected layer, with less interference from other devices, resulting in reduced stress during the procedure.
Disclosure: Nothing to disclose.

PP0205

ROLE OF ENDOSCOPIC RESECTION MARGIN (R1) IN THE CLINICAL OUTCOME OF PATIENTS WITH NEUROENDOCRINE NEOPLASIA (NENS)

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Introduction: Endoscopic resection margin R1 is the presence of neoplasia on the lateral and/or deep margin. The highest rate of R1 resection occurs in duodenal NENs where advanced resection techniques, such as endoscopic submucosal dissection (ESD) or full thickness resection (EFTR), are more difficult to apply. In the stomach and rectum, due to the most favorable anatomy, advanced endoscopic techniques can be used in order to obtain lower R1 resection probability (10-20%).
Furthermore, there is no direct correlation between risk of R1 resection and recurrence or progression of disease during follow-up.
Aims & Methods: The aim of this study is to assess endoscopically risk of recurrence or progression of disease in the same site of resection in patients with gastric, duodenal and rectal NENs undergoing endoscopic resection R1.
This is a retrospective and multicentric study, including a prospective series of patients with gastric NEN (type I, single or multiple, < 2 cm), duodenal NEN (not ampullary, not functioning, < 2 cm), rectal NEN (< 2 cm).
Results: A total of 110 patients were included (mean age at diagnosis, 58 years [CI 31-85]), all undergoing diagnostic endoscopic examination: 45 NEN of the stomach (41%), 21 NEN of the duodenum (19%) and 44 NEN of the rectum (40%).
The median size of primary tumor was 7 mm (CI 2-15). 86 patients (78.1%) had a NEN G1 (according to WHO) and 8 patients (7.2%) NEN G2. The median of Ki-67 was 2.5% (CI 0-10).
According to TNM staging, after endoscopic resection, 6 cases (5.4%) showed nodal metastases (N1), evaluated through CT or PET-DOTATOC. Deep endoscopic resection margin was affected in 78 cases (71%), lateral margin in 32 (29%) and both resection margins were affected in 11 patients (10%).
An enlargement resection was planned in 30 patients (27.2%); 9 patients (8.1%) were initiated to radical R0 surgery (4 duodenals, 4 rectum, 1 stomach) while the other 21 patients were addressed to advanced endoscopic treatment.
During the period of active surveillance, among patients who didn't undergo to enlargement (endoscopic or surgical), a local recurrence was found in 10 cases (9%). They were treated with endoscopic resection (6 stomach, 1 duodenal, 3 rectum). During the observation period, there were no deaths due to the disease and there was no progression disease extra organ. The free survival progression (PFS) was 65 months (CI 6-178) and the Overall Survival (OS) was 69 months (6-187).
Conclusion: From this preliminary analysis, the endoscopic R1 resection margin does not appear to affect the clinical outcome of patients. This observation is in line with the evidence in the literature and requires a prospective assessment.

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Disclosure: Nothing to disclose.

PP0206

COMPARATIVE STUDY BETWEEN CF-H290I AND PCF-Q260JI COLONOSCOPE IN NON-SEDATED PATIENTS WITH A HISTORY OF ABDOMINAL OR PELVIC SURGERY: A RANDOMIZED CONTROLLED STUDY

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Introduction: Colonoscopy is the standard modality for colorectal cancer (CRC) screening and surveillance by means of an examination that achieves cecal intubation without patient pain or complications[1].
According to related literatures, patients with a history of abdominal or pelvic surgery, usually associate with lumen adhesion or normal intestinal structure changes, which lead to a more difficult colonoscopy. In addition, abdominal pain during the colonoscopy may result in incomplete operation or refusal of a second colonoscopy, causing serious impact on the diagnosis of colonoscopy and adenoma detection rate (ADR), thus reducing the quality of colonoscopy[2-3].
At present, the type of colonoscope have been demonstrated to influence the colonoscopy performance. For example, ultrathin colonoscopes are of greater utility for passing strictures and severe angulations. While variable stiffness colonoscopes may be useful for negotiating tortuous rectosigmoid junctions[4].
Until now, the value of colonoscope for reducing pain of patients, especially on patients with a history of abdominal or pelvic surgery and without sedation, have not been investigated completely. Thus, we conduct a randomized controlled trial to investigate the efficacy of different types of colonoscope for reducing pain during non-sedated colonoscopy.
Aims & Methods: The purpose of this randomized controlled study was to compare application characteristcs of CF-H290I and PCF-Q260JI colonoscope in non-sedated patients with a history of abdominal or pelvic surgery, thus helping endoscopists to use different types of colonoscopy more effectively and scientifically. From August 2022 to October 2022, a total of 397 patients in the Affiliated Wuxi People's Hospital of Nanjing Medical University were randomly allocated to the CF-H290I (n = 198) or PCF-Q260JI (n = 199) colonoscope groups by using a computer-generated system.
We compared cecal intubation time, patient satisfaction of examination, adenoma detection rate (ADR), discomfort associated with colonoscopy including abdominal distension or pain and patient acceptance of next colonoscopy between the CF-H290I group (high-definition system) and the PCF-Q260JI group (high-resolution system).
Results: Among 397 subjects, 198 were performed with the CF-H290I and 199 with the PCF-Q260JI. The patients satisfaction of colonoscopy was higher with the PCF-Q260JI group than CF-H290I group[8.91(1.09) vs 8.51(1.44), P <0.01], and there was less chance for discomfort associated with colonoscopy[23(11.6%)vs 41(20.7%), P= 0.013], patients' acceptance of next colonoscopy in PCF-Q260JI group was more than CF-H290I group[168(84.4%) vs 149(75.3%), P = 0.023]. Compared with PCF-Q260JI colonoscope group, CF-H290I colonoscope group had shorter cecal intubation time (unit: s)[256.09(155.70)vs 315.64(171.64), P =0.004]. No statistically difference was found in the adenoma detection rate (ADR) between the two groups [63(31.7%)vs 81(40.9%), P= 0.055]. There were no complications such as perforation or bleeding in both groups.
Conclusion: For patients with a history of abdominal or pelvic surgery, PCF-Q260JI colonoscope was superior with respect to reducing patients' pain and improving patient acceptance of non-sedated colonoscopy. This study was approved by the Clinical Research Ethics Committee of Wuxi People's Hospital and was registered in the Chinese Clinical Trial Registry(ChiCTR2200063092).
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Disclosure: Nothing to disclose.

PP0207

DIAGNOSIS, FOLLOW-UP AND TREATMENT OF GASTRIC DYSPLASIA IN ADENOMATOUS DIGESTIVE POLYPOSIS

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Introduction: Adenomatous polyposis syndromes comprise familial adenomatous polyposis (FAP), linked to a mutation in the APC gene, and MUTYH-associated polyposis (MAP), when there is a biallelic mutation in the MUTYH gene. These conditions result in a high risk of colorectal and duodenal cancers, with well-established recommendations for screening and preventive treatment for these locations. Recent studies also suggest an increased incidence of gastric cancer in these patients, associated with different types of dysplastic lesions in contact or at distance from the classic fundic gland polyps (FGP).
Aims & Methods: The aim of this study was to determine the prevalence, treatment, and follow-up of gastric dysplastic lesions in patients with an adenomatous polyposis syndrome.
We retrospectively analysed clinical and endoscopic data from all patients with adenomatous polyposis syndrome (FAP or MAP) who underwent follow-up esophagogastroduodenoscopy (EGD) in our center, between January 2015 and May 2022. Data was collected from a national prospective database of patients with digestive polyposis diseases created in 2011. We distinguished two types of dysplastic lesions: on the one hand, well-defined umbilicated sessile nodules of the antrum, and on the other hand, whitish flat lesions showing a "blue crest" sign in NBI, often fundic and within FGPs.

Results: A total of 227 patients were included. Thirteen (5.7%) presented a MUTYH mutation. Twenty-seven patients (11.9%) had gastric dysplasia (with 17 (63%) women and a mean age of 52 [23-68] years), located proximally in 70.4% of cases and mostly corresponding to low-grade dysplasia (18 cases, 66.7%), followed by high-grade dysplasia (8 cases, 29.6%) and 1 case of cancer (3.7%).

One patient died of metastatic gastric cancer not detected by endoscopy, within a very dense fundic polyposis. None of these patients had an Helicobacter pylori (HP) infection (vs 13 (6.5%) in the control group). Whitish flat areas of the proximal stomach were observed in 27 (11.9%) patients, with confirmed (low-grade) dysplasia in 17 cases (63%). Sessile antral lesions were reported in 21 cases (9.2%), with confirmed dysplasia in 6 (29%). One of the flat fundic lesions was already invasive adenocarcinoma (pT2).

Three other cases of dysplasia were revealed by systematic biopsies. The presence of fundic whitish flat lesions was strongly correlated with the presence of dysplasia (relative risk of 31 (95% CI [12.7-74.9], p <0.001)).

The mean age and smoking were significantly higher in the dysplasia group (p <0.001). In multivariate analysis, smokers or patients with high-density FGPs (>50) had a significantly higher risk of gastric dysplasia (absolute risk of 13.08, 95% CI [2.67-64.10] and 22.06, 95% CI [4.28-113.58], respectively). Among the cases of dysplasia, 21 (77.8%) were treated by endoscopic resection, mostly ESD (10 cases (47.6%), for lesions with a median diameter of 62.5 [35-160] mm). One of these patients had a deeply invasive pT2 adenocarcinoma and therefore received systemic treatment. A patient with multiple and extensive adenomatous lesions was referred for gastrectomy, which he refused. The remaining patients are still under endoscopic surveillance. The median follow-up duration after treatment was 21 [0-72] months, with 2 proximal recurrences (7%, low grade dysplasia) treated endoscopically.

Conclusion: We present one of the largest gastric follow-up cohorts of patients with familial polyposis, with a non-negligible frequency of gastric dysplasia and risk of cancer. The latter is possibly preventable by endoscopic resection if the dysplasia is recognized early. This accentuates the importance of educating gastroenterologists on recognizing these sometimes very difficult to see lesions (dyschromic flat lesions).

Disclosure: Nothing to disclose.

PP0208

A COMPARATIVE STUDY OF THE DIAGNOSTIC CAPABILITIES OF THE ENDOSCOPES OF TWO COMPANIES FOR ARTIFICIAL INTELLIGENCE (AI) DIAGNOSIS IN EARLY GASTRIC CANCER

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Introduction: AI diagnosis is used in several medical fields; however, machine learning using deep learning methods is particularly effective in diagnostic imaging and shows high diagnostic capability even in the field of endoscopy. In Japan, endoscopes manufactured by Companies A and B are generally used, and there is a possibility that differences in the image quality will affect AI diagnosis. However, there is no report of studies comparing the AI diagnostic capabilities on images taken by endoscopes of two companies.

Aims & Methods: In endoscopic AI diagnosis of early gastric cancer, the AI diagnostic capabilities were compared using images obtained by endoscopes of Companies A and B for the purpose of clarifying whether there is a need to consider the differences between the endoscopes used. For 30 lesions of 27 patients who underwent endoscopic submucosal dissection for early gastric cancer from April 2019 to March 2022 at our hospital, 356 and 338 endoscopic images of Companies A and B were the target of analysis, respectively.The images were white light (WLI), chromoendoscopy (indigo carmine) and image-enhanced endoscopy, Company A used narrow band imaging (NBI), and Company B used blue laser imaging (BLI). The images were analyzed by AI Medical Systems Inc. using an AI diagnostic system constructed by having UNET learn images taken by either Company A or B's endoscopes as training images. The diagnostic capability was assessed by comparing the specialist-marked correct range of early gastric cancer with an AI-diagnosed range of early gastric cancer, and using a DiceScore of 1.0 for a complete match and 0.0 for no match based on the area of the match.

Results: There was no significant difference in the DiceScore between the endoscopes of both companies in WLI; however, in indigo, Company B scored significantly higher than Company A. There was no significant difference between NBI and BLI. A stratification analysis by macroscopic examination of the lesions showed that in 0-IIc, Company A scored significantly higher in WLI than Company B, while in indigo, Company B scored significantly higher than Company A. In 0-IIa+IIc, Company B scored significantly higher than Company A in WLI; however, there was no difference between the two companies in indigo. In comparison by macroscopic examination of the lesions, 0-IIa+IIc lesions scored significantly higher than 0-IIc lesions in indigo for Company A, and in WLI for Company B. When the lesions were divided into a maximum diameter of <2 cm, 2–3 cm, and ≥3 cm, lesions ≥3 cm scored lower than lesions in the other groups.

Conclusion: Endoscopic images of Company B tended to have higher sharpness and stronger bluish color compared to endoscopic images of Company A. This might be the reason why the diagnostic capability improved after indigo-carmine scattering. Therefore, proactive scattering of indigo carmine was considered preferable when observing with the Company B endoscope. Presumably, the reason 0-IIa+IIc lesions had higher diagnostic performance than 0-IIc lesions was due to differences in the elevation of the lesions. The Company A endoscope was considered significantly superior for 0-IIc lesions, which are easily overlooked in clinical practice. The complexity of the morphology of the lesion increases in large lesions, which widens the gap between the AI diagnostic range and correct range. There are lesions wherein the AI diagnostic performance increased with both endoscopes of Company A and that of Company B. Therefore, it is preferable to use the endoscopes in AI diagnosis taking these facts into consideration.

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Disclosure: Nothing to disclose.

PP0209

EFFICACY OF ENDOSCOPIC SURVEILLANCE WITH LUGOL STAINING FOR PHARYNGEAL MUCOSA DURING ENDOSCOPIC RESECTION FOR PHARYNGEAL CARCINOMA – A MULTICENTER PROSPECTIVE STUDY

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Introduction: Since patients with pharyngeal squamous cell carcinoma (SCC) often have multiple pharyngeal lesions, evaluation of pharyngeal lesions before endoscopic resection (ER) is important. However, detailed endoscopic observation of the entire pharyngeal mucosa under conscious sedation is difficult.
Aims & Methods: We examined the usefulness of endoscopic surveillance with narrow band imaging (NBI) and lugol staining for detection of pharyngeal sublesions during ER for superficial pharyngeal SCC under general anesthesia (endoscopic surveillance during treatment; ESDT). From January 2021 through June 2022, we examined 78 patients who were diagnosed with superficial pharyngeal SCC and underwent ER. They underwent the ESDT and for patients who were diagnosed with new lesions of pharyngeal SCC or high-grade dysplasia (HGD) that were not detected in the endoscopic examination before treatment, ER were performed simultaneously for new lesions and the main lesions.
The primary endpoint of this study was the detection rate of new lesions of pharyngeal SCC or HGD in the ESDT.
Results: Fifteen of the 78 patients were diagnosed as having undetected new pharyngeal lesions in the ESDT and 10 (12.8%) (95% CI: 6.9 – 22.2%) were histopathologically confirmed to have new lesions of pharyngeal SCC or HGD. Among the 13 lesions of SCC or HGD, 8 were found by NBI observation; however, 5 were undetectable using NBI but detectable by lugol staining. All of the 13 lesions had endoscopic findings of pink color sign on lugol staining.
Conclusion: Endoscopic surveillance for pharyngeal sublesions with lugol staining during ER for superficial pharyngeal SCC is feasible and useful.
Disclosure: Nothing to disclose.

PP0210

HIGH DIAGNOSTIC YIELD OF UPPER ENDOSCOPY IN CHILDREN WITH SEVERE IRON DEFICIENCY ANEMIA OF UNEXPLAINED CAUSE.

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Introduction: There are currently no established guidelines for the diagnostic workup and management of severe iron deficiency anemia (IDA) in children.
Aims & Methods: To analyze the diagnostic yield of upper endoscopy in children with severe, unexplained IDA, without overt GI bleeding, with respect to their management and outcome. A retrospective study in children <18 years, hospitalized with hemoglobin <7gr/dl, who underwent upper endoscopy between 2016 and 2022. Base line data: demographics, symptoms, laboratory results, endoscopic/ histopathological findings and treatment. Follow-up data; Hemoglobin at 6 months, the need for repeat iron treatment.
Results: We evaluated 25 children with severe IDA, mean age 10.7 ±3.9 years, 19 (76%) female, 8 (32%) of Ethiopian origin. Symptoms of anemia were present in 19/25 (76%), gastrointestinal symptoms in 10/25 (40%). Mean hemoglobin (Hb) level 6.2 gr/dl (range 3.2-6.9). Initial treatment; blood transfusion 3 (12%), intravenous iron infusions 21 (84%) and oral iron in one.
Endoscopic findings: gastric nodularity, erosions or polyps in 17/25 (68%), duodenitis / ulcers in 3/25 (12%). Histopathology demonstrated gastritis in 18/25 (72%); 9/18 (50%) *Helicobacter pylori*, 5 collagenous gastritis, 1 lymphocytic and 3 non-specific gastritis. Nonspecific duodenitis in 3, celiac disease in one. An etiology of IDA was found in 18/25 (72%) children, 15 without GI symptoms. During follow-up, Hb levels remained stable in 23/25 (92%), only two required repeat iron therapy.
Conclusion: Upper endoscopy should be included in the diagnostic investigation of severe unexplained IDA in children. It enabled to identify the cause of IDA in over 70% of children.
Disclosure: Nothing to disclose.

PP0211

A PROPOSED MANAGEMENT STRATEGY OF OESOPHAGEAL FOOD BOLUS IMPACTION BASED ON A RETROSPECTIVE REVIEW OF THE SAFETY AND EFFICACY OF CAP-ASSISTED VS CONVENTIONAL ENDOSCOPIC TECHNIQUES

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Introduction: Oesophageal food bolus impaction (OFBI) is a common medical emergency, but current management strategies vary due to the availability of different endoscopic accessories and techniques. There are no clear guidelines on the safest and most effective approach, as there is a lack of safety and efficacy data for individual methods.
Aims & Methods: The aim of this study was to compare various techniques for treating OFBIs and to propose a safe, effective, and sustainable algorithm-based strategy. We conducted a retrospective review of all soft OFBI's among patients aged 18 years and above from 2010-2022 at Barwon Health, Victoria. We evaluated the efficacy and safety of medical management and endoscopic strategies with an 18mm wide rimmed Olympus oblique cap and conventional methods (polypectomy snare, biopsy forceps, three-pronged grasper, and Roth-net).
Results: Of 629 patients screened with OFBIs, 370 met the inclusion criteria of the study. Medical management was successful in 24 (6.5%) patients, and the remaining 346 (93.5%) proceeded to endoscopic evaluation. Spontaneous passage during endoscopic evaluation occurred in 66 (17.8%) patients, and the remaining 280 (75.6%) required endoscopic intervention with a "push" or "pull" strategy.
Over the last decade, there has been a shift towards a pull strategy using a distal attachment cap. In 2010, conventional instruments were used in 85% of OFBIs, but by 2022, their usage had decreased significantly, with only 16% of cases employing them. While the "push" strategy was associated with a significantly shorter procedure duration compared to all "pull" strategies (23.6+/- 12.2 vs 36.1+/-23.9 minutes) (p<0.0001), we noted the statistical difference was not seen in a subgroup analysis between a cap based "pull" strategy vs "push" [(26.81+/-11.3 vs 23.6+/-12.2 minutes) (p=0.372)].

When comparing conventional vs cap-based interventions, there was a statistically significant difference in en-bloc removal rates [(87.5% versus 15.4%) (OR=38, 95%CI=15.6-94.8) (p< 0.001)], mean procedure time [(28mins versus 45mins) (95%CI =11-25) (P< 0.001)], and mean number of instruments used (1.07 versus 1.67, p<0.001) favouring a cap-based intervention.

Except for major complications including aspiration (n=6) and major bleeding (n=1) all occurring in patients above 60 years old, we found no significant association with any other variables including airway management technique, non-endoscopic and endoscopic methods, and techniques.

Conclusion: For patients without a proximal stricture who are intubated, a cap-based endoscopic "pull" technique should be employed as a first-line strategy, while a gentle "push" strategy should be considered for patients without a secured airway. Conventional methods should only be used as a second-line strategy for patients who fail both push and cap-based interventions.

Disclosure: Nothing to disclose.

PP0212

ARTIFICIAL INTELLIGENCE WITH LINKED COLOR IMAGING FOR THE DIAGNOSIS OF EARLY GASTRIC CANCERS

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Introduction: There are several reports about the diagnosis of early gastric cancers (EGCs) using artificial intelligence (AI) systems, but satisfactory data for sensitivity and specificity are not yet available. Linked color imaging (LCI) produces high color contrast between malignant lesions and surrounding mucosa compared to white light imaging (WLI).

Therefore, LCI combined with AI (LCI-AI) has the potential to further improve the diagnosis of gastric cancer compared with WLI combined with AI (WLI-AI). We developed three new LCI-AI models to determine their sensitivity and specificity for the diagnosis of EGCs.

Aims & Methods: Three models including a convolutional neural network (CNN) model (high resolution net (HRNet)), a transformer model (Segformer) and a hybrid (combined CNN and transformer) model (Uniformer), were based on MMSegmentation. When each model recognized a gastric cancer lesion from test image data, it was shown with the existing position as a blue area on WLI images and green area on LCI images.

Non-neoplastic mucosa was shown as a black area on both images. Endoscopic images using WLI and LCI (LASEREO 7000 system series and scopes of EG-L600ZW and EG-L600ZW7, Fujifilm Corporation, Tokyo, Japan) were collected from patients with EGCs from January 2015 to December 2018 at Jichi Medical University Hospital.

A total of 1970 images including 1179 WLI and 791 LCI images of 236 EGCs were used for training the three LCI-AI models. Another set of 414 EGC images was selected for validation from 43 cases. Primary and secondary endpoints were the sensitivity and specificity of each AI model, respectively.

The image-based performance metric was based on Dice loss, calculated by subtracting the mean Dice similarity score. A Dice score >20% was defined as the correct diagnosis of cancer because EGCs sometimes have unclear demarcation lines. The correct diagnosis of a non-malignant lesion was defined as no reactive black areas in surrounding mucosae.

Each case had from four to 21 images. Therefore, the median Dice score was used as a representative value in each case to evaluate performance. All three models' programming and data analysis were supported by AI Medical Service Inc. (Tokyo, Japan).

Results: Analysis of lesions in all EGC images showed both sensitivity (82.8%) and specificity (83.4%) with LCI-AI to be high and similar to those with WLI-AI (83.1% and 84.3%, respectively). Sensitivities of LCI-AI/ WLI-AI among HRNet, SegFormer and UniFormer were 80.9%/81.6% (p=0.625), 83.8%/83.8% (p=0.224) and 83.8%/83.8% (p=0.450), respectively and specificities were 80.0%/86.0% (p=0.120), 86.4%/84.8% (p=0.672) and 86.8%82.0%/ (p=0.214), respectively.

Representative Dice values among cases with EGCs showed sensitivities for LCI-AI using HRNet, SegFormer and UniFormer to be extremely high, at 92.7% 90.9% and 93.0%, respectively, although not significantly different when compared to those using WLI-AI, 84.6% (p=0.67), 85.4% (p=0.15) and 80.5% (p=0.19), respectively. Higher sensitivities were found regardless of lesion size, morphology, and *Helicobacter pylori* status. All sensitivities using LCI-AI were higher than 80% whereas those using WLI-AI varied from 64% to 89%.

Conclusion: LCI-AI showed high sensitivity and specificity for the diagnosis of EGCs using all three models tested, suggesting potential for practical clinical use in the near future.

Disclosure: Hiroyuki Osawa and Hironori Yamamoto have consultant relationships with Fujifilm Corporation and have received honoraria, grants and royalties from the company. Hiroyuki Osawa has a consultant relationship with AI Medical survice inc. and has recieved honoraria.This study received no funding from Fujifilm Corporation and AI Medical survice inc. nor any other funding source.

PP0213

EFFICACY OF INTENSIVE TRIAMCINOLONE INJECTION TO AVOID BALLOON DILATION IN PREVENTING STENOSIS AFTER EXTENSIVE ESOPHAGEAL ESD

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Introduction: Balloon dilation is sometimes required to prevent stricture after esophageal endoscopic submucosal dissection (ESD), but the procedure is performed frequently and there is a risk of perforation.

Aims & Methods: In this study, we investigated whether intensive triamcinolone (TA) injection after extensive esophageal ESD can prevent stricture while avoiding balloon dilation. Thirty-one lesions in 31 patients with post ESD ulcers more than 3/4 circumference and confirmed scarring from December 2017 to February 2023 were included in this study. The total circumferential resection was defined as group A, the other group as group B, and stricture was defined as the inability to pass an endoscope of normal diameter (8.9-10.2 mm).

All patients underwent TA immediately after ESD. Basically, after ESD, weekly TA injection was performed in group A, and no additional injection/ weekly or bi-weekly TA injection was performed in group B, depending on the endoscopists' judgement.

The primary endpoint was the percentage of patients who required balloon dilation, and the secondary endpoints were the stricture rate and the number of TA injections.

Results: Group A (8 patients, 8 lesions) and Group B (23 patients, 23 lesions). Morphology (IIa/IIb/IIc) 0/1/7, 1/4/18. Histological type (squamous cell carcinoma / Barrett's esophageal adenocarcinoma) 7/1, 22/1, and en

bloc resection rate was 100% in both groups. No perforation was observed in either group. Three consecutive patients (37.5%) in the early stage of group A and three consecutive patients (13.0%) in early stage of group B were treated with oral steroids. The length of resection (mm) (median (range)) were 55 (40-80) and 50 (40-120), respectively, and the circumferential length (mm) was 30 (20-50) in group A. The longest observation period until the presence of stricture was 15 (1-38)/11 (1-37) months, respectively.

The percentage of balloon dilation required and the stricture rate (n (%)) were both 0 (0) in group A and 1 (4.3) in group B. The number of TA injections was 8 (3-12) and 1 (1-3), significantly higher in group A ($p < 0.01$. Mann-Whitney U test). One case in group B required balloon dilation because of difficulty in coming to the hospital due to poor ADL after a subcircumferential resection, and the additional injection was performed 3 weeks after ESD, later than scheduled.

Conclusion: Intensive TA injection based on weekly or bi-weekly was effective in preventing stricture after extensive esophageal ESD, and could avoid balloon dilation even in cases with circumferential resection.

Disclosure: Nothing to disclose.

PP0214

DIAGNOSTIC ABILITY OF MAGNIFIED TEXTURE AND COLOR ENHANCED IMAGING WITH INDIGOCARMINE FOR SUPERFICIAL NONAMPULLARY DUODENAL TUMOR

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Introduction: There is no consensus on preoperative endoscopic diagnostic methods for superficial nonampullary duodenal tumor (SNADET). We previously reported that texture and color enhanced imaging (TXI) with indigocarmine (ICME-TXI) significantly improved the visibility of SNADET surface structures compared to narrow band imaging (Sci Rep 2022).

Aims & Methods: In this study, we aimed to investigate the diagnostic ability of ICME-TXI. Forty-six consecutive lesions that were endoscopically resected and pathologically neoplastic after prospective ICME-TXI observation for SNADET from March 2021 to November 2022 were included. The components of the surface structure were classified as circular, oval, or others.

The presence of both heterogeneity (mixture of components or difficulty in visualization) and size difference (difference of 3 times or more in size with areas of components) were defined as significant findings. Immunohistochemical staining was performed to clarify whether tumor was gastric, intestinal or mixed type. ICME-TXI image and pathological findings were compared. In addition, the diagnostic ability of the lesions was retrospectively evaluated against the Vienna Classification (VCL) C4/5.

Results: Major morphology (Is/ Ip/ IIa/ IIc) = 8/ 2/ 32/ 4, median tumor diameter (mm) = 10 (3-40), location (bulb 9 lesions/ descending 37 lesions), CSP 15 lesions, UEMR 31 lesions, VCL C3 39 lesions, C4/5 7 lesions, gastric/ intestinal/ mixed type=2/ 36/ 8, respectively. 100% of gastric, 0% of intestinal and 37.5% of intestinal type had a circular component. 4 lesions (8.7%) had histopathological findings similar to traditional serrated adenoma (TSA) of the colon and were characterized by an oval component (all were intestinal type, VCL C3).

The sensitivity/ specificity/ positive predictive value/ negative predictive value/ accuracy (%) for VCL C4/5 were 57.1/ 94.5/ 66.7/ 92.5/ 89.1.

Conclusion: ICME-TXI revealed fine surface structures, and showed specific findings for a particular histological type similar to TSA. The high specificity and negative predictive value of ICME-TXI for preoperative diagnosis suggest that ICME-TXI may be a new diagnostic modality.

Reference:

Okimoto K, Matsumura T, Maruoka D et al. Magnified endoscopy with texture and color enhanced imaging with indigo carmine for superficial nonampullary duodenal tumor: a pilot study. Sci Rep 2022; 12: 10381

Disclosure: Nothing to disclose.

PP0215

PERFORMANCE MEASURES FOR DEVICE-ASSISTED ENTEROSCOPY IN THE UK: A LARGE MULTICENTRE RETROSPECTIVE STUDY

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Introduction: Device-assisted enteroscopy (DAE) has become a well-established diagnostic and therapeutic tool for various small bowel disorders. However, unlike upper and lower gastrointestinal endoscopy, performance measures for DAE have rarely been studied.

Aims & Methods: We aimed to evaluate the performance measures for DAE across 11 hospitals in the United Kingdom (UK) and compare them with the quality benchmarks proposed by the European Society of Gastrointestinal Endoscopy (ESGE).

We retrospectively collected data on patient demographics and DAE performance measures from electronic endoscopy records of consecutive adult patients (≥18 years old) who underwent DAE for diagnostic and therapeutic purposes between January 2017 and December 2022.

Results: A total of 1,529 DAE procedures were performed in 1,261 patients (median age 62 years, 53.5% male), of whom 13.6% had surgically altered anatomy. Almost all procedures (97.5%) were performed for appropriate indications, including small bowel bleeding (42.5%), small bowel tumours or polyps (19.1%), and suspected Crohn's disease (12.5%). Double-balloon enteroscopy was used for most procedures (78.4%), followed by single-

balloon enteroscopy (20.6%) and spiral enteroscopy (1%). The antegrade and retrograde approaches were used in 76.8% and 23% of cases, respectively. The estimated depth of insertion was documented in 65.7% of procedures, with a median depth of insertion of 200 cm (IQR 150 – 245) using the antegrade approach and 100 cm (IQR 50 – 163) using the retrograde approach. The point of maximal insertion depth was tattooed in 37.2% of procedures. The overall diagnostic yield was 69.4%, with vascular (27.8%) and inflammatory lesions (25.2%) as the most common diagnoses.

Therapeutic interventions were performed in 44.4% of procedures, including argon plasma coagulation (25.3%), endoscopic haemoclipping (15%), polypectomy (8.2%) and stricture dilatation (3.2%). The interventions success rate was 97.7%, and 75.5% of detected or treated lesions were tattooed.

General anaesthesia was used in 34.3% of the procedures, while conscious and deep sedation were used in 38.3% and 25.5%, respectively. Patient comfort was significantly better with deep sedation compared with conscious sedation (98.9% vs. 34.3%, p<0.0001). Complications occurred in 0.7% of the procedures, including 5 perforations, 3 cases of pneumonia, 2 cases of post-polypectomy bleeding, 1 episode of pancreatitis and 1 case of unstable cardiac arrhythmia.

Conclusion: Performance measures for DAE in the UK meet the ESGE quality benchmarks, with high diagnostic and therapeutic yields and a low incidence of complications.

However, there is room for improvement in optimising sedation practices, increasing standardisation of depth of insertion documentation, and improving marking techniques to aid in the follow-up of detected or treated lesions.

References: Spada, Cristiano, et al. "Performance measures for small-bowel endoscopy: a European Society of Gastrointestinal Endoscopy (ESGE) quality improvement initiative." *Endoscopy* 51.06 (2019): 574-598.

Disclosure: Nothing to disclose.

PP0216

COMPARATIVE STUDY OF DISPOSABLE AND REUSABLE ENDOSCOPE IN ESD TRAINING MODEL

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Introduction: In recent years, there have been reports about the risk of infection with multidrug-resistant bacteria via duodenoscopes[1], as well as the outbreak of COVID-19, which has brought attention to endoscope-mediated infections. In response, disposable endoscopes have been developed and marketed worldwide.

While there have been several reports on the feasibility of disposable endoscopes for screening or emergency examinations[2,3], there are no reports on the feasibility of Endoscopic Submucosal Dissection (ESD), which requires a variety of operations with different devices.

Aims & Methods: The aim of this study was to compare the performance of disposable and reusable endoscopes in using the ESD training model (G-master, KOTOBUKI Medical), which can simulate various parts of the stomach.

ESD was performed on pseudo lesions (size: 25 mm) at the 6 simulated locations on the ESD training model using the disposable endoscope (Ambu aScope Gastro, Ambu) and the reusable endoscope (GIF-Q260J, Olympus). A total of 24 lesions were treated by 3 ESD beginners (less than 30 ESD experience) and 3 ESD experts (over 300 ESD experience), each performing on 2 locations (4 lesions).

We evaluated procedure time, dissection speed, en bloc resection rate, perforation rate, scope malfunction rate, and number of scope removals during procedure. Additionally, we administered questionnaires to assess the endoscopists' opinions on each scope, including image visibility, manipulate handle operability, tip lens washing function, the ability of device insertion and removal, and scope operability at each site, rated on a scale of 0-5. The evaluations were classified as low (<2), moderate (2<= and <4), and high (4<=).

Results: All procedures were completed using the assigned scopes. The median procedure time was 24.2 min (range, 14.2-36.5) for the disposable endoscopes (Dispo), slightly longer than 19.6 min (range, 13.5-29.5) for the reusable endoscopes (Reuse). The median dissection speed was 20.3 mm^2/min (range, 13.5-34.6) for Dispo and 25.2 mm^2/min (range, 16.7-36.3) for Reuse, and the differences were not significant in both (procedure time: p-value=0.284, dissection speed: p=0.379). In the subgroup analysis, Dispo tended to have slightly longer procedure time than Reuse in beginner group (Dispo: 29.5 min [range, 20.0-36.5], Reuse: 25.2 min[range, 16.3-29.5], p=0.206). On the other hands, in expert group there was almost no difference in treatment time (Dispo: 16.4 min [range, 14.2-25.2], Reuse: 16.6 min [range, 13.5-21.1], p=0.453). The en bloc resection rate was 100%, not only for Reuse but also for Dispo. No cases of perforation or scope malfunction were observed in any of the scopes. For either scope, there were no lesions that required removal of the scope due to wiping the adhesion at the tip lens or any other reasons.

The results of the questionnaires were as follows image visibility: Dispo 2.3±0.9, Reuse 4.0±0.6; manipulate handle operability: Dispo 3.5±0.8, Reuse 4.5±0.5; tip lens washing function: Dispo 3.2±1.1, Reuse 3.8±0.9; the ability of device insertion and removal: Dispo 3.3±0.5, Reuse 3.7±0.5; scope operability (evaluated at each site): Dispo 3.3±0.8, Reuse 3.9±0.5. The scores of all items for Dispo were slightly lower than those for Reuse, particularly in terms of screen visibility and usability, but scored moderately well in all categories.

Conclusion: In the training model, the performance of the disposable endoscope in the ESD procedure was acceptable compared to the reusable endoscope. As a next step, we are planning to conduct clinical research.

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Disclosure: This research was conducted with a research fund and disposable scopes from Ambu, and with items related to ESD training model from KOTOBUKI Medical.

PP0217

A NEW HEMOSTATIC DEVICE COAJET® FOR GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION: RANDOMIZED SINGLE CENTER STUDY

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Introduction: Gastric endoscopic submucosal dissection (ESD) is often accompanied by bleeding. Coajet® is a new useful device for hemostasis through monopolar contact and has an injection needle inside. Therefore, this study was conducted to evaluate the effectiveness and safety of a new hemostatic device comparing to hemostatic forceps.

Aims & Methods: This prospective, randomized, single center study has enrolled consecutive patients who were candidates for gastric ESD from Feb. 2022 to Jan. 2023. The Hemograsper® group (HG) had underwent hemostasis by conventional method and the Coajet® (CG) was used for a marking of lesion, submucosal injection in initial stage of ESD and then for hemostasis.

Results: A total 56 patients were enrolled (HG, n = 28, CG, n =28). Baseline characteristics between the two groups showed no significant difference in terms of age, sex, diagnosis, locations, endoscopic sizes, and morphology. The total operation time(minutes, HG 15.97 ± 6.92 vs. CG 12.36 ± 6.73, p = 0.05) and hemostasis time(seconds, HG 186.6 ± 134.5 vs. CG 130.4 ± 81.49, p = 0.06) were shorter when Coajet® was used compared to Hemograsper®. The procedure related other variables such as complete en bloc resection rate, admission days, grade of immediate bleeding, and delayed bleeding within 30days (HG n=1 vs. CG n=1) showed no difference.

Conclusion: A new hemostatic device Coajet® showed comparable efficacy to conventional hemostatic forceps for bleeding control and prevention of delayed bleeding in gastric ESD. Lesser procedure time with Coajet® would be beneficial to both endoscopists and patients.

Disclosure: Nothing to disclose.

PP0218

A STUDY ON THE LEARNING CURVE OF THE NOVEL THROUGH-THE-SCOPE SYSTEM FOR ENDOSCOPIC CLOSURE

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Introduction: Various endoscopic closure procedures including over-the-scope systems and endoscopic hand suturing have been tested in preventing delayed bleeding after endoscopic resection[1]. Conventional procedures are technically difficult with long procedure time[1], which partially explains its limited application in clinical practice.

The novel through-the-scope (TTS) helix and tack suture system has been reported with high success rates and acceptable procedure time using in vivo porcine models along with clinical experience[2,3]. However, past reports have not identified the proficiency rate of the TTS suture system.

Aims & Methods: The objective of this study is to determine the number of cases needed in achieving closure time of literature-based mean closure time. One beginner with less than 400 experiences of upper gastrointestinal endoscopy and one expert with clinical experience of over 500 endoscopic submucosal dissections participated in this study. Both endoscopists were familiarized with the functionality and troubleshooting of the novel TTS suture system via educational videos. Four in vivo porcine models were used to create 24 mucosal defects with diameter of 2-4 cm in the stomach. Each endoscopist were randomly allocated 12 mucosal defects to close with one set of TTS suture system per procedure. The TTS suture system engages four 5 mm helical tacks tethered to a suture thread into the defect margin and approximates the mucosal defect by applying suture tension with a cinch.

The primary outcome was the number of procedures required to achieve closure procedure time below the literature-based mean closure time (7.7 minutes) by inverse curve fitting with nonlinear regression. The secondary outcomes were the success rate of complete closure and the incidence of adverse events. Complete closure was defined as over 90% closure of defect in endoscopy image assessed by two certified endoscopy technicians.

Results: Mean (±SD) size of the mucosal defects was 2.9 (±0.2) cm. Both endoscopists required six cases to achieve a closure time of less than 7.7 minutes. The median closure time was 8.2 (IQR: 5.6-10.1) minutes for the expert and 8.0 (IQR: 6.3-9.4) minutes for the beginner (P = 0.8624). The success rates of complete closure were 75.0% (9/12) for the expert and 83.3% (10/12) for the beginner. Neither endoscopist experienced any adverse events.

	Beginner	Expert
Cases required to achieve closure time below 7.7 min.	6	6
Median closure time	8.2 (IQR:5.6-10.1) min.	8.0 (IQR:6.3-9.4) min.
Complete closure success rate	75.0% (9/12)	83.3% (10/12)
Adverse event rate	0.0% (0/12)	0.0% (0/12)

Conclusion: The novel TTS suture system requires a small number of cases for both expert and beginner to achieve proficiency in endoscopic closure.

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Disclosure: Nothing to disclose.

PP0219

VISIBILITY EVALUATION OF FUNDIC GLAND POLYP ASSOCIATED WITH PROTON PUMP INHIBITOR IN A NEW IMAGE ENHANCED ENDOSCOPY; TEXTURE AND COLOR ENHANCEMENT IMAGING

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Introduction: Fundic gland polyp associated with proton pump inhibitor (PPI-FGP) caused by long-term administration of proton pump inhibitors is known to be larger than normal FGP and have an edematous appearance, however, the endoscopic differentiation from normal FGP is sometimes difficult. Recently, Texture and Color Enhancement Imaging (TXI) has emerged as a novel imaged enhancement technology from Olympus Corporation and is expected to improve the visibility of the lesions by enhancing color tone and structure. The enhancement of color contrast of the mode1 is superior to that of mode2 in accordance with the color enhancement of the mode1 algorithm; however, the naturalness in mode2 is better than that of the mode1[1].

Recently, we previously detected the gray color sign as a novel endoscopic finding that was clearly visible by TXI in the edematous appearance of PPI-FGP, and defined that it was gland duct dilatation below the surface containing mucus and other substances in histopathology.

Aims & Methods: The aim of this study was to evaluate the usefulness of TXI compared with white light imaging (WLI) in the visibility of the gray color sign in PPI-FGP. We enrolled 23 PPI-FGP lesions, endoscopically imaged with WLI, TXI-1, TXI-2, and Narrow Band Imaging (NBI) between April 2021 and October 2022. All PPI-FGP lesions were diagnosed by biopsy specimen histopathologically.

Ten endoscopists (5 trainees, 5 experts) evaluated the images and scored the visibility of the gray color sign in TXI-1, TXI-2, and NBI compared to WLI. Visibility changes were scored by endoscopists as follows: 5, improved; 4,

somewhat improved; 3, equivalent; 2, somewhat decreased; and 1, decreased. For total scores, 40 points or more was considered improved visibility, 21–39 points was comparable to WLI, and a score of less than 20 was considered decreased visibility. Inter-rater reliability was also evaluated using intraclass correlation (ICC). In addition, the color difference (ΔE*) of the gray color sign was calculated using CIELAB (color space system: L* a* b*) defined by Commission internationale de l'éclairage (CIE), and compared between WLI, TXI-1 and TXI-2.

Results: The visibility and ICC scores of TXI-1 and TXI-2 in trainees, experts, and all endoscopists are shown in Table 1. TXI-1 and TXI-2 showed improved visibility of the gray color sign in PPI-FGP for all endoscopists. There was no significant difference in the visibility scores between trainees and experts for both TXI-1 and TXI-2.

Compared with WLI, TXI showed improved visibility; TXI-1 82.6% (19/23), TXI-2 86.9% (20/23). In contrast, NBI showed decreased visibility; 78.2% (18/23). The intra-rater reliability for TXI-1 and TXI-2 were "almost perfect" for trainees and experts. TheΔE* values were 12.0 for WLI, 22.3 for TXI-1, and 25.9 for TXI-2 (WLI vs. TXI-1: p< 0.01, WLI vs. TXI-2: p< 0.01).

In summary, improved visibility of the gray color sign in PPI-FGP was achieved for TXI-1 and TXI-2 compared to WLI for both trainees and experts and inter-rater reliability between trainees and experts was good. The ΔE* values were significantly larger in TXI-1 and TXI-2 compared to WLI.

Gray color sign		All endoscopists (N:10)	Trainees (N:5)	Experts (N:5)	Trainees vs.Experts (P value)
TXI	Mode 1	44.9 ± 4.3	22.7 ± 2.1	22.2 ± 2.3	0.50
	Mode 2	42.9 ± 4.6	21.8 ± 2.4	21.1 ± 2.3	0.32
ICC (2.1)	Mode 1	0.931	0.858	0.864	
	Mode 2	0.927	0.889	0.817	

Table 1.

Conclusion: The usefulness of TXI compared with WLI led to the improved visibility of the gray color sign in PPI-FGP for both trainees and experts when evaluated subjectively and objectively.

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Disclosure: Nothing to disclose.

PP0220 WITHDRAWN

PP0221

INITIAL EXPERIENCES WITH A VACUUM-STENT AS NOVEL TREATMENT OPTION FOR TRANSMURAL DEFECTS IN THE UPPER GASTRO-INTESTINAL TRACT: A SINGLE-CENTER CASE SERIES

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Introduction: Transmural defects in the upper gastro-intestinal (GI) tract, e.g. anastomotic leak, Boerhaave syndrome or iatrogenic defects, are associated with severe morbidity. Treatment options include conservative, surgical and endoscopic modalities. Endoscopic vacuum therapy (EVT) has gained a greater role in endoscopic treatment of these defects and is most often applied using endoscopically placed vacuum-sponges. Recently, a vacuum-stent was introduced as a new device to apply EVT, combining the benefits of negative pressure wound therapy and an intraluminal stent, while allowing for oral intake of a soft diet.

Aims & Methods: The aim of this prospective case series was to describe the first experiences with the vacuum-stent for transmural defects in the upper GI tract, between March 2022 and March 2023, in an academic hospital that had experience with EVT using vacuum-sponges since 2018. All patients treated with a vacuum-stent were included. Patients who were already treated with vacuum-sponge and received a vacuum-stent when it became available were also included.

All patients signed informed consent for prospective registration of relevant data on treatment and outcomes in a specifically designed database. Outcome measures included successful closure of the defect, adverse events, number of EVT-related endoscopies and treatment duration.

Results: 23 patients were included (18 male, median age 65 years). Fourteen patients had anastomotic leakage after esophagectomy, five patients had an iatrogenic perforation and four had Boerhaave syndrome. Twelve patients were treated with vacuum-stent alone and eleven with a combination of vacuum-stent and vacuum-sponge (Table 1), which was mostly due to the later availability of or too little experience with the vacuum-stent.

Three Boerhaave patients also underwent surgery for nettoyage of a large mediastinal cavity with decortication of the lung and placement of an intracavitary muscle flap. Successful defect closure was obtained in 91%, requiring a median of 4 (IQR 3-8) EVT-related endoscopies, and median treatment course of 14 (IQR 12-31) days in successful cases. During median 120 (IQR 15-221) days follow-up, four patients developed an anastomotic stricture treated with endoscopic dilation. No other adverse events were observed.

	Vacuum-stent and vacuum-sponge (n = 11)	Vacuum-stent only (n = 12)
Etiology of defect		
Anastomotic leakage, *n (%)*	10 (91)	4 (33)
Iatrogenic defect, *n (%)*	0 (0)	5 (42)
Boerhaave syndrome, *n (%)*	1 (9)	3 (25)
Defect size*		
Small, *n (%)*	7 (64)	4 (33)
Intermediate, *n (%)*	2 (18)	3 (25)
Large, *n (%)*	2 (18)	5 (42)
Success rate, n *(%)*	9 (82)	12 (100)
EVT-related endoscopies, *median (IQR)*	6 (4-12)	3 (2-4)
Treatment duration in days, *median (IQR)*	21 (14-54)	13 (7-15)

*Defect size was classified in dehiscence of the circumference as small (<10%), intermediate (10-40%) and large (>40%) for anastomotic leak and in defect length as small (<10mm), intermediate (10-19mm) and large (≥ 20mm) for Boerhaave and pneumodilation. Abbreviations: EVT, endoscopic vacuum therapy; IQR, interquartile range.

Table 1. Clinical and outcome characteristics per type of treatment.

Conclusion: The vacuum-stent combines the benefits of EVT and an intraluminal stent and shows great feasibility and efficacy in treatment of transmural defects in the upper GI tract. More research is necessary, as this device could possibly prevent major (re-)surgery in these patients.

Disclosure: RP is consultant for MicroTech Europe and Medtronic bv., received speaker fee from Pentax and is on the advisory board of EsoCap AG. MIvBH is consultant for Mylan, Johnson & Johnson, Alesi Surgical, BBraun and Medtronic, and received unrestricted research grants from Stryker. All fees paid to institution.

PP0222

LONG-TERM OUTCOMES OF PER-ORAL ENDOSCOPIC MYOTOMY

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Introduction: Per-oral endoscopic myotomy (POEM) is highly effective in the short-term management of achalasia, with recent studies showing durable success.[1,2] The aim of this study was to evaluate long term clinical outcomes of POEM for oesophageal motility disorders, in a tertiary portuguese center.

Aims & Methods: This was a retrospective single center cohort study, from prospective collecting data, of consecutive patients who underwent POEM between January 2017 and February 2021, with a minimum of 24 months follow-up.

Clinical response was defined by an Eckardt score ≤ 3. Gastroesophageal reflux was assessed through clinical interview and endoscopy.

Results: A total of 72 patients underwent POEM with technical success, during the specified study period.

Nine (12.5%) were lost to follow-up before at least 24 months. Of the remaining 63 patients, 57% were female, median age was 54 years (range 17-79) and 41.3% had prior treatments. Indication for intervention was achalasia in 62 patients (type 1, n=18; type 2, n=36; type 3, n=7; one non-specified) and esophagogastric junction outflow obstruction in one, with preoperative median Eckardt score of 6 (range 2-11).

Median follow-up duration was 42 months (range 24-63). Clinical response at one month was achieved in 61 patients (96.8%). Of the patients with initial response, clinical response at last follow-up was 90.2%. In the long term, six patients required additional treatment, with median symptom relapse at 35.5 months (range 12-48).

Two patients underwent re-poem with clinical response. Gastroesophageal reflux symptoms were reported in 27.9%, with 68.9% maintaining daily proton pump inhibitor therapy at last follow-up. Endoscopic evaluation was performed in 46 patients, showing reflux esophagitis in 22.

Conclusion: POEM is an effective therapy for achalasia, with durable success rate and possible reintervention in case of relapse. Gastroesophageal reflux is a common late adverse event. Studies with longer follow-up are needed to determine long term effectiveness and reflux exposure risk.

References:

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PP0223

RESECTION OF SUPERFICIAL GASTRIC NEOPLASMS BY ENDOSCOPIC SUBMUCOSAL DISSECTION: 8-YEAR EXPERIENCE AT A TERTIARY CENTER

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Introduction: Endoscopic submucosal dissection (ESD) is increasingly being used as a minimally invasive treatment option for early gastric cancer (EGC), with a very low risk of lymph node metastasis.

Aims & Methods: This study aimed to evaluate the short-, medium-, and long-term clinical outcomes of patients undergoing gastric ESD at a tertiary hospital center. Patients undergoing ESD for superficial gastric lesions (SGLs) between September 2015 and January 2023 were prospectively evaluated. Demographic, clinical (comorbidities, medication, and relevant family history), endoscopic (location, size, and morphology of the lesion, resection scar evaluation), and pathological data (from the resected specimen, mapping biopsies, and scar biopsies) were collected.

Results: Since 2015, 195 patients with SGLs (mean age 70.7±9.8 years, 58.6% male) underwent ESD, with a median follow-up time of 28 months (interquartile range 13-54). Most patients presented with intestinal metaplasia only in the antrum (n=72) or in the antrum and corpus (n=60), and the most frequent location of SGLs was the antrum (64.6%). Resection was R0 in 95.4% of cases and curative in 87.7% (only one non-curative case had no free horizontal margins).

During the follow-up period, 15 metachronous lesions and 8 recurrences were identified, on average 24.1±3.4 months after the index procedure. It should be noted that most recurrences (n=5) were identified at the 36- and 48-month reevaluation endoscopies. The complication rate was 3.6%, corresponding to 3 intra-procedural perforations (2 treated endoscopically) and 4 cases of significant bleeding after the procedure were registered.

Conclusion: Endoscopic submucosal dissection is safe and effective, with a high cure rate and low complication and recurrence rates. The identification of mostly late recurrences suggests the need to develop risk assessment tools that allow for defining personalized follow-up intervals.

Disclosure: Nothing to disclose.

PP0224

SALVAGE SURGERY AFTER NON-CURATIVE GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION - CASE REVIEW AND EVALUATION OF PREDICTORS OF DISEASE PERSISTENCE

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Introduction: Endoscopic submucosal dissection (ESD) is the preferred method for the treatment of superficial gastric neoplasms. In cases of curative resection, the outcome is excellent with recurrence rates of less than 5% and disease-free survival rates greater than 95%. However, surgical resection is indicated in cases of non-curative resection, although recent studies suggest that this strategy may have an unfavorable risk/benefit ratio.

Aims & Methods: The aim of this study is to analyze the evolution of patients with non-curative resection in our center. Patients who did not meet the criteria for cure after ESD of superficial gastric neoplasms were pro-

spectively evaluated. Clinical (before and after ESD), endoscopic (location, size, and morphology of the lesion), pathological (tumor size, degree of dysplasia, vertical and horizontal margins, vascular, lymphatic, and perineural invasion), and surgical (type of intervention, pathological characteristics of the specimen) data were collected and analyzed.

Results: Of the 203 patients who underwent ESD of upper digestive tract lesions, 20 patients with non-curative resection of gastric neoplasms were identified (median age 70 years, 65% of whom female). The mean size of the lesions was 20 ± 9 mm, and 40% were depressed (Paris Classification 0-IIa+c [n = 6] and 0-IIb+c [n = 2]). Resection was R1 in five cases, nine had submucosal invasion greater than 500µm, nine had lymphatic invasion, and four had vascular invasion.

Of these, 15 patients underwent surgical resection (75%), mostly partial gastrectomy (n = 12). In the remaining cases, surveillance (n = 3) or pending multidisciplinary discussion (n = 2) was opted for. Pathological evaluation revealed a "white" specimen in 10 cases (2/3). The clinical characteristics and histological data of the ESD specimen (including the eCura score [Hatta et al., 2017]) were not statistically different in patients with and without residual neoplasia in the operative specimen (p>0.05).

Conclusion: Despite the small sample size, this series suggests the need to identify better predictors of "clinically significant non-curative resection," in which disease persistence after ESD is more likely.

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Disclosure: Nothing to disclose.

PP0225

RED DICHROMATIC IMAGING IMPROVES THE RECOGNITION OF BLEEDING POINTS DURING ENDOSCOPIC SUBMUCOSAL DISSECTION IN THE UPPER GASTROINTESTINAL TRACT

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Introduction: Recently, red dichromatic imaging (RDI), a novel image-enhanced endoscopy, which comprises wavelengths of amber (600 nm), red (630 nm) and green (540 nm), was launched. Previous studies have indicated that RDI improved the visibility of gastrointestinal bleeding. However, visibility assessments have been based on the subjective decision of evaluators. Herein, we investigated the recognition of bleeding points during endoscopic submucosal dissection (ESD) under RDI compared with that under white light imaging (WLI).

Aims & Methods: Consecutive patients scheduled to undergo esophageal or gastric ESD at a single center were enrolled. Paired videos of active bleeding during ESD under both WLI and RDI were created. Six endoscopists identified the virtual hemostasis point on still images after random video viewing. The distance between the virtual hemostasis and actual bleeding points was scored in four levels (0–3 points), and the association with the color value was analyzed in both WLI and RDI.

Results: We retrospectively evaluated 116 videos for 58 bleeding points. The median visibility score and recognition rate for RDI were significantly higher than those for WLI (2.17 vs. 1.42, p<0.001 and 62.1% vs 27.6%, p<0.001). The median visibility scores were significantly higher for RDI than for WLI under blood pooling (2.00 vs. 1.00, p<0.0016) and no blood pooling (2.50 vs. 1.67, p<0.001). The median visibility scores for RDI were significantly higher than those for WLI in oozing hemorrhage (2.17 vs. 1.33, p<0.001) and pulsating hemorrhage (2.17 vs. 1.50, p=0.030). The median visibility scores in RDI were significantly higher than those in WLI between trainees (2.00 vs. 1.33, p<0.001) and experts (2.67 vs. 1.67, p<0.001). The median color difference of RDI was significantly higher than that of WLI (8.97 vs. 3.69, p<0.001). The correlation coefficient between the visibility score and color difference was 0.712 (strong correlation).

Conclusion: RDI can provide better recognition of bleeding points than WLI during ESD, regardless of the bleeding pattern and experience of the endoscopist. Further studies are warranted to investigate whether RDI improves ESD outcomes.

Disclosure: Nothing to disclose.

PP0226

A SYSTEMATIC REVIEW OF RADIOGRAPHIC AND ENDOSCOPIC SCREENING FOR GASTRIC CANCER

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Introduction: Gastric Cancer has been a heavy burden in far East Asian countries. Although there are national programs in South Korea and Japan, their evidence has been suggested as insufficient. We aimed to synthesize currently available comparative data on gastric cancer mortality in healthy, asymptomatic adults by explicitly classifying the screening effects through study designs and types of intervention effects.

Aims & Methods: We searched multiple databases through October 31, 2022, for this systematic review and meta-analysis.

Studies of any design that compared gastric cancer mortality among radiographic or endoscopic screening and no screening in a community-dwelling adult population was included. The method included a duplicate assessment of eligibility, double extraction of summary data, and validity assessment using the Risk Of Bias In Non-randomized Studies of Interventions tool. Bayesian three-level hierarchical random-effects meta-analysis synthesized data corrected for self-selection bias on the relative risk (RR) for per-protocol (PP) and intention-to-screening (ITS) effects. The study registration number at PROSPERO is CRD42021277126.

Results: We included seven studies in which a screening program was newly introduced (median attendance rate, 31%; at a moderate-to-critical risk of bias) and seven cohort and eight case-control studies with ongoing screening programs (median attendance rate, 21%; all at critical risk of bias); thus, data of 1,667,117 subjects were included. For the PP effect, the average risk reduction was significant for endoscopy (RR 0.58; 95% credible interval: 0.39–0.90) but non-significant for radiography (RR 0.80; 95%CI 0.60–1.06). The ITS effect was not significant for both radiography (0.98; 95%CI 0.86–1.21) and endoscopy (RR 0.94; 95%CI 0.74–1.44). The effects' magnitude depended on the self-selection bias correction assumptions. Restricting the scope of East Asian studies only did not change the results.

Conclusion: In limited-quality observational evidence from high-prevalence regions, screening reduced gastric cancer mortality; however, the effects diminished at a program level.

Disclosure: Nothing to disclose.

PP0227

VISIBILITY EVALUATION OF *HELICOBACTER PYLORI*-UNINFECTED GASTRIC CANCER IN A NEW IMAGE ENHANCED ENDOSCOPY; TEXTURE AND COLOR ENHANCEMENT IMAGING

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Introduction: The prevalence of *Helicobacter pylori* (*H.pylori*) positive patients has gradually decreased in Japan due to eradication therapy, and *H.pylori*-uninfected gastric cancer (HPUGC) is expected to increase relatively. Recently, HPUGC, such as gastric adenocarcinoma of fundic-gland type (GAFG), gastric adenocarcinoma of foveolar-type (GAFV), adenocarcinoma of differentiated type (DGA) and signet ring cell carcinoma (SRCC) has been increasingly reported. Since the detection and endoscopic diagnosis of HPUGC is considered to be difficult [1]. The effective observation methods in screening endoscopy to detect HPUGC. In this context, a new image enhancement technology called Texture and Color Enhancement Imaging (TXI; Olympus Medical Systems Corporation) which optimizes the three elements: structure (texture) enhancement, color tone, and brightness correction was developed in 2020. There have been several reports on the usefulness of TXI for the detection and endoscopic diagnosis of mucosal atrophy or gastric neoplasm [2-6]. However, the usefulness of TXI for the detection of HPUGC has been investigated.

Aims & Methods: The aim of the study is to investigate whether the visibility of HPUGC improved using TXI and NBI compared with WLI as a single-center retrospective clinical study. We enrolled 40 HPUGC lesions endoscopically imaged with WLI, TXI-1, TXI-2, and NBI in our facility between October 2020 and March 2023. In addition, the visibility of HPUGCs was analyzed for each factor, such as histological type, coloration, and macroscopic type. Ten endoscopists (5 experts and 5 non-experts) evaluated the images, and visibility changes were scored by endoscopists as follows: 5, improved; 4, somewhat improved; 3, equivalent; 2, somewhat decreased; and 1, decreased. The total visibility score of ≥40 in all endoscopists and /≥20 in each of the 5 endoscopists was defined as improved visibility, 21-39/11-19 as unchanged visibility, and 20≤/10≤ as decreased visibility. The intraclass correlation coefficients (ICC) were calculated and evaluated for inter-rater agreement.

Results: The histological types were classified as GAFG (n=24), GAFV (n=9), DGA (n=4), and SRCC (n=3). There were 17 reddish lesions and 23 whitish lesions. In the macroscopic type, there were type 0-I (n=11), type 0-IIa (n=13), type 0-IIb (n=11), and type 0-IIc (n=5) lesions. The visibility improvement rate for all endoscopists in all HPUGCs was TXI-1: 55%, TXI-2: 29.7%, and NBI: 7.5%. The overall ICCs were TXI-1: 0.86, TXI-2: 0.84, and NBI: 0.90, which were almost perfect. GAFG (all/experts/trainees: 79/54/79%) and SRCC (all/experts/trainees: 67/67/67%) showed improved visibility with TXI-1. In contrast, GAFV and DGA did not improve the visibility. The whitish lesions (all/experts/trainees: 74/52/74%) showed improved the visibility with TXI-1, but the reddish lesions did not improve visibility. Among the macroscopic type , type 0-Ia (overall/experts/trainees: 85/54/85%) and type 0-Ib (overall/experts/trainees: 73/64/73%) showed improved visibility with TXI-1. The all ICCs of each factor were above 0.7, which indicated generally good correlations.

Conclusion: The usefulness of TXI-1 compared with WLI led to the improved visibility of the whitish lesions such as GAFG and SRCC for both experts and trainees when evaluated subjectively and objectively.

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Disclosure: Nothing to disclose.

PP0228

PROSPECTIVE, RANDOMIZED CONTROLLED TRIAL COMPARING A NOVEL AND DEDICATED DEVICE TO CONVENTIONAL ENDOSCOPIC TECHNIQUES FOR THE TREATMENT OF BURIED BUMPER SYNDROME

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Introduction: Buried bumper syndrome (BBS) is a rare complication of percutaneous endoscopic gastrostomy (PEG) tubes. This study compared a newly developed Flamiongo set with conventional endoscopic techniques [A1] for BBS treatment.

Aims & Methods: This prospective, randomized controlled trial compared the Flamingo set (study group) with other endoscopic techniques (control group) for BBS treatment in nine German hospitals.

The primary endpoint was procedure time. Further outcome parameters were technical success, complication rate, and number and cost of devices used in each group.

Results: Thirty-six patients (18 in each group; mean age, 73 years; 12 females) were included in this study between xx and December, 2022. Median time since the placement of the feeding tube was 30 months.

The bumper was located in the gastric corpus in 27 patients, and the internal bumper was completely overgrown in 31 patients. The removal procedure duration was 17 min (range: 3–72 min) in the study group compared to 38 min (range: 12–111 min) in the control group (P = .046).

Primary technical success rate was 77.8% in the study group and 55.6% in the control group (P = .157), while the overall technical success rate was 100% compared to 83.3% (P = .070). Adverse events occurred in four patients (11.1 %).

Conclusion: Endoscopic removal of the buried bumper using the Flamingo device was significantly faster than that with other endoscopic techniques and showed a higher technical success. This device may become the endoscopic treatment of choice for BBS.

Disclosure: The Department of Internal Medicine and Gastroenterology, Hospital Ludwigsburg, received a research grant from FUJIFILM Medwork GmbH (Höchstadt, Germany). The company also provided the Flamingo sets used in this study free of charge.

PP0229

THE IMPACTS OF SEDATION ON CARDIO-CEREBROVASCULAR ADVERSE EVENTS AFTER SURVEILLANCE ESOPHAGOGASTRODUODENOSCOPY IN PATIENTS WITH GASTRIC CANCER: A NATIONWIDE POPULATION-BASED COHORT STUDY

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Introduction: There is limited data on the impact of sedation on cardio-cerebrovascular disease (CCD) adverse events after esophagogastroduodenoscopy (EGD) in patients with gastric cancer. We investigated the incidence rate, risk factors and the impact of sedation on CCD adverse events after surveillance EGD in patients with gastric cancer.

Aims & Methods: We performed a nationwide population-based cohort study using Health Insurance Review and Assessment Service databases from January 1, 2018 to December 31, 2020. Using a propensity score-matched analysis, the patients with gastric cancer were divided into two groups: sedative agent users and non-users for surveillance EGD. We compared the occurrence of 14-day CCD adverse events between the two groups.

Results: Of 103,463 patients with gastric cancer, newly diagnosed CCD adverse events occurred in 2.57% within 14 days after surveillance EGD. Sedative agent was used in 41.3% during the EGD. The incidence rate of CCD adverse events with non-sedation and sedation are 315.4/10,000 and 173.6/10,000, respectively. Propensity score matching based on confounding variables yielded 56,016 matched patients (28,008 pairs). Between sedative agent users and non-users, there were not significantly difference in the occurrence of 14-day CCD adverse events, cardiac adverse events, cerebral adverse events, and other vascular adverse events, respectively. (2.28% vs. 2.22%, $P = 0.69$; 0.86% vs. 0.93%, $P = 0.42$; 1.44% vs. 1.31%, $P = 0.23$; 0.74% vs. 0.84%, $P = 0.20$).

Conclusion: In a population-based, matched cohort study, sedation during surveillance EGD was not associated with CCD adverse events in patients with gastric cancer. These findings suggest that use of sedative agent may be considered in patients with gastric cancer during surveillance EGD without excessive concerns for CCD adverse events.

Disclosure: Nothing to disclose.

PP0230

NATURAL HISTORY, MANAGEMENT, EFFICACY AND OUTCOMES IN ESOPHAGEAL FOOD BOLUS OBSTRUCTION

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Introduction: Esophageal food bolus obstruction (FBO) is a common presentation to Emergency Departments worldwide[1]. There remains a paucity of data relating to efficacy of pre-endoscopic and endoscopic management resulting in a wide variety of clinical practice. Consensus guidelines do not advocate strongly for pre-endoscopic medications however they remain commonly used[2,3].

This study evaluated the safety and efficacy of pre-endoscopic and endoscopic treatment in successful clearance of FBO and assessed the prevalence of underlying esophageal pathology.

Aims & Methods: ICD-10 codes retrospectively identified adult patients ≥18 years admitted to the Monash Health network (Melbourne, Australia) with esophageal FBO from 2010 to 2021. Medical records were reviewed to determine baseline characteristics, medical and endoscopic treatments and outcomes. Pre-endoscopic therapies included glucagon, glyceryl trinitrate (GTN), buscopan and Coca Cola. Multivariable analysis was performed to determine factors associated with pre-endoscopic clearance of FBO.

Results: 608 patients were included. The median age was 56 years (IQR 39 – 71) and 405 (66.6%) were male. A prior history of FBO was noted in 228 (37.5%) patients, 110 (18.1%) had gastro-oesophageal reflux disease, 71 (11.7%) had dysphagia and 51 (8.4%) had a history of esophageal strictures. Inability to swallow saliva was noted in 296 (49.7%) patients at presentation.

Pre-endoscopic therapy was administered to 389 (64.0%) patients with a mean of 2 medications prescribed. Glucagon (47.4%), GTN (37.2%) and Coca Cola (36.3%) were most commonly administered. Successful FBO clearance was documented in 36.8% patients receiving medical therapy (glucagon 35.1%, GTN 36.2%, Coca Cola 38.0%); no individual medication significantly reduced the need for endoscopic intervention. Multi-variable analysis demonstrated that tolerating saliva (OR 1.95, p=0.025) and liquids (OR 2.28, p=0.001) significantly predicted spontaneous resolution of the EFBO without endoscopy.

474 (78.0%) patients proceeded to endoscopy. Median time to endoscopy was 14 hours (IQR 6 – 16) with 36.1% patients intubated for the procedure. The FBO was most commonly located in the lower esophagus (32.7%). The most common endoscopic findings were esophagitis (30.2%) and peptic ulcer disease (18.8%), with 3 (0.6%) malignancies identified. Endoscopic complications occurred in 35 (7.4%) patients (partial esophageal tear (n=24), aspiration pneumonia (n=5)). At endoscopy, a cause for the FBO was found in 130 (27.4%) patients, most commonly due to esophageal strictures (13.9%), eosinophilic esophagitis (11.2%) and Schatzki rings (9.1%). Esophageal biopsies were taken in 155 (32.7%) patients, of which 34.2% reached the diagnostic criteria for eosinophilic esophagitis.

Conclusion: Despite limited evidence, pre-endoscopic medical treatment of FBO is safe, commonly utilised, and results in spontaneous clearance in 36.8% patients. Patients' clinical symptoms, in particular the ability to tolerate saliva or liquids, is the best predictor for spontaneous FBO clearance. Endoscopy remains highly effective and has a low complication rate.

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Disclosure: Nothing to disclose.

PP0231

USEFULNESS OF THE NEW GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION TRAINING MODEL (G-MASTER®) FOR TRAINEES; A MULTICENTER COMPARATIVE STUDY

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Introduction: Gastric endoscopic submucosal dissection (ESD) has become increasingly popular worldwide as a less invasive curative treatment for early gastric cancer. However, ESD requires highly endoscopic technical skills, and it is important for trainees to develop effective training methods for ESD. ESD training is generally conducted using extracted porcine digestive tracts, but there are several issues regarding ethics, costs, infection, and logistics. In collaboration with KOTOBUKI Medical, we have developed the G-Master, a training model that can simulate ESD in several locations in the stomach. Since G-Master uses plant-derived mucous membrane sheet, there is no contamination and training can be easily performed using endoscope units and devices that are commonly used in clinical practice.

Although the G-Master has enabled pre-training before actual ESD at facilities that have adopted it, it is unclear whether it contributes to the improvement of endoscopic technical skills of trainees. In this study, we clarified the usefulness of the G-Master training for inexperienced ESD trainees.

Aims & Methods: The ESD data were collected for the first through fifth gastric ESD cases performed from March 2018 through February 2022 by 15 ESD-inexperienced endoscopists at five participating centers. The ESD data were divided into two groups, one with G-Master training and one without G-Master training and the endpoints were compared retrospectively. The endpoints were procedure speed, perforation rate, operator changing rate, and en bloc resection rate, endoscopists experiences, and clinicopathological features. The resection speed was calculated as the resected area of the specimen divided by the procedure time (mm2/min). The group with G-Master training was defined as the group of trainees who always had at least one ESD training session with G-Master before each ESD. The group without G-Master training was defined as the group of trainees who had never done G-Master ESD training.

Results: A total of 75 gastric ESD cases were enrolled, with 25 cases in the group with G-Master training performed by 5 ESD-inexperienced endoscopists and 50 cases in the group without G-Master training performed by 10 ESD-inexperienced endoscopists. There was no difference between the two groups in endoscopists experiences including the years after graduation from medical school, the number of esophagogastroduodenoscopies and colonoscopies performed, and clinical features of gastric ESD cases including the location or size. In the group with G-Master training, the median procedure speed for all cases was significantly faster (with vs without G-Master: 13.1 mm2/min vs. 8.1 mm2/min, p>0.001). And the procedure speed of the training group was linearly improved from the initial to the last cases (with vs without G-Master: initial case; 11.8 mm2/min vs 8.5 mm2/min, last case; 23.1 mm2/min vs 12.0 mm2/min).

Additionally, the rates of perforation (0 case (0%) vs 1 case (2%)) and operator change to expert (5 cases (20%) vs 15 cases (30%)) were lower. There was no difference in en bloc resection rate between the two groups.

Conclusion: It was suggested that performing G-Master training before actual ESD could improve the endoscopic technical skills of trainees who are inexperienced in ESD.

Disclosure: Nothing to disclose.

PP0232

COMPARISON OF LONG-TERM EFFICACY AFTER ENDOSCOPIC NON-CURATIVE RESECTION OF T1 ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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Introduction: Endoscopic resection has been widely applied in T1 esophageal squamous cell carcinoma. However, for cases of postoperative pathology with noncurative resection, additional surgery or chemoradiotherapy is often required due to the high risk of lymph node metastasis and recurrence. However, quite a few patients refuse additional treatment for various reasons.

At present, it is unclear whether additional surgery or chemoradiotherapy, or close observation without additional treatment, should be applied to T1 esophageal squamous cell carcinoma with noncurative endoscopic resection.

Aims & Methods: This study aimed to compare the long-term efficacy of the different strategies. We retrospectively analyzed 121 patients with endoscopic noncurative resection of T1 esophageal squamous cell carcinoma from Jan 2012 to Dec 2018. Noncurative resection was defined as positive horizontal or vertical incisional margin, lymphovascular invasion, poorly differentiated or undifferentiated pathology, and invasion depth of submucosa and above. The rate of lymph node metastasis, recurrence rate and long-term survival rate were compared in the three groups of additional surgery, chemoradiotherapy and close observation without additional treatment.

Results: Among the 121 patients, 40 patients received radical resection of esophageal cancer, 35 patients received chemoradiotherapy, 46 patients chose close observation without any additional treatments. There was no significance among the three groups in age, sex, underlying disease score, tumor size, lymphatic vascular invasion, horizontal and vertical incisal margins, and low differentiation degree. After follow-up, it was found that the rate of lymph node metastasis in the group with no additional treatment was significantly higher than that in the group with additional treatment (26.1% vs. 10% in the observation group and the surgery group, P=0.05, 26.1% vs. 8.57% in the observation group and the chemoradiotherapy group, P=0.04).

Besides, the recurrence rate of the lesion in the group without additional treatment was significantly higher than that in the group with additional treatment (30.4% and 12.5% in the observation group and surgery group, P=0.03, 30.4% and 11.4% in the observation group and chemoradiotherapy group, P=0.03).

In addition, the 5-year overall survival rate exerted significantly higher in the groups with additional treatment than that of the close observation group (73.9%, 90% and 91.4% in the observation, surgery and chemoradiotherapy groups, respectively, P=0.04). The 5-year disease-specific survival rate was inferior in the group without additional treatment than the surgery and chemoradiotherapy groups (P=0.047). However, there were no significances in recurrence rate, lymph node metastasis, 5-year overall survival rate and disease-specific survival rate between the surgery and chemoradiotherapy groups.

Conclusion: Additional surgery and chemoradiotherapy can improve the long-term survival rate of patients with T1 esophageal squamous cell carcinoma with noncurative endoscopic resection. Taking postoperative adverse events and organ integrity into consideration, additional chemoradiotherapy might be a safe and effective alternative.

Disclosure: Nothing to disclose.

PP0233

IS THE ECURA SYSTEM (RISK SCORING SYSTEM TO STRATIFY CURABILITY AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION) USEFUL TO ESTIMATE CANCER-SPECIFIC SURVIVAL AFTER NON-CURATIVE ENDOSCOPIC SUBMUCOSAL DISSECTION OF EARLY GASTRIC CANCER?

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Introduction: According to the current guidelines the endoscopic submucosal dissection (ESD) is considered as effective treatment of choice of early gastric cancer (EGC). The most current criteria for the curative treatment include one piece (en bloc) resection of mucosal or submucosal membrane ≤500 µm with free lateral and vertical margins and lack of the limfoangioinvasion. The gold standard of treatment for patients who do not meet the curative criteria (non-R0) after ESD is additional gastrectomy. Recently, in the medical literature, there have been reports on the good prognosis of patients after non-curative endoscopic resection of early gastric cancer. In the non-R0 ESD group, eCura system developed by Japanese scientists, which allows to estimate the probable risk of lymph node metastases and the probable cancer-specific survival, may support the decision on the choice of treatment method. The effectiveness of eCura system and the follow-up for patients after non-curative ESD who did not receive radical surgery was not extensively investigated.

Aims & Methods: To investigate follow-up of patients with EGC after non-curative endoscopic submucosal dissection according to the eCura system.

The retrospective analysis of prospective assessed database of ESD procedure for EGC, from 2008 to 2020 in Department of Gastroenterology of Pomeranian Medical University Hospital in Szczecin was performed. The follow-up examinations (gastroscopy, abdominal ultrasound or CT) were performed after 3,12 and 36 months from the date of ESD. Based on the dates of the last follow-up and the incidence of deaths due to general causes and cancer-specific deaths, survival in the study group was assessed.

Results: In 102 patients with EGC (M=63, 61.8%, mean age 67.0 +/- 12 years), 106 ESD procedures were performed (in 4 patients endoscopic resection of two synchronous gastric lesions was performed). In the study group 67 patients (65.7%), 70 lesions (66.0%) were removed with the curative criteria (R0 group), 35 patients (34.5%) 36 lesions (34.0%) remained beyond the criteria for curative resection (non-R0 group). In the non-R0 group (n=35; 34.3%; mean age 70.2 +/- 11.1) initially 6 patients underwent additional surgical treatment, 26 patients were followed-up without surgery because of lack of consent or poor general condition, 3 patients were lost from follow-up. In the study group, patients were qualified only into groups with a low and medium risk of metastasis to lymph nodes according to the eCura system.

There was no significant difference (p>0.05) in the rates of deaths due to general causes and cancer-specific deaths in the group of patients after non-R0 ESD who underwent additional gastrectomy and were subject only to close oncological follow-up, as well as in the rates of cancer-specific deaths between patients after non-curative ESD who were classified into groups with a low and medium risk of metastasis to lymph nodes according to the eCura system (p>0.05). There was a significant difference (p=0.02) between general and cancer-specific deaths in the non-R0 group (25.9% vs 3.7%). No patient in the study group had metastases to lymph nodes or distant metastases.

Conclusion: In the group of patients with early gastric cancer after non-curative endoscopic submucosal dissection (non-R0 ESD), who remain at low risk of lymph node metastases group according to the eCura system, only close observation may be an acceptable option without radical surgical treatment.

Disclosure: Nothing to disclose.

PP0234

DOES THE WEEKEND HAVE AN IMPACT ON THE COURSE OF NON-VARICEAL BLEEDING?

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Introduction: Gastrointestinal bleeding is a life-threatening emergency associated with high morbidity and mortality requiring close monitoring and early endoscopic intervention to diagnose and treat the bleeding. The “weekend effect“ often leads to concerns of delay or inappropriate management due to the usual lack of medical and paramedical staff and suggesting an additional risk and increased mortality.

Aims & Methods: The aim of our study was to investigate outcomes of non-variceal bleeding (NVB) occurring during the week-end. We conducted a retrospective, single-center analysis of clinical and endoscopic data of all patient hospitalized for NVB between 2015 and 2023 from our hospital’s computerised medical record database. Data over timing of endoscopy, therapeutic management, hospital stay and mortality were collected depending on whether the digestive bleeding occurred at the weekend (G1) or during the week (G2).

Results: A total of 91 patients were enrolled: 58 men and 33 women with a sex ratio of 1.75 and an average age of 63.9 (20-91). The two groups were comparable in terms of the mean time taken to perform upper GI endoscopy (G1:11.9 hours vs G2:15.9 hours, p=0.06) or a colonoscopy (G1:39.94 hours vs G2:49.15 hours, p=0.11).

However, there was a slight increase in the need for an endoscopic haemostasis procedures in the weekend group p=0.05. Nevertheless, there was no significant difference between the two groups in terms of total length of hospital stay (G1:7.19 days vs. G2:7.54 days, p=0.65), transfusion requirements for red blood cells (RBCs) (G1: 3,33 vs. G2:2.3, p=0.07) and the use of catecholamines to maintain an optimal hemodynamic state (p=0.51). In addition, there was no significant difference regrading overall mortality between the weekend and the weekday groups (G1: 5% vs G2:12.9% respectively, p=0.25).

Conclusion: There is no evidence of the "weekend effect" in our study, as the clinical management and outcomes were independent of the day of admission with no subsequent increase of mortality during NVB. This reflects a continuous development and a better access to interventional endoscopy, and a multidisciplinary collaboration overcoming the logistical and technical difficulties often encountered during the weekend.
Disclosure: Nothing to disclose.

PP0235

TIMING OF UPPER GASTROINTESTINAL ENDOSCOPY AND ITS RELATIONSHIP WITH ENDOSCOPIC FINDINGS IN PATIENTS WITH ACUTE UPPER GASTROINTESTINAL BLEEDING: A PROSPECTIVE COHORT STUDY

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Introduction: The timing of performing upper gastrointestinal endoscopy (EGD) in patients with acute upper GI bleeding remains controversial. Different recommendations exist regarding the ideal time interval between the first clinical presentation of acute upper GI bleeding and EGD, assuming no postponement before patient arrival at the hospital.
While it is generally agreed that upper gastrointestinal endoscopy should be performed within 24 hours of the first clinical presentation of acute upper GI bleeding, this recommendation poses a significant challenge for medical staff during weekends and healthcare centres with fewer resources than major hospitals.
Aims & Methods: This study was conducted at the Department of Internal Medicine, Gastroenterology Division, at Aleppo University Hospital between July 2018 and June 2020. The study included patients who were admitted due to acute upper gastrointestinal bleeding. The clinical manifestation of upper gastrointestinal bleeding, its duration, and the interval between the first upper gastrointestinal bleeding and the GI endoscopy were determined.
Patients were divided into three groups: Group I underwent urgent endoscopy within less than 24 hours of the first bleeding; Group II underwent endoscopy between 24 and 72 hours from the first bleeding; and Group III underwent endoscopy after 72 hours or more of bleeding.
Results: 234 patients were included in the study who were admitted to the hospital and underwent upper gastrointestinal endoscopy. Among them, 58.55% were male and 41.45% were female. The average age of the patients was 57.15.
The most common manifestation of acute upper gastrointestinal bleeding was melena, which was observed in 67.59% of cases, followed by hematemesis (52.99%) and epigastric pain (30.34%). The rate of normal esophageal endoscopy findings was 40% in the first group, 54.84% in the second group, and 64.4% in the third group. Hiatal hernia was observed in 30.77% of patients in the first group, 29.03% in the second group, and 28.89% in the third group. Reflux esophagitis was diagnosed in 10.77% of patients in the first group, 10.48% in the second group, and 20% in the third group. Esophageal varices were diagnosed in 10.77% of patients in the first group, 9.68% in the second group, and 13.33% in the third group. There was no statistically significant difference in the rates of esophageal endoscopy findings among the study groups, except for the presence of blood-filled esophagus, which was significantly more common in the first group ($P < 0.05$). The highest rate of normal findings in upper gastrointestinal endoscopy was observed in the third group, which was statistically significant ($P < 0.05$). Blood in the stomach and erosive gastritis were most frequently observed in the first group, with a statistically significant difference in their favor.
The rates of observing gastric ulcers, gastric erosions, hypertensive gastropathy, gastric varices, gastric tumors, portal hypertensive gastropathy, and diffuse mucosal bleeding were similar among the three study groups without a significant statistical difference . The upper gastrointestinal endoscopy was normal in the duodenum in the highest percentage among patients in group three, with a statistically significant difference ($P < 0.05$). Blood in the duodenum and duodenal edema were observed with the highest rate in patients of the first group with a statistically significant difference compared to the other two groups ($P < 0.05$). The evaluation of the duodenum among patients of the first group could not be achieved with a higher rate compared to the other two groups, and the statistical difference was significant.
The percentage of observing esophageal ulcers, esophageal biopsies, adherent thrombus, and vascular distortion were similar among the three groups without a significant statistical difference ($P > 0.05$). The cause of bleeding was identified with certainty by visualizing the bleeding lesion in 32.31% of patients in the first group, 9.68% of patients in the second group, and 4.44% of patients in the third group. There was a statistically significant difference between the groups in favor of the first group.
Conclusion: Our research revealed no significant variance in endoscopic results in patients who underwent endoscopy at distinct time intervals. However, performing early endoscopy, within 24 hours of the first clinical presentation of acute upper GI bleeding, had a higher incidence of detecting the bleeding lesion and identifying the cause of bleeding in comparison to delayed endoscopy.
Our study emphasizes the significance of early endoscopy in patients with acute upper GI bleeding to enhance the possibility of identifying the cause of bleeding and administering timely interventions to minimize complications and mortality.
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Disclosure: Nothing to disclose.

PP0236 WITHDRAWN

PP0237

FEASIBILITY OF ENDOSCOPIC RESECTION FOR LOCAL FAILURE AND METACHRONOUS LESIONS AFTER CHEMORADIOTHERAPY OR RADIOTHERAPY FOR LARYNGOPHARYNGEAL CANCER

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Introduction: After chemoradiotherapy (CRT) or radiotherapy (RT) for laryngopharyngeal cancer, local failure (residual and local recurrence) occurs in 10-30%[1] [2].

Therefore, salvage treatment for local failure is important. However, salvage surgery is associated with high rate of adverse events and mortality[3].

In esophageal cancer, endoscopic resection (ER) has been shown technically feasible for local failure and metachronous lesions after CRT/RT[4]. Conversely, there are few reports in laryngopharyngeal cancer[5].

Aims & Methods: The aim of this study was to clarify the technical outcomes and local controllability of ER for local failure and metachronous lesions after CRT/RT for laryngopharyngeal cancer.

This study was a single-center, retrospective, observational study. We included patients with superficial laryngopharyngeal cancer (SLPC) who underwent ER (EMR: endoscopic mucosal resection, ESD: endoscopic submucosal dissection, ELPS: endoscopic laryngopharyngeal surgery) from March 2005 to September 2022.

The patients were classified into 3 groups. Local failure (LF): residual or local recurrent lesions after CRT/RT, Metachronous: second primary lesions within the irradiation field, and non-RT: lesions with no history of CRT/RT. Patients with prior laryngopharyngeal surgery and CRT/RT for cervical esophageal cancer were excluded.

Outcome measurements were short-term outcomes and local recurrence rate after ER, which were compared among 3 groups. Surveillance endoscopy was conducted every 6 months after ER. This study was approved by the Institutional Review Board of Shizuoka Cancer Center (J-2022-203).

Results: LF, metachronous and non-RT groups were analyzed in 16 patients (16 lesions), 18 patients (27 lesions), and 217 patients (306 lesions), respectively.

Patient and lesion characteristics were as follows (LF/ metachronous/ non-RT): male, 15 (94%)/ 16 (89%)/ 198 (91%); median age, 68/ 69/ 69 years; pharynx, 13 (81%)/ 26 (96%)/ 298 (97%); median size, 12/ 16/ 16 mm; ER method (ELPS), 13 (81%)/ 23 (85%)/ 259 (85%), median follow-up, 30/ 54/ 49 months. There were no differences in en bloc resection rate (88/ 93/ 88%, *P*= .851), R0 resection rate (50/ 52/ 56%, *P*=.879), and procedure time (25/ 27/ 25min, *P*=.497) among the 3 groups.

Adverse events (grade 3 or 4 in Common Terminology Criteria for Adverse Events v5.0) were as follows: delayed bleeding 0/ 1 / 1 cases; stricture 0/ 2/ 3 cases; laryngeal edema 1/ 0/ 9 cases; aspiration pneumonia 2/ 0/ 10 cases; retropharyngeal abscess 0/ 1/ 0 cases.

Adverse event rates tended to be higher in the LF and metachronous than in the non-RT group (18/ 15/ 8%, *P*=.096); however, there were no treatment-related deaths. Local recurrence occurred in 3/ 3/ 16 cases, and the cumulative local recurrence rates at the 2 years were 21%/ 13%/ 6%, respectively. It was significantly higher in the LF than in the non-RT group (*P*=.018).

On the other hand, local recurrence was more occurred in metachronous than non-RT group, but not significantly different (*P*=.259). In the treatments for local recurrence, second ER was performed in 2/ 1/ 8 cases and salvage surgery was performed in 1/ 2/ 4 cases. Locally controllable rates by ER only including second ER for local recurrence were 94%/ 93%/ 97%, with no significant difference (*P*=.177).

Conclusion: ER for LF and metachronous lesions after CRT/RT is technically feasible. Local recurrence rate in LF and metachronous lesions was higher than in the lesions with no history of CRT/RT, but local controllability by ER only without salvage surgery was comparable among 3 groups.

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Disclosure: Nothing to disclose.

PP0238

ENDOSCOPIC FEATURES AND TREATMENTS OF GASTRIC CYSTICA PROFUNDA: A RETROSPECTIVE STUDY IN SINGLE CENTER OF CHINA

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Introduction: Gastric cystica profunda (GCP) is a rare disease characterized by cystic dilation of gastric glands within the mucosa and/or submucosal layer.

The aim of this study was to summarize the endoscopic features of GCP and evaluate the effectiveness of endoscopic treatment to provide guidance for diagnosis and treatment.

Aims & Methods: This study summarized the endoscopic features and the effectiveness of endoscopic treatment for GCP to provide guidance for diagnosis and treatment. This retrospective study included 104 patients with GCP. In addition to demographic and clinical information, we regularly followed up the patients to evaluate local recurrence.

Results: Of the 104 patients, five experienced recurrence (4.8%). 59.6% GCP associated with early gastric cancer (EGC) was confirmed by the final pathology. The univariate analysis demonstrated that GCP patients with EGC were more likely to be elderly males. The lesions from the GCP with EGC group tended to locate in the cardia as mucosal lesion type with irregular shape and rough surface.

The multivariate analysis suggested that lesion morphology and endoscopic features were significant risk factors for GCP with EGC. Survival analysis suggested that there was no statistical difference in recurrence between GCP with EGC and GCP without EGC groups (P = 0.72).

Conclusion: GCP associated EGC (early gastric cancer) was found to be relatively common. Irregular morphology and mucosal lesion type might be the risk factors for development of EGC in GCP.

Endoscopic submucosal resection can be recommended as an effective and minimally invasive treatment for GCP with or without EGC.
Disclosure: Nothing to disclose.

PP0239

INCIDENTAL GASTRIC POLYPS IN AUTOIMMUNE GASTRITIS

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Introduction: Gastric polyps represent an abnormal proliferation of the gastric mucosa. Chronic atrophic autoimmune gastritis (CAAG) targets parietal cells and results in hypo-achlorhydria and hypergastrinemia, which exerts a proliferative effect on the gastric mucosa.
Aims & Methods: We investigate the incidence of gastric polyps in CAAG patients in a single-center retrospective study examining patients with confirmed CAAG from January 1990 until June 2022. Demographic, clinical, biochemical, and serological data were collected for each included patient. The histopathological characteristics of the detected polyps were recorded.
Results: A total of 176 CAAG patients were included. Eighty-nine (50.5%) had 163 incidental polyps. Seventy-six patients (85%) had 130 non-endocrine lesions, among which 118 (90.7%) were inflammatory, 6 (4.6%) adenomatous, and 4 (3%) fundic; 33 patients (37%) had gastric neuroendocrine neoplasms (gNENs), and 21 (23.6%) both; one had MALToma and one gastric adenocarcinoma.
Higher circulating lev- els of gastrin and chromogranin A were observed among patients with polyps (median 668 vs 893 pg/ml p = 0.0237, 146 vs 207 ng/ml p = 0.0027, respectively).
Conclusion: CAAG implies a high incidence of gNENs and exocrine lesions. Gastrin plays a possible trophic role on the mucosa. Further evidence is needed to validate its predictive role for increased polyp risk in CAAG.
Disclosure: Nothing to disclose.

PP0240

APPLICATION OF WIRED MAGNETIC-ASSISTED CAPSULE ENDOSCOPE FOR DIAGNOSING ESOPHAGEAL VARICES IN PATIENTS WITH LIVER CIRRHOSIS

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Introduction: Esophageal variceal (EV) bleeding is a severe complication of portal hypertension with significant morbidity and mortality. Guidelines for the American Association for the Study of Liver Diseases (AASLD) currently recommend endogastroduodenoscopy (EGD) at the time of diagnosis of cirrhosis.
Traditionally, screening and grading of EV is performed by EGD. However, EGD is an invasive procedure and not risk-free; it is mostly performed using intravenous conscious sedation increasing its risks by adding the effects of sedative drugs in the cirrhotic population. Wired magnetic-assisted capsule endoscopy (MACE) uses a wire-connected capsule steerable by an external magnet and allows examination of the upper GI tract. However, its potential usefulness in diagnosing esophageal varices in patients with liver cirrhosis has not been assessed.
Aims & Methods: Method: We prospectively enrolled patients with cirrhosis and indications to receive EGD for screening or surveillance for esophageal varices. A wired MACE study was performed followed by an EGD which was performed by one experienced endoscopist within 6 hours. Capsule videos were assessed by two investigator who were blinded to the patients' medical history and EGD findings. The diagnostic yield of wired MACE and EGD were compared. Patients' tolerance and acceptance of wired MACE and EGD were also assessed.
Results: Thirty-two patients were included for analysis (mean age: 64 years, range: 41-83 years; 59.4% male); the clinical characteristics of enrolled patients were listed in Table 1 and only 6 patients (18.8%) received sedated EGD. The mean examination time of wired MACE and EGD (including time of endoscopic variceal ligation) was 7.9 mins and 10.9 mins respectively.
The combined sensitivity, specificity and accuracy of diagnosing EV by wire-MACE was 92.1% [95% confidence interval(CI): 78.6-98.3%], 88.5% (95% CI: 69.9-97.6%) and 90.6% (95% CI: 80.7-96.5%) respectively with good interobserver agreement (kappa=0.87).
The combined sensitivity, specificity and accuracy of predicting the need for endoscopic variceal ligation (EVL) by wire-MACE was 70.0% (95% CI: 34.8-93.3%), 94.4% (95% CI: 84.6-98.8%) and 90.6% (95% CI: 80.7-96.5%) respectively with moderate interobserver agreement (kappa=0.54). Wired MACE has lower scores of discomfort (2.1 vs 4.4, p < 0.0001) and better scores of acceptance (4.2 vs 3.2, p <0.01) than that of EGD.

Cause of liver cirrhosis, n (%)	
Hepatitis B	16(50%)
Hepatitis C	12(38%)
HBV + HCV	1(3%)
HBV+ HDV	1(3%)
Autoimmune hepatitis+ Primary biliary cirrhosis	2(6%)
Child-Pugh classification A	23(72%)
Child-Pugh classification B	7(22%)
Child-Pugh classification C	2(6%)
History of esophageal variceal ligation	13(41%)

Table 1.

Conclusion: Wired MACE has good accuracy in diagnosing EV and predicting the need of prophylactic EVL; moreover, it has less discomfort and better acceptance than EGD.
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Disclosure: Nothing to disclose.

PP0241

POST-GASTROSCOPY UGI CANCER – A 10-YEAR SINGLE CENTRE CASE SERIES

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Introduction: UGI cancer detected within 5 years of a gastroscopy (termed post-OGD UGI cancer – POUGIC) may reflect delayed diagnosis and contribute to poorer prognosis. It has been estimated to be as high as 14% and BSG quality standards (2017) recommend rates do not exceed 10%. UGI cancer often presents late and with limited curative treatment options efforts are increasingly focused on improved screening methods and earlier diagnosis. We undertook a retrospective review of all histological diagnoses of oesophageal and gastric carcinoma at our hospital over a 10-year period to describe this cohort in our own practice.

Aims & Methods: Medical records for 588 histological diagnoses of gastric and oesophageal adenocarcinoma (AC) and squamous cell carcinoma (SCC) between 13/01/10 and 24/08/20 were reviewed, including previous OGDs, histology reports, radiological staging and past medical history.

The aim was to profile patients to identify risk factors for the development of POUGIC.

Results: 42/588 pts (7%) underwent OGD up to 5y (med 22m) prior to cancer diagnosis.

POUGIC pts: aged 53-96y (med 74.5y), 21% female, 60% White, 10% Asian, 10% Black, and 20% mixed/other.

Non-POUGIC (546pts): aged 24-94y (med 71.5y), 34% female, 57% White, 10% Asian, 11% Black, and 22% mixed/other.

OGD findings within 5 years prior to UGI cancer, 42 pts (%)	
"Benign" oesophageal stricture / lesion	14
Oesophagitis	12
Oesophageal candidiasis	2
Barretts oesophagus (BO)	24
Hiatus hernia	14
Gastric ulcer	2
Gastritis	12
Normal	24
Unknown	7

7% OGDs <5y prior to cancer diagnosis were by a Consultant.

POUGIC: 57% oesophageal (33% AC, 24% SCC), 7% GOJ AC, 36% gastric AC.

Non-POUGIC: 30% oesophageal (18% AC, 12% SCC), 8% GOJ (7% AC, 1% SCC), and 19% gastric AC.

POUGIC staging at presentation: 12% T1-2, 45% T3-4, 14% metastatic and 43% unknown. Pts died 0-35m (med 5m) after diagnosis.

Non-POUGIC staging at presentation: 13% T1-2, 50% T3-4, 19% metastatic and 35% unknown. Pts died 0-120m (med 7m) after diagnosis.

All patients with POUGIC and BO were known to have had BO prior to their cancer diagnosis and had undergone endoscopic screening as per BSG guidelines.

Conclusion: POUGIC were <10% of UGI cancer diagnoses, in accordance with BSG quality standards.

Age, gender and ethnicity were similar in both POUGIC and non-POUGIC, and so were not predictive factors.

Staging and median survival were also similar between POUGIC and non-POUGIC, suggesting that these outcomes were not affected by an OGD within the previous 5y.

Oesophageal cancer was more common in those that had OGD in the preceding 5y compared to those that had not, and BO was the most common abnormality in these procedures. 78% POUGIC had risk factors for UGI cancer on their initial OGD (inflammation, ulcer, BO, hiatus hernia, stricture), raising the possibility that treatment could have been optimised, e.g. acid suppression (45% of POUGIC were on PPI before their cancer diagnosis), anti-reflux surgery, lifestyle modifications or improved surveillance.

Importantly, 24% of POUGIC also had a "normal" preceding OGD, and with only 7% of these OGD performed by a Consultant, it is possible that pathology may have been missed on initial OGD. Additional novel screening techniques, such AI-assisted endoscopy, volatile organic compounds and Cytosponge may help obtain earlier diagnoses in future.

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Disclosure: Nothing to disclose.

PP0242

CONCORDANCE AND CLINICAL RELEVANCE OF ENDOSCOPIC AND HISTOLOGIC FINDINGS IN PEDIATRIC UPPER GASTROINTESTINAL ENDOSCOPY

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Introduction: Routine mucosal sampling from pre-defined anatomical sites is recommended during pediatric upper gastrointestinal endoscopy regardless of macroscopic appearance, but evidence for this recommendation remains limited. We investigated this issue in a large and well-defined patient cohort.

Aims & Methods: Concordances between endoscopic and histologic findings and their association to the diagnosis after the first endoscopy was studied in 1181 consecutive children undergoing endoscopy with systematic biopsy sampling during years 2007-2014.

Furthermore, the associations between endoscopic and histologic findings and a gastrointestinal diagnosis received during follow-up up to 11 years were studied.

Results: Systematic sampling was conducted in 98.4% of the children in esophagus, 99.3% in stomach, and 98.8% in duodenum. Any endoscopic findings were reported in 51.7% and histologic abnormalities in 59.3% of the children. The Cohen's k coefficient between endoscopic and histologic findings was 0.272 overall, 0.190 in esophagus, 0.148 in stomach, and 0.520 in duodenum. The most common diagnoses were celiac disease (26.0%), inflammatory bowel disease (11.2%) and gastroesophageal reflux disease (5.2%).

Significant association between endoscopic abnormalities and presence of a diagnosis was seen in any endoscopic site and in duodenum, but not in esophagus or stomach, while histologic abnormalities associated with a diagnosis in each biopsy location (Table 1.).

Histologic abnormalities were seen in 146 (25.4%) children without diagnosis at the first endoscopy, the most common being chronic inactive gastritis (7.5%) and mild chronic esophagitis (5.8%).
Furthermore, in patients without initial diagnosis histologic abnormalities were associated with a follow-up diagnosis (odds ratio 2.59, 95% confidence interval 1.40-4.79), whereas endoscopic abnormalities did not (OR 0.61, 95% CI 0.31-1.18).

	N	%	**Gastrointestinal diagnosis** Odds ratio	95% confidence interval
Endoscopic findings Any site	610	64.3	2.98	2.35-3.77
Esophagus	125	47.2	0.83	0.57-1.20
Stomach	190	52.6	1.06	0.78-1.45
Duodenum	384	73.4	4.02	3.08-5.24
Histologic findings Any site	700	79.1	30.6	21.8-43.0
Esophagus	238	78.2	4.47	3.20-6.24
Stomach	363	76.3	4.78	3.62-6.33
Duodenum	367	90.1	19.4	13.3-28.4

Table 1. Relationships between endoscopic and histologic findings and diagnosis received in 1181 children at the time of their first upper gastrointestinal endoscopy.

Conclusion: The low concordance between endoscopic and histologic findings supports systematic biopsy sampling in pediatric upper gastrointestinal endoscopy. Histologic findings are strongly associated with initial gastrointestinal diagnosis and to a lesser extent with a follow-up diagnosis.
Disclosure: Nothing to disclose.

PP0243

CHARACTERISTICS AND FEATURES OF UPPER GASTRO INTESTINAL BLEEDING IN PATIENTS ON ANTITHROMBOTIC DRUGS: A PROSPECTIVE STUDY

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Introduction: Anti-thrombotic (AT) drugs commonly prescribed in cardiovascular disease are considered a recognised risk factor for upper gastro intestinal bleeding (UGIB). However, few studies have evaluated their effect on endoscopic outcomes in patients admitted for UGIB, and have concluded that the results remain controversial.
Aims & Methods: Aims: Evaluate the effect of AT use on endoscopic outcomes in patients admitted for UGIB.
Methods: This is a prospective monocentric cross-sectional study of 332 patients conducted between June 2020 and August 2021. We considered as users of AT drugs all patients on antiplatelet agents (low-dose aspirin, thienopyrimidines) and/or anticoagulants (vitamin K antagonists, direct-acting anticoagulants, heparin).
Results: The average age was 59+/−16.7 years. Our series was characterised by a clear male predominance of 77.1%.63 patients (19%) were taking AT drugs (41 antiplatelet, 39 anticoagulant).The two groups differed in age (68 vs 57; p<0.001), comorbidities (75.8% vs 16.7%; p<0.001), however there was no statistically significant difference in active bleeding at endoscopy (12.7%vs 16.8%; p=0.425), and the need for endoscopic haemostasis (7.9%vs 16%; p=0.1). In multivariate analysis and adjusting for age, sex, comorbidities, presence of active bleeding and use of antithrombotics, only the presence of active bleeding could predict the need for endoscopic haemostasis. Indeed, the presence of active bleeding at the time of endoscopy multiplies by 26 the risk of recourse to endoscopic haemostasis (OR: 26, CI: 12.9–62.15, p<0.001), whereas the use of AT drugs does not influence the need for endoscopic haemostasis (OR: 0.386, CI: 0.105- 1.42, p=0.154).
Conclusion: Older patients using AT admitted for UGIB do not appear to have an increased risk of active bleeding at endoscopy or needing endoscopic haemostasis.
Disclosure: Nothing to disclose.

PP0244

PRELIMINARY RESULTS OF A RETROSPECTIVE STUDY OF OVER 20 YEARS OF ROUTINELY TRANSNASAL PERCUTANEOUS ENDOSCOPY GASTROSTOMY PLACEMENT: SAFETY AND FEASIBILITY

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Introduction: Since the report of Shaker in 1994, transnasal esophagogastroduodenoscopy (T-EGDS) has been reported worldwide as one technique to facilitate comfortable procedures avoiding sedation. From 1996 in our Centre, we routinely use this technique in all the patients for diagnostic and selected operative EGDS. This approach is also suitable for the placement of percutaneous endoscopy gastrostomy (PEG) but in the published papers it has been performed only when conventional upper gastrointestinal endoscopy was unusable (dysphagic patients with neurological disease or with stenosis and/or occlusion of the mouth or pharynx). On the contrary, since 2000 we have routinely used the transnasal approach for all patients requiring PEG, reserving the oral technique when the transnasal access route is impossible.
Aims & Methods: We performed a retrospective analysis of all patients who underwent PEG placement between January 2000 and March 2023 in the Unit of Gastroenterology of San Camillo De Lellis Hospital, Rieti, Italy, in order to demonstrate the feasibility and safety of T-PEG placement in routine practice. We used ultrathin gastroscope through a nostril after assessment and lubrification, and the pull technique was used for tube placement.
Results: PEG placement was required for 256 consecutive patients (male 49.4%; female 51.6%), the average age was 79 years, within a range from 26 to 104 years. Transnasal approach was used in 162 patients (nasal group: 63.3%) while oral approach was used in 94 (oral group: 36.7%). The failure of transnasal approach was related to impossibility of nasal intubation due to narrow nasal passages or to inability to transilluminate the stomach. In these cases we needed transoral route. 14 patients underwent transoral PEG placement due to unavailability of transnasal gastroscope. The duration of the procedures was similar in both approaches (12 ±3 minutes oral vs 13±4 minutes nasal).
The most common indications for PEG insertion were neurologic disorders (n=132, 51.6 %), cerebrovascular accident (n=73, 28.5 %), esophageal cancer or head and neck cancer (n=18, 7 %), other pathologies (n=33, 12.9 %). 167 procedures were performed without sedation: 77.8 % (n= 130) in the nasal group and only 22.1% (n=37) in the oral group. Outpatient regimen PEG placement was also significantly higher in trans nasal group (79 % vs 58 % oral group). We registered 3 major complications, 1 in oral group and 2 in nasal group (one necessitated surgery). No procedure-related death was registered. There were no unplanned re-admissions of outpatients discharged from the gastroenterology unit for procedure-related complications.

Conclusion: The more than twenty years' experience of our center demonstrates that the transnasal approach is safety, feasible and could be routinely used in daily endoscopic practice for PEG placement. The minimally invasive technique therefore reserves sedation to a few selected cases to reduce costs, improve logistic organization and avoid anesthesia related complications.

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Disclosure: Nothing to disclose.

PP0245

EFFICACY AND SAFETY OF PRIMARILY ENDOSCOPIC MANAGEMENT OF POST SURGICAL FISTULAS OF THE UPPER DIGESTIVE TRACT

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Introduction: Post surgical fistulas of the upper digestive tract(UDT) are associated with significant morbidity and mortality.

Aims & Methods: We aimed to evaluate the efficacy and safety of a primarily endoscopic management of post surgical fistulas of the UDT.

We performed a multicentre retrospective analysis in which 126 consecutive patients underwent primarily endoscopic management of post surgical fistula between March 2009 and January 2022. Factors associated with successful fistula closure and adverse events were evaluated. Qualitative variables were expressed as percentages and evaluated with Chi-square test. Quantitative variables were evaluated for normal and non-normal distribution. Non-normal quantitative variables were expressed as median (min-max) and evaluated with Mann-Whitney's test. Logistic regression analysis was performed to determine factors associated with fistula closure and adverse events. P value <0,05 was considered statistically significant (IBM SPSS 28).

Results: The median age was 57(17-89) years and 73(60%) patients were female. Main Indications for surgery were obesity in 73(58%) and cancer in 46(36%) (of which 32(70%) were gastric cancer). The median time between surgery and fistula diagnosis was 7(1-387) days. Average size of fistula orifice was 7(1-30)mm.

Fistulas were located in the esophagus in 8 patients (6.3%), gastric cardia in 46 (36.5%), stomach non-cardia in 21 (16.7%), esophago-gastric or esophago-jejunal anastomosis in 9 (7.1%), gastro-jejunal anastomosis in 39 (31.0%), small intestine in 2 (1.6%) and unknown in 1 (0.8%).

Endoscopic interventions included placement of a covered metallic stent in 98(78%) patients (fully-covered n=46, partially covered n=37, both fully and partially covered n=15), clips in 58 (47%) patients (OTSC n=37, TTSC n=17, both OTSC and TTSC n=4) and argon plasma in 16(13%) patients.

Early adverse events (<1week) occurred in 22(17%) and included stent migration (n=10), sepsis (n=6), gastrointestinal bleeding (n=5) and death (n=1). Late adverse events occurred in 31(20%) patients, namely stricture (n=11), mucosal overgrowth (n=6), migration (n=4), vomiting (n=3), stent fracture (n=2), perforation and right hemicolectomy (n=1) and death (n=4).

After a median follow up of 25 (1-147) months, 32(25%) died, but only 15(12%) due to fistula (3 due to aorto-esophageal fistula and the others due to sepsis), 12(10%) due to neoplasia and 5 due to other causes.

Need for surgical reinterventions (p=0.002) was associated with early adverse events. Late adverse events were less frequent in patients with clip placement (p=0.011).

Clinical success defined as definitive fistula closure was documented in 106(84%) patients after a median of 8(1-192) weeks and required a median of 3(1-13) endoscopies. Factors predictive of fistula closure were female gender (p=0.01), indication for surgery (p=0.02), lower C reactive protein(p=0.003), lower urea (p=0.006), lower AST(p=0.003) and lower ALT(p=0.002).

Conclusion: The primarily endoscopic approach to management of UDT post surgical fistulas was clinically successful in >80% of the patients with a good safety profile.

Disclosure: Nothing to disclose.

PP0246

DEFINING THE STANDARD LENGTH OF PERORAL ENDOSCOPIC MYOTOMY (POEM) FOR ACHALASIA: A SYSTEMATIC REVIEW AND METANALYSIS

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Introduction: Per-oral endoscopic myotomy (POEM) has revolutionised achalasia treatment, nevertheless there is still a lack of technical standardization. No clear definition of "long", "standard" or "short" POEM exists to date. With the exception of type III achalasia, there is evidence that myotomy limited to the lower esophageal sphincter (<6 cm) may be highly effective, time-saving and associated with less post-postoperative gastroesophageal reflux, yet it is common practice to use long myotomy in these patients.

Aims & Methods: We conducted a systematic review with meta-analysis to define current myotomy length standards during POEM. A literature search was performed on MEDLINE-Pubmed, Embase, Scopus, and Cochrane Library (from inception to December 2022). We included prospec-

tive, retrospective clinical studies and randomized controlled trials reporting technical details of POEM, in which no definite or comparative myotomy length was intentionally adopted thus representing a "standard" myotomy for the operator.

The primary outcome was the pooled mean total myotomy length.

Secondary outcomes included clinical success and reflux symptoms. Main exclusion criteria were: patient age < 18 years; studies providing achalasia diagnosis without high-resolution manometry, studies including patients with non-achalasia esophageal motility disorders, studies comparing different myotomy lengths or adopting pre-specified myotomy lengths, studies including type III achalasia patients only. Sub-group analyses were performed to explore heterogeneity across studies and to assess the impact of different subtypes, geography and time trends on the primary outcome.

Results: From initial 7,172 records, after exclusion criteria were applied, a total of 25 articles were included. Of those, 6 provided results on the primary outcome in separate subgroups and were therefore included as separate studies.

Overall, 31 studies with a total 3023 patients were evaluated. The pooled mean of total myotomy length was 10.39 cm (95% CI 10.06-10.71; I^2 99.3%). The pooled mean of esophageal and gastric myotomy length, provided by 17 studies, was 7.11 cm (95% CI 6.51-7.71; I^2 99.8%) and 2.81 cm (95% CI 2.41-3-22; I^2 99.8%) respectively.

At the subgroup analysis for achalasia subtypes, pooled mean length in non-spastic achalasia (type I and II) was 10.17 cm (95% CI 9.91-10.43; I^2 94.2%), while in type III attested at 14.02 cm (95% CI 10.59-17.44; I^2 98.9%). Pooled mean myotomy length for studies conducted between 2014-2018 was 10.56 cm (95% CI 9.51-11.61; I^2 99.0%) while studies between 2019-2022 showed a mean length of 10.3 cm (95% CI 9.99-10.61; I^2 99.6%).

No geographical difference was observed: in eastern countries mean length was 10.2 cm (95% CI 9.12-10.92; I^2 98.9%), while in western countries was 10.95 cm (95% CI 9.83-12.07; I^2 99.5%). At a median follow-up of 29 months, the pooled clinical success rate was 91% (95% CI 88.9%-93.2%; I^2 67.2%), while the pooled rate of post-POEM clinical reflux was 26% (95% CI 21.0%-31.3%; I^2 89.5%).

Conclusion: Our meta-analysis found that the pooled mean myotomy length during a "standard" POEM is 10.4 cm, remaining over 10 cm in non-spastic (type I and II) achalasia. The high heterogeneity across studies confirms that POEM technique needs further standardization.

We found no time trend towards adopting short POEM, despite recent evidence supporting efficacy and safety of this approach.

Disclosure: Nothing to disclose.

PP0247

COMPARING ENDOSCOPIC MANAGEMENT OF POST SURGICAL FISTULAS OF THE UPPER DIGESTIVE TRACT ON DIVERSE SURGERY TYPES– MULTICENTRIC RETROSPECTIVE EVALUATION

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Introduction: Post surgical fistulas of the upper digestive tract (UDT) are associated with significant morbidity and mortality. The indication for surgery may influence outcomes.

Aims & Methods: We aimed to evaluate the clinical presentation,efficacy and safety of a primarily endoscopic approach to management of post surgical fistula of the UDT comparing oncologic versus non-oncologic indications for surgery.

Multicentre retrospective analysis involving 126 consecutive patients who underwent primarily endoscopic management of post surgical fistulas of the UDT between March2009-January2022. Clinical efficacy (fistula closure) and adverse events in patients with fistulas after oncologic and non-oncologic surgery were compared.Qualitative variables were evaluated with Chi-square test. Quantitative variables with non-normal distribution were expressed as median(min-max) and evaluated with Mann-Whitney's test. We performed logistic regression analysis to determine factors associated with fistula closure and adverse events. A p value <0.05 was considered statistically significant (IBM SPSS28).

Results: Median age was 57(17-89) years and 73(60%) patients were female. Indications for surgery were non-oncologic in 80 patients(63.5%) ((mostly bariatric, n=73)) and cancer in 46(36.5%) patients.

Patients undergoing oncologic surgery were older and with male predominance. There were no differences regarding median time to detect fistula or fistula size between the groups. Fever, abdominal pain and abdominal collections were more frequent in non-oncologic surgery group. On laboratory analysis, only haemoglobin was significantly lower in patients undergoing oncologic surgery(Table1). We found no significant difference on leukocyte count, neutrophil percentage, C-reactive protein, AST, ALT, total bilirubin, INR or creatinine.

		Oncologic	Non-oncologic	p-value
Characterization	Median age	71(52-89),	45(17-79)	<0.001
	Female gender	21(26%)	35 (76%)	<0.001
	Median time to fistula detection(days)	8(1-83)	6(1-387)	0.08
	Fistula size(mm)	5.0(2.0-25.0)	5.0(1.0-30.0)	0.671
Clinical presentation	Fever	18(39%)	49(61%)	0.049
	Abdominal pain	13(28%)	46(58%)	0.006
	Abdominal collections	11(n=24%)	48(60%)	<0.001
	Sepsis	13(n=28)	21(26%)	0.309

Endoscopic interventions were similar in both groups and included placement of a covered metallic stent in 64(80.0%) non-oncologic patients and 34(73.9%) oncologic patients (p=0.506) and clips in 99(48.8%) oncologic patients and 19(41.3%) (p=0.461) non-oncologic patients. The frequency of early adverse events (<1 week) (8(17%) vs 14(18%), p=1.0),as well as late adverse events (10(22%)vs 21(26%), p=0.670) were similar in both groups. We documented clinical success (fistula closure) in 72(90%) of non-oncologic patients and 34(74%, p=0.023) of oncologic patients, but after a similar median duration of management (13 (1-423) weeks vs 6(1-55) weeks, p=0.11) and number of endoscopies (3(1-8) vs 2(1-13), p=0.706).
After a median follow up of 36(1-147) and 12.5(1-113) months, 6(7.5%) and 28(60.9%) patients died, respectively from the group of non-oncologic and oncologic surgery. In the oncologic surgery group, 12 patients (48%) died from progression of oncologic disease.
Conclusion: A primarily endoscopic approach is effective in >70% of patients with fistulas after UDT surgery but it´s efficacy was significantly lower in patients with fistulas after oncologic surgery compared to non-oncologic surgery and this may have been due to the higher age and male predominance.
Disclosure: Nothing to disclose.

PP0248

THE DIAGNOSTIC PERFORMANCE OF MAGNIFYING ENDOSCOPY WITH THIRD-GENERATION NARROW-BAND IMAGING FOR EARLY GASTRIC CANCER; POST HOC ANALYSIS OF THE RANDOMIZED TRIAL (3G DETECTION TRIAL)

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Introduction: The magnifying endoscopy (ME) with narrow-band imaging (NBI), which can visualize the microvascular (MV) architecture and the microsurface (MS) structure showed the acceptable diagnostic ability for early gastric cancer (EGC) even using second-generation NBI.
The latest endoscopic system EVIS X1 (Olympus, Tokyo, Japan) includes third-generation (3G) NBI with more brightness and clearness, however, the diagnostic performance of ME with 3G-NBI for EGC was unknown.
Aims & Methods: The aim of this post hoc analysis was to investigate the diagnostic performance of ME with 3G-NBI for EGC using the data from the 3G detection trial, which was the randomized three-arm phase II trial comparing white light imaging (WLI), 3G-NBI, and texture and color enhancement imaging (TXI) for detecting gastric neoplasms (GN).
The major inclusion criteria of 3G detection trial were as follows:
1. Scheduled surveillance endoscopy after endoscopic resection for GN or endoscopic resection, chemotherapy, or radiotherapy for esophageal cancer (EC), or;
2. Scheduled preoperative endoscopy for known GN or EC. The EVIS X1 system and a high-definition gastroscope with an optical zoom (GIF-XZ1200) were used.
Patients were randomly assigned to the following arms: WLI followed by WLI, 3G-NBI followed by WLI, and TXI followed by WLI. All suspected GN lesions were diagnosed as EGC or non-EGC using ME with 3G-NBI according to ME simple diagnostic algorithm of EGC (MESDA-G), which use the presence of irregular MV and/or MS patterns within the demarcation line, and its confidence level was recorded. Pathological diagnoses were made based on biopsied tissue or final results of resected specimens by expert pathologists at each institution.
This post hoc analysis compared the diagnosis of ME with 3G-NBI for EGC with the pathological diagnosis. The primary endpoint was the diagnostic performance of ME with 3G-NBI for EGC, and it also evaluated according to confidence level (high/low), macroscopic type (elevated/flat or depressed), and lesion size (<10 mm/≥10 mm).
Results: Of 901 patients enrolled in the 3G detection trial, a total of 228 suspected GN lesions in 187 patients were analyzed. The median size of the lesions was 5.0 mm (range: 1.0-40.0). In the macroscopic type, 43 (18.9%) lesions were elevated and 185 (81.1%) were flat or depressed. Using ME with 3G-NBI, 62 lesions (27.2%) were diagnosed as EGC, of which 27 were diagnosed with high confidence. And, 166 (72.8%) were diagnosed as non-EGC, of which 91 were diagnosed with high confidence. Finally, 61 were pathologically diagnosed as EGC and other 167 were pathologically diagnosed as non-EGC.
The overall diagnostic performance of ME with 3G-NBI for EGC was, sensitivity of 70.5% (43/61), specificity of 88.6% (148/167), accuracy of 83.8% (191/228), positive predictive value (PPV) of 69.6% (43/62) and negative predictive value (NPV) of 89.2% (148/166), respectively. For the lesions diagnosed with high and low confidence, sensitivity was 78.1% (25/32) and 62.1% (18/29), specificity was 97.7% (84/86) and 79.0% (64/81) (p<0.001), accuracy was 92.4% (109/118) and 74.6% (82/110) (p<0.001), respectively.
For the elevated and flat or depressed lesions, sensitivity was 84.6% (11/13) and 66.7% (32/48) and specificity was 96.7% (29/30) and 86.9% (119/137), respectively. For the lesions with <10 mm and ≥10 mm in size, sensitivity was 65.7% (23/35) and 76.9% (20/26) and specificity was 88.6% (116/131) and 88.9% (32/36), respectively.
Conclusion: The diagnostic performance of ME with 3G-NBI for EGC was acceptable, especially in the lesions diagnosed with high confidence.
Disclosure: Nothing to disclose.

PP0249

LEARNING CURVE FOR GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION: EXPERIENCE IN A WESTERN CENTER

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Introduction: Endoscopic submucosal dissection (ESD) is widely implemented in Asia. Experience from the western world is still limited, so the evidence on the description of a learning curve (LC) is sparse.
Aims & Methods: The aim of this study is to evaluate the LC for ESD of gastric lesions using accepted proficiency benchmarks (PB).
Retrospective analysis with a prospectively maintained database of all patients undergoing ESD at a Western tertiary center from June 2016 to December 2022.

Inclusion criteria: ESD of gastric lesions performed by a single operator.
Primary endpoint: a LC to estimate the number of ESDs required to achieve PB (>90% for en bloc resection, >80% for histologic margin-negative (R0) resection and resection speeds (RS) >9cm2/hr), using the CUSUM method.
Results: Of 477 ESD performed, a total of 235 ESD met the inclusion criteria.
The en bloc resection rate was 100%. The R0 resection rate was 97% so no statistically significant differences were found, since it was always within PB.
Using the CUSUM method, the LC was divided into learning periods [Phase I - learning phase (cases 1-48); Phase II - adaptation phase (49-72), Phase III - consolidation (from case 73 on).
Globally, after reaching the level of 9cm2/h and after resection 73, the cumulative moving average remains above this speed for all following resections.
Several locations reach moving average proficiency levels at different number of interventions (antrum: from the beginning, body: 134th).
Conclusion: The PB regarding the en bloc and R0 resection were achieved from the beginning.
The PB regarding de RS was achieved from the beginning for the antrum.
The PB regarding de RS, globally, has a clinically significant first learning inflection at ESD number 49 and at ESD number 73 achieved sustained PB for RS.
Disclosure: Nothing to disclose

PP0250

ELDERLY SUBJECT VS YOUNG SUBJECT: CLINICAL, ENDOSCOPIC AND THERAPEUTIC PARTICULARITIES IN THE EVENT OF UPPER GASTROINTESTINAL BLEEDING: PROSPECTIVE STUDY

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Introduction: Upper gastrointestinal bleeding (HDH) is the most common diagnostic and therapeutic emergency in hepato-gastroenterology that can be life-threatening, requiring multidisciplinary management.
The aim of our study is to compare the epidemiological, clinical, endoscopic, and therapeutic characteristics of upper gastrointestinal bleeding between young and elderly subjects.
Aims & Methods: This is a single-center prospective cross-sectional study of 332 patients, conducted over a period of one year between January 2022 and December 2022.
We included in our study all patients admitted to our training for HDH. We divided our patients into 2 groups, group A corresponding to subjects aged ≥ 65 years and group B corresponding to patients < 65 years.
Results: Among the 332 patients collected, 38.9% were over 65 years old. The M/F sex ratio was 2.79. Thirty-one percent of patients were on antithrombotic treatment, and 38.8% had comorbidities.
There was no statistically significant difference between the two groups A and B regarding the origin of HDH, however, it was found that there was a difference between the two groups A and B regarding the use of antithrombotic (31.8% vs 10.8%, p<0.001) the presence of comorbidities (39.1% vs 20.7% p<0.001) the presence of active bleeding (9.3% vs 18.7 %, p=0.019) and the use of endoscopic hemostasis (8.5% vs 17.7%, p= 0.019).
In multivariate analysis and adjusting for the parameters studied, namely age, sex, comorbidities, the presence of active bleeding and the use of antithrombotic; only the presence of active bleeding could predict the need for endoscopic hemostasis.
In fact, the presence of active bleeding multiplies by 29.63 the probability of recourse to endoscopic hemostasis (OR: 29.62, IC: 13.52-64.90, p< 0.001), whereas the use antithrombotics (OR: 0.24, CI: 0.067-1.452, p=0.37) and age ≥ 65 years (OR: 0.425, CI: 0.205-1.342, p=0.21) have no influence on this risk.
Conclusion: Although older subjects had more comorbidities with more frequent use of antithrombotics, HDH in this age group does not seem to be more severe with a lower rate of active bleeding on endoscopy implying a less frequent need for antithrombotics endoscopic hemostasis.
Disclosure: No conflict of interest.

PP0251

THE LEARNING CURVE FOR ENDOSCOPIC SUBMUCOSAL DISSECTION IN EARLY GASTRIC NEOPLASM: SINGLE OPERATOR OVER 800 CASES EXPERIENCE IN EIGHT YEARS

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Introduction: Endoscopic submucosal dissection (ESD) is recommended as a treatment modality for early gastric cancer because it allows organ-sparing, curative en-bloc resection, and complete histopathological evaluation. Although many endoscopists are interested in learning how to perform ESD, the procedure requires a high level of expertise and is technically challenging, especially for less experienced endoscopists.
Aims & Methods: This study aimed to investigate the single-operator learning curve and clinical outcomes of consecutive gastric ESDs. Eight hundred-eleven gastric ESDs were performed between March 2016 and December 2022. The learning curve for ESD was evaluated using the cumulative sum (CUSUM) method to analyze the number of ESDs required for achieving proficiency.
Results: Of the enrolled patients, 310 (40.9%) cases were diagnosed with early gastric cancer. Overall en-bloc resection rates, R0 resection, and curability is 98.6%, 96.3%, and 93.7%, respectively. The median ESD speed was 18.1 cm2/h (IQR 12.2 – 25.3). ESD speed was slower than average in the upper third (9.9 cm2/h), presence of submucosal fibrosis (11.0 cm2/h) and the presence of subcutaneous fat (11.1 cm2/h), and faster than 20 cm2/h in the lower third (20.2 cm2/h) and lesion sized > 3 cm (23.6 cm2/h). According to the existing literature, the proficiency benchmark is defined as en-bloc resection >90%, R0 resection and >80%, and resection speed >9 cm2/h. However, since the first case satisfies all the existing benchmarks, we should establish a new definition of speed among benchmarks. In the changes of resection speed, we defined 16.5 cm2/h as a benchmark for ESD speed, which is the median value of the rapidly changing slope, and the CUSUM curve revealed that 156 cases were needed to achieve proficiency.
Conclusion: Due to the development of endoscopic equipment, a higher level of ESD proficiency benchmark is required. One hundred sixty-five cases were required to attain a higher technical level of successful performance in gastric ESD.
Disclosure: Nothing to disclose.

PP0252

ADDITIONAL ENDOSCOPIC TREATMENTS WITH ONLY POSITIVE LATERAL MARGIN AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC CANCER

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Introduction: Endoscopic treatment as additional therapy for noncurative resection in the only positive lateral margin (pLM) after endoscopic submucosal dissection (ESD) for early gastric cancer (EGC) has been recommended in patients with no risk of lymph node metastasis because it is less invasive than surgical gastrectomy with favorable long-term outcome.

Aims & Methods: However, there is no guideline on how to perform follow-up observation until additional ESD is performed. We retrospectively analyzed 161 patients with only pLM after ESD for EGC who had undergone at least 2 years of follow up.

Results: Of the 161 patients, 148 patients were undergone endoscopic follow-up biopsy group and 13 patients were directly undergone additional treatment without further biopsy confirmation. In directly undergone additional treatment group (n=13), 9 cases of no residual tumor were determined (9/13, 69.2%); 3 out of 3 in additional ESD (3/3, 100%), 3 out of 4 in biopsy and argon plasma coagulation (APC) (75%), and 3 out of 6 in surgical resection (50%).

However, in endoscopic follow-up biopsy group, 121 patients showed no recurrence at least 2 years follow up. Twenty two patients (22/148, 14.9%) were confirmed positive on resection ulcer margin. Twenty patients underwent 2 nd ESD, two in APC, and one in surgical resection. Only one case of no residual tumor was determined among 20 cases of 2 nd ESD.

Conclusion: Additional treatment after endoscopic follow up biopsy confirmation could be a proper treatment strategy in patients with only positive lateral margin after ESD for EGC who has no risk factors for lymph node metastasis.

Disclosure: Nothing to disclose.

PP0253

APPLICATION OF ARTIFICIAL INTELLIGENCE IN THE DETECTION OF BORRMANN TYPE 4 ADVANCED GASTRIC CANCER IN UPPER ENDOSCOPY

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Introduction: Borrmann type 4 gastric cancer is defined as a diffuse gastric cancer that infiltrates the gastric wall, often without an overt mass or ulceration. Clinically, it is associated with a poor prognosis and lower curative resection rate, but is easily missed in routine upper endoscopic exams.

This study aimed to develop an artificial intelligence (AI) system that can detect Borrmann type 4 gastric cancer lesions in upper endoscopic images.

Aims & Methods: Endoscopic images of patients diagnosed with Borrmann type 4 gastric cancer, along with normal controls were collected from Seoul National University Hospital. A total of 227 gastric cancer patients (1,973 images) and 227 normal controls (1,554 images) were assigned to the train dataset, while 50 gastric cancer patients (417 images) and 50 normal controls (344 images) were assigned to the test dataset. A deep residual learning network model, ResNet-152 was used for training.

Results: The sensitivity, specificity and accuracy for identification of Borrmann type 4 gastric cancer images were 87.29% (95% confidence interval [CI] 84.09-90.49%), 97.97% (95% CI 96.47-99.46%) and 92.12% (95% CI 90.20-94.03%), respectively. When the diagnosis was made in patients with more than 50% of the endoscopic images identified as Borrmann type 4 gastric cancer, the sensitivity, specificity and accuracy was improved to 94% (95% CI 87.42-100%), 100% (95% CI 100-100%) and 97% (95% CI 96.66-100%), respectively.

Conclusion: A novel AI-based model that can identify Borrmann type 4 gastric cancer from endoscopic images was developed. Although further internal and external validation is needed, it is expected to assist clinicians in the early diagnosis of Borrmann type 4 gastric cancer with high accuracy.

Disclosure: Nothing to disclose.

PP0254

EXPERIMENT WITH THE APPLICATION OF LAPONITE COMPOSITE HYDROGEL IN ENDOSCOPIC SUBMUCOSAL INJECTION

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Introduction: There are many studies on submucosal injections, but no consensus has been reached yet. In this study, laponite/sodium glycerophosphate (La/GP) hydrogel was synthesized, and the feasibility, effectiveness and safety of its application in submucosal injections were explored.

Aims & Methods: 0.3% sodium glycerophosphate powder and laponite powder of different volumes were pre-mixed and added with pure water to synthesize hydrogels of different concentrations. The microscopic morphology was observed and the degradation rate and rheological properties were measured. Inject 2ml of normal saline, 0.4% sodium hyaluronate and hydrogel of different concentrations into the fresh isolated porcine gastric mucosa, observe the change of the height of the swelling over time; inject the same area and then simulate endoscopic submucosal dissection (ESD) Electrosurgical peeling, record the time of complete peeling. The effect of 5% hydrogel extract on the survival rate of GES-1 cells was examined with CCK8 assay.

Results: Various characterization experiments showed that the synthesized shear-thinning hydrogel showed porous structure, stable properties, and the gel formation rate was faster with the increase of laponite concentration. In the in vitro submucosal elevation test, the maintenance rate of normal saline was less than 50% at 90 minutes, 55% for 0.4% sodium hyaluronate, and 65% – 88% for 2% – 5% La/GP hydrogel, and the difference was statistically significant ($P < 0.05$).

Simulated ESD peel time was also statistically shorter than the control group. In the cytotoxicity test, GES-1 cell viability was not significantly different from the control group within 1 – 3 days after the addition of 5% hydrogel extract.

Conclusion: Laponite/sodium glycerophosphate (La/GP) shear-thinning hydrogel is easy to prepare, can maintain the ideal swelling height under the mucosa for a long time, and has good biocompatibility. It is expected to become a new type of submucosal injection.
Disclosure: Nothing to disclose.

PP0255

COMPARISON OF RESECTION DEPTH BETWEEN ESD AND EMR OF GASTRIC NEOPLASMS IN A TERTIARY CARE PROGRAM IN THE WESTERN WORLD

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Introduction: Both endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are treatment options for gastric neoplastic lesions and intervention of choice in Asia for superficial gastric cancer, yet comparative studies between the two approaches in the Western world remain sparse. Prior Western studies, mainly meta-analyses, primarily focused on the differences in en bloc resection rate, curative resection rate, and other clinical outcomes. However, little is known regarding the depth of resection by EMR versus ESD, which may critically determine the efficacy of resection.
Aims & Methods: This retrospective study aims to systemically evaluate the depth of resection following EMR and ESD procedures by histological measurement. The standardized and reproducible assessment provides important insights that may be valuable for future research and clinical practice.
Ultimately, the findings from this study will contribute to a better understanding of the most effective yet less traumatic treatment modalities for gastric lesions. Gastric EMR and ESD specimens from 20 patients in the past 5 years were analyzed microscopically for pathology. Tissue sections with intact inked deep resection margins were selected for measurement. The maximum and average depth of resection were recorded and calculated for each patient, defined as depth from muscular mucosa to inked resection margin. The normality of the data for each group was assessed using the Shapiro-Wilk test. An unpaired t-test was then performed to compare the resection depths between the two groups. Other clinical and pathological features were compared between the two groups.
Results: The mean maximum resection depth is 4.53 mm for ESD and 2.33 mm for EMR (p=0.0049). The difference in average resection depth between the 2 groups is not statistically significant (p=0.132). However, ESD resulted in a higher en bloc resection rate (85.7%) as compared to EMR (69.2%).
As could be expected, a larger proportion of ESD specimens (42.8%) were for malignant lesions as compared to EMR cases (15.3%). In addition, the lesion size is significantly larger in the ESD group than in the EMR group (p=0.0031), with a mean lesion size of 41.86 mm for ESD cases and 16.89 mm for EMR cases. There were no significant differences in age or gender between the 2 groups.
Conclusion: Our study provides a detailed and objective evaluation of the depth of resection achieved by ESD and EMR techniques for gastric neoplasms in a Western population. We have shown a significantly higher *en bloc* resection rate and greater maximum resection depth achieved with ESD. Thus, ESD may be the preferred technique for lesions requiring a greater resection depth and those with a larger size.
Furthermore, ESD allows for accurate assessment of the T stage of the gastric neoplasm and evaluation of the resection margins, which is crucial in ensuring the curative resection of the lesion. However, the decision to choose between ESD and EMR should be made on a case-by-case basis, considering the individual patient and lesion characteristics and the expertise of the endoscopist.
In conclusion, our findings suggest that ESD provides a deeper and more complete resection of gastric lesions as compared to EMR, similar to the results obtained in Asia.
Disclosure: Nothing to disclose.

PP0256

PER-ORAL ENDOSCOPIC MYOTOMY IN THE MANAGEMENT OF ZENKER'S DIVERTICULUM (Z-POEM): CLINICAL OUTCOMES OF A RETROSPECTIVE SINGLE CENTRE STUDY

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Introduction: Zenker's diverticulum (ZD) is an acquired herniation of the posterior hypopharyngeal wall through the Killian's triangle. ZD may be cause of dysphagia, regurgitation, cough and potentially life-threatening conditions, such as aspiration pneumonia. Peroral Endoscopic Myotomy (Z-POEM) has been recently used for the management of ZD as an alternative to flexible endoscope septotomy and to the open or transoral surgery. We report on the results of Z-POEM in a consecutive series of patients treated in a single referral centre.
Aims & Methods: All the patients who underwent Z-POEM between October 2020 and March 2023 were retrospectively identified. Demographics, clinical and technical aspects were retrieved from a prospectively collected database. After treatment, patients underwent a close clinical and endoscopic follow-up: technical success, incidence of adverse events and symptoms recurrence were calculated 1, 6 and 12 months after treatment.
All procedures were performed under general anaesthesia with endotracheal intubation. An high-definition endoscope with a transparent distal hood was used. Low-flow carbon dioxide insufflation was used instead of room air. A triangle-tip knife (TT-knife; Olympus Co.) and swift coagulation mode were used for both submucosal dissection and myotomy.
The procedure included:
1. Identification of cricopharyngeal muscle and the septum of the ZD;
2. Submucosal lifting directly on the septum of the ZD and mucosal incision on the septum of the diverticulum;
3. Dissection of the submucosa , on the diverticular and esophageal side;
4. Myotomy of cricopharyngeal muscle and of the proximal part of the esophageal muscularis propria until the bottom of the diverticulum;
5. Closure of the mucosal entry with clips.
Results: Fifty Z-POEM were performed on 49 patients. Thirty patients were males (73.2%), with a mean age of 71.3±9.8 years. The mean length of ZD was 15.3±8.6 mm. The mean length of myotomy was 18.2±7.4 mm, the mucosal entry site was closed with 3.3±0.6 clips. Mean procedure time was 16.6±6.3 minutes. Technical success rate was 96% (48/50). Intraprocedural, mild, complications occurred in two patients (one bleeding and one mucosal perforation) and were treated intraoperatively. A severe complication (oesophageal perforation) occurred in one patient (2%) and required surgery.

A substantial decrease in Kothari-Haber score was observed 1 month (6.3±2.2 vs 1±1.3 P < 0.0001), 6 months (6.3±2.2 vs 1.6±1.6 P < 0.0001) and 12 months (6.3±2.2 vs 2±1.6 P = 0.0004) after treatment. Clinical success was achieved in 89.6% of patients. Three patients underwent a successful endoscopic retreatment (2 flexible endoscope septotomies and 1 Z-POEM) after 1, 6 and 7 months, respectively.

Conclusion: Z-POEM is a promising technique for the treatment of ZD. Larger studies with a long follow-up and comparative trials are necessary to assess its role in the management of ZD.

Disclosure: Nothing to disclose.

PP0257

DUODENAL LAPAROSCOPIC AND ENDOSCOPIC CO-OPERATIVE SURGERY FOR SUPERFICIAL NON-AMPULLARY DUODENAL EPITHELIAL TUMORS

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Introduction: The ulcers after duodenal endoscopic resection (ER) are exposed to bile and pancreatic juice, therefore delayed perforation and bleeding are common. As a preventive measure, the suture of the ulcer after ER has been reported to be effective. Our data are shown as follows. From January 2007 to January 2018, ER was performed for 219 duodenal tumors.

We compared 211 lesions in the suture group with 8 lesions in the non-suture group. Delayed perforation was 0% in the suture group and 13% (1/8) in the non-suture group, showing a significant difference (p=0.0365). Delayed bleeding was 1% (3/211) in the suture group and 25% (2/8) in the non-suture group, showing a significant difference (p=0.01).

Therefore, the suture of the ulcer after ER is essential. If the ulcer is small after ER, it can be sutured endoscopically, but if it exceeds 3 cm, it is difficult to suture with the endoscope alone.

Aims & Methods: The aim of this study is to investigate the outcome of duodenal laparoscopic and endoscopic co-operative surgery (D-LECS) for superficial non-ampullary duodenal epithelial tumors (SNADETs).

First, tissue around duodenum is dissected laparoscopically.

Second, endoscopic submucosal dissection (ESD) is performed using saline injection, Hook knife, and VIO 300D or VIO3. Sites with poor maneuverability endoscopically were resected with laparoscopic assistance.

Third, ulcer after ER is sutured laparoscopically. If inadequate, endo clip is added.

Thirty-five patients with SNADETs who underwent D-LECS from January 2014 to March 2023 were investigated outcome of procedure. The patient's characteristics were as follows. male/female: 23/12, median age 65 (37-83) years old, location of the tumor (bulbs/2nd/3rd portion): 3/27/5, major macroscopic type (0-I/0-IIa/0-IIc): 1/29/5. pancreatic side/ non-pancreatic side of duodenum: 26/9.

SM1 was defined as submucosal invasion of less than 500 μm, and SM2 was defined as deeper. R0 was defined as lateral and vertical margin negative, and lymph-vascular involvement negative. Median follow-up period was 13 (0-42) months.

Results: 1. Median procedure time was 351 (195-673) minutes. In it, median endoscopic procedure time and laparoscopic procedure time were 205(132-429) and 131(67-420) minutes, respectively. Median diameter of resected specimen and tumor were 40 (26-70) and 27 (14-53) mm, respectively. Intramucosal tumor (Vienna classification category 3 to 5.1) / T1bSM2 (category 5.2): 31/4. The median length of hospital stay was 9 (8-15) days.

2. The en bloc resection and R0 resection rate were 94% (33/35), 83% (29/35), respectively.

3. Complications: intraoperative perforation was 8% (3/35). The intraoperative perforation site was sutured laparoscopically after ESD was completed. Intraoperative bleeding requiring blood transfusion, delayed perforation, and delayed bleeding were 0%.

4. The rate of complete closure by laparoscopy was 0% (0/26) for pancreatic side, and all of them were sutured with endo-clips and polyglycolic acid sheets. And that for non-pancreatic side was 100% (9/9).

5. Prognosis:

Two cases of T1bSM2 were underwent pancreaticoduodenectomy, and there were no residual tumor and no lymph node metastasis. There has been no recurrence during twenty-eight and forty-two months after DLECS,

T1aM and T1bSM1 were followed up, and no local or metastatic recurrence was observed.

Conclusion: DLECS enabled complete closure of ulcers after ER regardless of size or location. Therefore, it is a safe and effective treatment for large SNADETs.

Disclosure: Nothing to disclose.

PP0258

ARE AGE AND GENDER PREDICTIVE RISK FACTORS FOR BARIATRIC THERAPY WITH BIOENTERICS INTRAGASTRIC BALLOON EFFECTIVENESS?

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Introduction: In obese patients, a large amount of data shows that bariatric therapy with Bioenterics intragastric balloon (BIB) results in weight loss in some patients. However there is paucity of data about predictive risk factors for BIB success.

Aims & Methods: The aim of this study was to determine the impact of age and gender in the effectiveness of this endoscopic device for weight loss.

Single center prospective study with 187 patients, 143 (76.5%) females, mean age 40±11.9 years submitted to BIB therapy. Data were collected for age, gender, baseline weight and baseline BMI. At BIB removal, after 41.3±12.1 weeks, the following parameters were documented: % excess weight loss (%EWL), total body weight loss (TBWL) and % total body weight loss (%TBWL). Patients were categorized according to gender, age groups (<40 years, between 40 – 49 years and age ≥ 50 years), and according to baseline BMI (<35 kg/m^2, 35-40 kg/m^2 and >40 kg/m^2).

Multiple linear regression analysis was used to assess the effect of baseline BMI, gender and age in the BIB outcomes (p<0.05).

Results: Median TBWL was 14 kg (16.0±12.2kg) in female and 14.5 kg (15.8±11.7kg) in male (p=0.994). Female with ≥50 years lost significantly more TBWL than female with <40 years and female between 40-49 years, respectively 22.5 kg vs 11.5kg median values (p=0.028) and 22.5 kg vs 13.3 kg (p=0.037). Regarding %TBWL there were significant differences between the age groups: female with ≥50 years vs <40 years (21.2% vs 13.2%, p=0.018), but no significant differences were observed between the female with 40-49 years and the younger and older ones (<40 vs 40-49 years, p=0.853; 40-49 vs ≥50 years, p=0.058). The %EWL was not significant differ-

ent in the female groups (p=0.355). In the male group the 3 endpoints were not significantly different: TBWL, p= 0.621, % TBWL p=0.835 and % EWL p=0.888. Patients with higher baseline BMI (> 40) had significantly more TBWL in both genders, female (p=0.001) and male (p=0.002), significantly more %TBWL in male (p=0.033) and significantly more% EWL in female (p=0.049).

Conclusion: Older female patients (≥ 50 years) lost greater amount of weight than younger ones with BIB therapy. On the other hand, age did not alter the outcome in male patients. Higher baseline BMI was significantly correlated with greater weight loss in both genders. Age and baseline BMI can be used as predictors of weight loss in patients submitted to BIB therapy.

Disclosure: Nothing to disclose.

PP0259

TREATMENT FOR ZENKER'S DIVERTICULUM USING PERORAL ENDOSCOPIC MYOTOMY (Z-POEM): OUTCOMES FROM TWO UK TERTIARY REFERRAL CENTRES

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Introduction: A Zenker diverticulum is an acquired sac-like outpouching of the mucosa and submucosa that occurs at the pharyngo-oesophageal junction. When symptomatic, it is characterised by oropharyngeal dysphagia and regurgitation. Multiple treatment options are available with various success. Commonly a flexible endoscopic diverticulotomy is performed but is associated with a high risk of recurrence. Zenker peroral endoscopic myotomy (Z-POEM) represents are exciting endoscopic strategy that involves third space endoscopy by tunnelling through the submucosa to enable a more complete myotomy.

Early studies have shown a high success rate and favourable safety profile, but it is mainly limited to small retrospective cohorts outside the UK. Here, we report our experience on Z-POEM at two UK tertiary referral centres.

Aims & Methods: We conducted a retrospective cases series among patients undergoing Z-POEM between April 2021 to March 2023 at University College London Hospital and Cleveland Clinic London. Patient demographics, technical success, clinical success, and adverse events were all recorded. Technical success was defined as successful completion of all steps of the Z-POEM procedure. Clinical success was defined as a reduction in Dakkak and Bennett (DB) dysphagia score to ≤ 1 (or 0 if the pre-treatment score was 1) at three- and six-months post-procedure without need for repeat intervention.

Results: In total, 33 patients underwent Z-POEM. The median age was 76 years old (IQR 70-79), 13 patients (39.4%) were female, and the median Charlson comorbidity Index was 3 (IQR 3-4.5). Pre-procedure, the median DB score was 2 (IQR 2-3) and the mean pouch size was 3.98 cm (95% CI: +/- 0.6). Seven patients had previously undergone attempted endoscopic stapling and one open surgery.

All procedures were performed under a general anaesthetic. The mean procedural time was 48.9 minutes (95% CI: +/- 7.9), median length of stay one day, and the technical success rate was 100%.

The overall clinical success (minimum one month follow-up) was 83.3% with a median follow-up of 8 months (IQR 4-13). At 3-months, 6-months, and 12-months post-procedure, the clinical success was 87.0% (n=23), 77.8% (n=18), and 66.7% (n=12), respectively. Three patients had improved DB scores but opted for repeat intervention for persistent symptoms. Two underwent successful repeat Z-POEM to extend the myotomy and one underwent a diverticulotomy of remaining muscle fibres. One patient is awaiting work-up for a planned repeat Z-POEM. During follow-up, there were two adverse events (7.4%) due to post-operative chest infections. Two patients died, which were both unrelated to the Z-POEM procedure.

Conclusion: Z-POEM is a novel minimally invasive procedure that is associated with low adverse events and high success rates. Our early outcomes are promising and consistent with other observational cohorts. Those with persistent symptoms can be treated successfully with reintervention, which improves the clinical efficacy to >90% at one year. The marker of success appears to be completeness of the initial myotomy, and patients should be aware of the possibility and efficacy of reintervention.

Disclosure: Nothing to disclose.

PP0260

INTEROBSERVER AGREEMENT RATE OF CONFOCAL LASER ENDOMICROSCOPY IMAGES IN IRRITABLE BOWEL SYNDROME

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Introduction: Irritable bowel syndrome (IBS) is a common disorder of gut brain interaction (DGBI) characterized by abdominal pain associated with altered bowel habits – symptoms are often related to food intake. Confocal laser endomicroscopy (CLE) has shown acute food-triggered disruption of the epithelial barrier in the duodenum of IBS patients. While this technique promises new insights into the pathophysiology of IBS, image interpretation is subjective and interobserver agreement rates have not been assessed.

Aims & Methods: Aim: To assess the agreement rate between assessors regarding acute food induced mucosal changes visualized by CLE.

Methods: In Rome IV IBS (non-constipated) patients, allergic sensitization to nutrients was excluded by specific serum Immunoglobulin E tests. CLE was performed during upper GI endoscopy: duodenal mucosa was visualized before and after sequential application of 10mL dissolved aliquots of lyophilized fish, nuts, egg white, soy, milk and wheat. Two investigators (experience of ≥20 exams each) assessed separately recorded sequences for the presence or absence of acute mucosal alterations defined as fluorescence leakage and cell shedding visualized on ≥3 different mucosal spots. Assessors were blinded for patient characteristics, and for the time-point of recordings (i.e. baseline or after food administration). Agreement rates are reported in percent and using Cohen's Kappa computed with Rstudio.

Results: A total of 75 video sequences from 22 procedures in 13 patients were interpreted. Regarding presence or absence of mucosal alterations, assessors agreed in 81% (*61/75*) of assessed sequences resulting in a Cohen's Kappa of 0.63.

Overall, 52% (*32/61*) of sequences with agreement were judged by both assessors to present leakiness and cell shedding whereas 48% (*29/61*) were considered normal.

Conclusion: When assessed in a blinded manner, mucosal leakiness is visualized on CLE recordings with a high agreement rate between assessors and substantial agreement when accounting for random chance agreement. Further increasing agreement rates by possibly modifying criteria might increase the validity of this technique.

Disclosure: Nothing to disclose.

PP0261

1000 PER-ORAL ENDOSCOPIC MYOTOMY AND COUNTING: AN 11-YEAR EXPERIENCE AT A SINGLE ENDOSCOPY CENTER

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Introduction: Per-Oral Endoscopic Myotomy (POEM) was introduced in clinical practice few years ago, and quickly become one of the first line treatments of esophageal motility disorders. We report on the outcomes of the first 1000 patients treated with POEM in a single tertiary referral center during 11 years.

Aims & Methods: The first 1000 patients treated with POEM between May 2011 and September 2022 were identified from a prospective database and included in this study.

Demographics, clinical and technical aspects and follow-up data were collected and analysed. After treatment, patients underwent a regular follow-up, after 6 month, 2 years, 5 years and 10 years. Additional follow-up visits were performed, if clinically indicated. Timed Barium Esophagram, EGD, and esophageal manometry were performed before endoscopic treatment and during post-operative follow-up; a 24-hour esophageal pH monitoring study was performed 6 months after POEM.

Clinical failure was defined by and Eckardt score > 3 and by the need for additional treatments.

Results: Mean age of patients was 51.5 years; 36 patients were younger than 18 years and 157 older than 70 years. Four-hundred ninety-eight patients were male. One hundred seventy-seven patients had received previous treatments for achalasia (110 pneumodilation, 46 surgical myotomy; 21 botulinum toxin injection).

A total of 141 patients had a type I achalasia, 626 a type II, 111% a type III, 30 non-achalasia spastic esophageal motility disorders; in 92 patients achalasia type were not adequately classified. A sigmoid-type esophagus was present in 45 patients.

Mean symptoms duration before POEM was 24±64.6 months.

POEM was technically successful in 979 patients.

The median length of myotomy was 8.0 cm (range 4-22 cm) in the esophagus and 3.1 cm (range 0-7 cm) in the stomach. An anterior myotomy was performed in the 83% of patients. Mean operative time was 50.4 minutes (11–180 minutes).

Length of hospital stay was a mean of 2.5 days (range 1 to 48 days) after POEM.

Mild or moderate complications occurred in 28 patients (2.8%) and were managed conservatively. Severe complications occurred in 2 patients and required prolongation of hospital stay and other interventional treatment. There were no perioperative deaths in our series.

A mean follow-up of 30.4 months (3–130 months) was available for 93.8% of patients. Overall clinical success rate (Eckardt score ≤ 3) was 95.1%. Clinical success was 97.3%, 95.2%, 90.8% and 82% after 6 months, 2 years, 5 years and 10 years, respectively.

Thirty-three patients (70.2 %) with clinical failure underwent pneumodilation (78.8% with persisting clinical benefits); 5 patients (10.6% underwent surgery), one (2.1%) underwent re-POEM.

Clinical success was 93.4% in achalasia-patients and 83.3% in those with spastic motility disorders (p=0.1742).

An altered esophageal pH-study was documented in 32.6% patients; esophagitis rate was 34% (88% grade A/B; 12% grade C/D). At the date of the last follow-up, 38% of patients was receiving daily proton-pump inhibitors for gastroesophageal reflux. Two patients underwent antireflux surgery. Non cases of post-operative Barrett esophagus were identified.

Conclusion: Our results confirm the efficacy of POEM in a large cohort of patients. Benefits of POEM seem durable; adverse events are rare and no specific mortality was reported. Prevalence of GERD is relatively high, but well controlled by medications in the vast majority of patients.

Disclosure: Nothing to disclose.

PP0262

EPPOEM: A RETROSPECTIVE MULTICENTER COMPARATIVE ANALYSIS OF SELECTIVE INNER MUSCLE LAYER MYOTOMY VERSUS FULL-THICKNESS MYOTOMY IN THE ENDOSCOPIC TREATMENT OF ACHALASIA USING POEM PROCEDURE

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Introduction: Since 2010, per oral endoscopic myotomy (POEM) has become an important part of the treatment for achalasia. This technique involves myotomy of the lower esophageal sphincter and can be performed using various technical modalities, some of which have already been studied (such as different myotomy lengths and anterior versus posterior approach).

The aim of this study is to compare the impact of the depth of myotomy (selective inner layer myotomy (SIM) vs full-thickness myotomy (FTM)) on the outcomes of patients treated with POEM for achalasia.

Aims & Methods: This was a retrospective, observational, bi-centric study conducted in two tertiary center between October 2018 and September 2022. Patients were divided into two groups: SIM and FTM.

The primary endpoint was clinical efficacy at 6 months, while secondary endpoints were postoperative parameters (such as pain, length of hospital stay, complications) and gastroesophageal reflux disease (GERD) parameters (esophagitis at 6 months, heartburn, and pH-metry).

Results: Out of the 166 patients who underwent POEM, 158 were included in the study (33 in the FTM group and 125 in the SIM group). The clinical efficacy rates at 6 and 12 months were similar in both groups, with 84% and 70% in the SIM group versus 90% and 80% in the FTM group, respectively (p=0.57 and p=0.74). However, more opioid analgesics were consumed in the FTM group compared to the SIM group (45% vs 21%, p<0.01). The length of hospitalization was longer in the FTM group than in the SIM group (2.94 ± 2.33 vs 2.17 ±2.62, p<0.001). The rate of esophagitis at 6 months was comparable (16% in the SIM group vs 12% in the FTM group, p=0.73). There was no significant difference in terms of pyrosis at 6 or 12 months between the SIM and FTM groups (18.5% vs 3.8%, p=0.07 and 27% vs 12.5%, p=0.35, respectively).

Conclusion: There was no significant difference in terms of clinical efficacy and GERD occurrence between FTM and SIM. However, full-thickness myotomy was associated with more postoperative pain and a longer length of hospital stay. Therefore, selective internal myotomy should be preferred over full-thickness myotomy.

Disclosure: Nothing to disclose.

PP0263

ENDOSCOPIC RESECTION OF GIANT ESOPHAGEAL SUBEPITHELIAL LESIONS: EXPERIENCE OF A LARGE SINGLE CENTER

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Introduction: Thoracic surgeries have been the traditional therapeutic approach for esophageal giant subepithelial lesions (g-SELs). Due to the rapid development of endoscopic techniques, increased reports on endoscopic resection (ER) of g-SELs have emerged in recent years.

Aims & Methods: We aimed to summarize the experience of our center on ER of esophageal g-SELs, and also develop a nomogram model to predict the procedural difficulty. 75 patients with g-SELs treated with ER at Zhongshan Hospital were included in the training set. Clinicopathological features, procedure-related characteristics, postprocedural outcomes and follow-up data were gathered and analyzed. A predictive nomogram model for procedural difficulty was proposed based on the risk factors identified by multivariable logistic regression analysis. Internal and external validation were conducted to verify the model performance.

Results: Of the 75 cases, the en bloc resection rate was 93.3%. Intraoperative and postoperative adverse events occurred in 7(9.3%) and 13(17.3%) patients, respectively. No recurrence or metastasis was observed.

32 (42.7%) patients underwent a difficult procedure. A younger age, maximal tumor diameter ≥ 8 cm, irregular shape and extraluminal growth pattern were independent risk factors of a difficult procedure, while adopting submucosal tunneling endoscopic resection (STER) as the ER method was inversely correlated with procedural difficulty.

The nomogram model showed good discrimination, with the area under the receiver-operating characteristics curve (AUC) of 0.858 and 0.827 of the training and validation set. Calibration curves and Hosmer-Lemeshow tests (P =0.524 of the training set and 0.413 of the validation set) also achieved favorable results.

Conclusion: ER serves as a promising therapeutic option for esophageal g-SELs. A younger age, large tumor size, irregular shape and extraluminal growth may indicate increased ER difficulty, while a STER procedure tends to be of lower difficulty. Our nomogram model performs well to predict ER difficulty for esophageal g-SELs.

Disclosure: Nothing to disclose.

PP0264

DESIGN AND APPLICATIONS OF A SIMULATOR BASED ON THE MORPHOLOGY OF AN ACTUAL STOMACH FOR TRAINING IN ENDOSCOPIC THERAPY

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Introduction: To date, most of the endoscopic trainers are not constructed according to the actual gastric morphology. Therefore, we have developed a new simulator for endoscopic therapy technology, evaluated its efficacy and authenticity in endoscopic operation, and explored the learning curve of novice endoscopic physicians and the training effect.

Aims & Methods: According to the medical image data of actual gastric transverse plane, a relatively standard gastric morphological structure was made by using computer modeling and 3D printing technology. Different endoscopic procedures were simulated by adding different training modules in the structure. First of all, 30 endoscopists with different levels of experience were recruited for the test to evaluate the effectiveness of the trainer, later 20 novice endoscopists were selected for the learning curve test.

Finally, 38 novice endoscopists were divided into group A (new simulator) and group B (traditional non-simulated stomach model) for simulated training to observe the technical progress of clinical gastroscopy.

Results: Endoscopists with different levels of experience in each group believe that the training device has high authenticity, substantial convenience, low physical and mental load, and high interest. The higher the level of endoscopists needs the less testing time. The effect of training for novice endoscopists reached the platform stage after 13 times (about 10 hours of training).

The control experiment found that group A scored higher than group B in terms of familiarity with endoscopic instruments, understanding of gastric structure, and self-confidence in clinical examination, while there was no significant difference between the two groups in terms of understanding of working principles and proficiency in the operating process.

Conclusion: The novel simulator can truly simulate some endoscopic treatment techniques and distinguish the differences of endoscopists' techniques. Meanwhile, training in the simulator can significantly shorten the cycle of skill improvement of novice endoscopists.

Disclosure: None.

PP0265

SAFETY AND TOLERABILITY OF PEG-J IN PARKINSON DISEASE

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Introduction: Levodopa, the gold-standard drug in Parkinson Disease (PD), has an inconsistent gastric absorption, that leads to unstable dopamine levels, and consequently motor fluctuations. PEG-J (percutaneous endoscopic gastrostomy with jejunal extension) is an endoscopic technique which allows food and medication to be administred directly in the proximal jejunum, via a tube that extends from a gastrostomy.

Aims & Methods: We intend to describe our center's experience with PEG-J in PD. Unicentric retrospective study with PD patients submitted to PEG-J between september 2020 and february 2023. Safety and tolerability were evaluated.

Results: 23 patients were included, with mean age of 74.8 years, 13 patients (57%) female. Indication for PEG-J was advanced PD with motor flutuations or refractory to standard oral medication. No adverse events were reported during the procedure. Regarding device-related complications, 13 patients (57%) reported intestinal tube exteriorization, and 2 patients reported tube obstruction. Regarding stoma-related complications, 15 patients (65%) reported granuloma or mucosal extrusion, 4 patiens reported peri-stomal infection, and 2 patients reported gastric leak. During follow-up, only 3 patients discontinued levodopa. There were no deaths or need for hospitalization related to PEG-J procedure or complications.

Conclusion: PEG-J is a safe procedure, and must be considered in advanced PD. The rate of device-related and stoma-related complications was inferior to 50%.

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Disclosure: Nothing to disclose.

PP0266

THE USE OF ENDOSCOPIC VACUUM THERAPY (EVT) AS COMPARED TO ENDOSCOPIC STENTING (ES) FOR LEAKAGES AFTER FOREGUT SURGERY – A MULTICENTRE COHORT STUDY

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Introduction: Anastomotic leakage after foregut surgeries are often difficult to manage. The conventional way of endoscopic treatment is endoscopic stenting (ES). However, it carries a risk of stent migration and erosion. Endoscopic vacuum therapy (EVT) has recently been proposed as an alternative way of treating these leaks. EVT has the benefit of providing negative suction and promotion of granulation tissue[1]. However, an exchange every 3-7 days has been suggested.

Aims & Methods: The aim of this study was to compare the treatment outcomes between ES, EVT and the combination of both. This was a retrospective multi-centre cohort study from 3 major centres in Hong Kong that performs esophagectomy and gastrectomy. All patients with anastomotic leak after total gastrectomy and esophagectomy and who were treated with ES or EVT between Jul 2008 and Apr 2023 from the Prince of Wales Hospital, Queen Mary Hospital and United Chistian Hospital were included. Patients' demographics, type of surgery, size of anastomotic defect, treatment success rate, complications, number of procedures, duration to healing were recorded and compared. Continuous data are compared with Mann-Whitney test and categorical data are compared with Chi-square/ Fisher's exact test.

Results: A total of 63 patients were recruited (ES: 49; EVT 14. The outcomes of the study are listed in Table 1.

	Endoscopic stenting (ES) n =49	Endoscopic vacuum therapy (EVT) n = 14	p-value
Age	66.67 (10.44)	61.21 (12.94)	0.22
Sex (M:F)	37:12	12:2	0.42
Pathology			0.54
Benign	2	1	
Malignant	47	13	
Surgery			<0.001***
Total gastrectomy	18	3	
Ivor Lewis esophagectomy	15	2	
McKweon	16	9	
Defect size (mm)	15.38 (15.92)	17.79 (14.06)	0.39
Single arm endoscopic treatment success rate	29/49 (59.2%)	6/14 (42.9%)	0.28
Complications	23/49 (46.9%)	2/14 (14.3%)	**0.03**
No. of procedures	3 (1-13)	6 (2-16)	**0.02**
Days required for the anastomosis to heal	61.7 (38.4)	45.3 (25.8)	0.37

Table 1.

The mean (S.D.) of defect was 15.4 (16.0)mm in the ES group and 17.8 (14.1) mm in the EVT group (p=0.39). in the EVT group, there are 3/14 patients who had failed EVT therapy and converted to ES. The success rate of each arm as a single arm therapy were similar (29/49(59.2%) in the ES group vs 6/14(42.9%) in the EVT group; p=0.28).

However, there were less complications in the EVT group (2/14 (14.3%) in ES group vs. 23/49(46.9%) in EVT group; p=0.03). On the other hand, the EVT group required more endoscopic procedures (median (range) 3 1-137) procedures in the ES group vs 6(2-16) in the EVT group; p 0.002).

The days required for the anastomosis to heal were also similar (ES (61.7 (38.4) vs EVT 45.3 (25.8); p=0.37). When comparing patients treated as a single-arm therapy (ES or ET) to combination therapy (ES + EVT), the success rates has a trend towards favouring combination treatment (p=0.07).

Conclusion: Both EVT and ES are feasible and safe in treating anastomotic leaks after foregut surgeries. Although more procedures are required, EVT achieved similar success rate while having less complications when compared to ES a single arm. The use of combination therapy as compared to single-arm endoscopic therapy may achieve a higher treatment success rate.

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Disclosure: There is no COI.

PP0267

SIMPLIFIED ENDOSCOPIC RETROGRADE APPENDICITIS THERAPY VS CONVENTIONAL ENDOSCOPIC RETROGRADE APPENDICITIS THERAPY: A MULTICENTER PROPENSITY SCORE MATCHING ANALYSIS

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Introduction: The purpose of this study is to compare the efficacy and clinical outcomes of simplified endoscopic retrograde appendicitis treatment and Conventional endoscopic retrograde appendicitis treatment for uncomplicated acute appendicitis patients.

Aims & Methods: The simplified endoscopic retrograde appendicitis therapy (SERAT) refers to the simplification of the operation process on the basis of conventional endoscopic retrograde appendicitis treatment (ERAT), without the need for appendicography and general anesthesia.

We used propensity score matching (1:1) to compare the application of SERAT and ERAT in uncomplicated acute appendicitis patients among three hospitals from May 2017 to Jan 2022. Among 614 hospitalized uncomplicated acute appendicitis patients, 286 underwent SERAT (Group A), and 254 patients underwent ERAT (Group B). In order to adjust for baseline differences and select bias, treatment results and complications were compared after propensity score matching.

Results: After 1:1 PSM, 198 well matched patients in each group were evaluated. The median operation time for the SERAT group was 26.4 ± 7.5 minutes, while for the ERAT group, it was 41.3 ± 15.5 minutes. The difference between the two groups was statistically significant.

There was no significant difference in the success rate of intubation, time to abdominal pain relief, duration of normalization of inflammatory markers (including WBC count and CRP level), and length of hospitalization between the SERAT and ERAT groups (P=0.456, P=0.265, P=0.357,

P=0.156, respectively). The median hospitalization cost in the SERAT group was 6836.9 RMB, significantly lower than the ERAT treatment group's hospitalization cost of 113371.5RMB. The follow-up recurrence rate in the SERAT group was 9.13%, higher than that in the ERAT group, which was 6.91%.

Conclusion: Compared with conventional ERAT, the simplified ERAT is technically feasible for the treatment of uncomplicated acute appendicitis patients. SERAT can reduce hospitalization costs but to some extent increase readmission rates within an acceptable range.

Disclosure: None.

PP0268

COMPARISONS BETWEEN ENDOSCOPIC CLOSURE TECHNIQUES FOR IATROGENIC DEFECTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Iatrogenic defects of the gastrointestinal (GI) tract represent a challenging indication even for experienced endoscopists, with the optimal approach being often a dilemma. The increase of interventional endoscopic procedures and complex surgical operations have generated the requirement for clear options in the occurrence of a perforation or a leak. Current guidelines recommend self-expandable metal stents (SEMS), over the scope clips (OTSC) and through the scope clips (TTSC) depending on the site and the size of the defect, albeit based on low quality, indirect comparisons between different cohorts.[1,2]

This systematic review and meta-analysis aimed to evaluate the available modalities based on comparative quality studies, to elucidate reliably this field.

Aims & Methods: The systematic research was performed in MEDLINE, Cochrane, and Scopus databases until March 2023 for comparative studies evaluating the successful defect closure using SEMS, OTSC, TTSC or endoscopic vacuum therapy (EVT). Any study including at least one comparison was assessed for eligibility. Clinical success was considered as the primary outcome, representing the successful closure of the defect (perforation, leak).

Secondary outcomes included overall adverse events were compared among modalities, whereas cumulative rates of the specific complications were also estimated. Meta-analyses were based on random effects model and the results were reported as odds ratios (OR), with 95% Confidence Intervals (95%CI).

Results: Eight studies with an overall number of 744 patients were included in our analysis. In five of them (497 patients) SEMS were compared with alternatives (OTSC and EVT), whereas OTSC and TTSC were assessed in 3 studies (247 patients). SEMS were found to be significantly inferior to alternatives in achieving the primary outcome [OR: 0.38 (95%CI: 0.14-1.01, p=0.05)], however with high heterogeneity (I^2=75%). Interestingly, in subgroup analysis, OTSC achieved significantly higher clinical success than SEMS with OR: 2.07 (95%CI: 1.12-3.85, p=0.02) and reduced heterogeneity (I^2=19%), whereas the comparison between SEMS and EVT failed to reach statistical significance [OR: 0.42 (95%CI: 0.005-3.19, p=0.4; I^2=85%)]. OTSC and TTSC yielded similar rates of successful defect closure [OR: 0.07 (95%CI: 0.03-0.16), p=0.59; I^2=0%].

Considering the secondary outcome, SEMS resulted to more adverse events than alternatives [OR: 13.5 (95%CI: 4.57-37.28, p<0.001; I^2=63%)], with stent migration been the most common one (81 cases, 26.1%). In the subgroup analysis, both OTSC and ETV provided significantly less complications [OR: 0.07 (95%CI: 0.03-0.16, p<0.001; I^2=0%) and OR: 0.09 (95%CI: 0.02-0.44, p=0.003; I^2=59%) respectively]. Finally, only one complication was described in the OTSC vs TTSC group.

Conclusion: The success of endoscopic closure of luminal GI defects using SEMS is inferior to alternatives, especially when compared to OTSC, whereas it results to higher rates of adverse events. On the other hand, TTSC and OTSC seemed to be equivalent regarding efficacy and safety.

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PP0269

PARTICULARITY OF DIGESTIVE HEMORRHAGE IN RENAL FAILURE

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Introduction: Digestive hemorrhage is a frequent complication in advanced chronic kidney disease. Patients with end-stage renal disease (ESRD) are more likely to have gastrointestinal (GI) problems, including digestive bleeding of high or low origin.

Aims & Methods: The aim of our work is to study the particularities of HD in CKD patients.

This is a monocentric prospective analytical study over a period of 28 months: April 2020 to August 2022, including patients with HD with CKD at the dialysis stage or not, including renal transplant patients.

In order to be able to compare patients with ESRD with patients without ESRD, a control group of patients admitted for HD who had a GI endoscopy during the study period and with normal renal function were identified and grouped. In this group of patients, we took into account age, sex, indications, GI endoscopy results and ICU stay.

We also assessed all-cause mortality between the groups of CKD patients with HD versus the control group.

Results: A total of 378 patients underwent digestive exploration for HD. In this population, 46 (12.16%) patients with CKD were compared with 332 patients without RI.

70% (n=32) of the patients with RI were on chronic hemodialysis, 26% (n=12) had a GFR<60ml/min/1.73m2 but were managed without the aid of dialysis or transplantation, and 4% (n=2) patients were renal transplant recipients.
The most common etiologies in CKD patients were ulcer disease 65.2% (n=30); vascular ectasia 28.2% (n=13), gastritis 26% (n=12), esophagitis 10.8% (n=5); and tumors in 8.6% (n=4).
After statistical analysis patients with CKD had:
A higher risk of hemodynamic instability 69.5% (n=32) compared to the control group 11.14% (n=37) with p=0.002,
A higher rate of recurrence 26% (n=12) CKD patients compared to 9.6% (n=32) of the control group with a p=0.00.
A higher mortality rate 4.34% (n=2) in CKD patients compared to the control group 1.2% (n=4) with p=0.00.
Conclusion: GI bleeding in advanced chronic kidney disease is more severe it is accompanied by a higher risk of recurrence of ICU stay and mortality, hence the interest of prompt management and close monitoring. The main causes are peptic ulcer and vascular ectasia.
Disclosure: Nothing to disclose.

PP0270

WEEKENDS VERSUS WEEKDAYS ADMISSION WITH UPPER GASTROINTESTINAL BLEED: WOULD IT MAKE ANY DIFFERENCE?

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Introduction: Upper gastrointestinal bleed (UGIB) is a significant and common medical condition that not only require prompt management but also associated with notable morbidity and mortality if not treated timely. The association of weekend effect and mortality due to UGIB has been studied with some variability in results. Lack of availability of gastroenterologist and endoscopy unit to facilitate the interventional procedure especially where the resources are limited could affect the patient's outcome. Hence, here we aim to evaluate the difference in mortality of patients presenting with UGIB on weekends as compared to those admitted on weekdays.
Aims & Methods: To evaluate the difference in mortality and length of stay in hospital of patients presenting with UGIB on weekends as compared to those admitted on week days.
This was a cross sectional study conducted at the Aga khan university hospital, Karachi during Januray-December 2021. Adult patients with age ≥18 years presented with UGIB were included. Information was collected on demographic/clinical charecteristics, timing and findings of endoscopy, length of hospital stay and mortality. Mortality and hospital stay were compared for patients admitted on weekdays vs on weekend by using chi square test.
Results: A total of 300 patients admitted with UGI bleed, of which 131 (43.7%) were admitted during the weekends. The mean age was 57.7 ± 15.5 years and 65% were male. Endoscopic intervention was performed over weekend in 23.7% cases. The most common endoscopic finding on both weekday and weekend was of esophageal varices of 174 (58%).
Multivariate analysis shows the factors affecting the mortality were TLC, Co-morbidity of IHD, Endoscopic findings of esophageal varices and female gender.
The overall mortality was 1.7%. No statistically significant difference was found in mortality among patients admitted over weekends vs weekdays (p 0.07). Hospital length of stay on average was of 3.5 ± 1.5 days, with no statistically significant difference (p 0.89).
Conclusion: No difference in mortality was observed in patients admitted with UGI bleed on weekends vs weekdays. Which depicts that in this tertiary care hospital, endoscopic interventions are practiced all seven days of the week.Multicentric studies with larger sample size would be needed to evaluate the consistency of current findings.
Disclosure: I have no conflict of interest.

PP0271

UNDERWATER EMR VERSUS CONVENTIONAL EMR FOR NONAMPULLARY DUODENAL ADENOMAS

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Introduction: Underwater endoscopic mucosal resection (U-EMR) is an emerging technique in the management of superficial nonampullary duodenal epithelial tumours (SNADETs). Nevertheless, particularly in Western centers, its application has not been comprehensively assessed.
Aims & Methods: Our aim was to compare the efficacy and safety of U-EMR versus conventional EMR (C-EMR) for the endoscopic treatment of SNADETs.
Retrospective case-control study that analyzed all patients who underwent duodenal EMR in a tertiary reference center, between 2015 and 2022. SNADETs ≥10 mm removed by U-EMR or C-EMR were included.
Primary endpoint was residual/recurrent adenoma rate (RAR).
Secondary outcomes were rates of technical success, en bloc resection, and adverse events (AE).
Results: A total of 40 duodenal adenomas (31 patients) were included (U-EMR n=18; C-EMR n=22). Median lesion size was 16.5 ± 13.3 mm. Lesions were predominantly IIa (47.5%) and IIa+c (20%) - Paris classification. Most lesions were in the second portion of duodenum (n=35).
Groups were similar regarding age, gender and lesion size. There were no significantly statistically differences between groups regarding technical success (100% U-EMR vs. 90.9% C-EMR, p=0.19) and en bloc resection rate (44.4% U-EMR vs. 54.2% C-EMR, p=0.53). RAR was higher in the C-EMR group (n=6/20, 30% vs. n=1/10, 10%, p=0.22), although without statistically significance. Post-EMR defects were more commonly closed in U-EMR group (83.3% vs. 45.5%, p <0.05). Peri-procedural AE rate (bleeding n=2 [11.1%] U-EMR vs. bleeding n=3 [13.6%] C-EMR, p=0.81) was similar between groups. There were no delayed complications in the U-EMR group while in the C-EMR group there were 2 cases of bleeding (0% vs. 9.1%, p= 0.19).
Conclusion: In our study, compared to C-EMR, U-EMR showed similar RAR and safety, highlighting its role as a feasible therapeutic option for the management of SNADETs.
Disclosure: Nothing to disclose.

PP0272

DOES NON-TARGETED DIAGNOSTIC BIOPSY HAVE A ROLE IN IRON DEFICIENCY ANAEMIA?

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Introduction: Current quality standards in oesohagogastroduodenoscopy (OGD) recommend separate biopsies from the gastric antrum and body, as well as duodenal specimens if coeliac serology is positive or has not been previously measured in patients with iron deficiency anaemia (IDA). The aim of this study was to evaluate the role of routine biopsies in management of patients undergoing a diagnostic gastroscopy for investigation of iron deficiency anaemia (IDA).

Aims & Methods: Patients with IDA referred for endoscopy were recruited. Biopsy samples were taken during OGD according to the BSG quality standards. The diagnostic value of these biopsies was assessed based on endoscopy reports and histology. The cost of a diagnostic gastroscopy and diagnostic gastroscopy with biopsy was calculated using the NHS tariff workbook.

Results: 94.0% (63/67) of the patients had biopsies done during OGD. In total 298 samples were obtained for histology which included 8 biopsies from oesophagus in 6 patients, 64 biopsies from stomach in 31 patients and 195 biopsies from the duodenum in 70 patients.14 samples were taken for a rapid urease test out of which six were positive for H. pylori. The histological diagnosis included Barrett's- 3, H. pylori- 3, coeliac- 2, chronic gastritis- 14, cystic polyps-4, GAVE-1 and oesophageal ulcer with no evidence of malignancy-1.

Histological diagnosis lead to a change in the management of 7.4% (5) patients: those with finding of incidental Barrett's oesophagus (n=3) were invited for further surveillance procedures; a new diagnosis of coeliac disease (n=1) was made on the basis of histology of raised intraepithelial lymphocytes alone and subsequent positive tissue transglutaminase antibody (TTG) of more than 10 times upper limit of normal and subtotal villous atrophy in another patient known to have coeliac disease.

Both were referred for a coeliac clinic follow up. Total cost of per unit diagnostic gastroscopy is £370 and the unit cost of diagnostic gastroscopy with biopsy is £436. The total cost of biopsies in our group of patients with IDA was approximately £4150.

Conclusion: Non-targeted biopsies are costly and add little value to the management of patients with iron deficiency anaemia. Although H. pylori was diagnosed in a few patients based on histology and rapid urease test there are non-invasive tests which can be used and are more cost effective for making this diagnosis.

References: Quality standards in upper gastrointestinal endoscopy: a position statement of the British Society of Gastroenterology (BSG) and Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS). BSG 2017.

Disclosure: Nothing to disclose.

PP0273

THE SAFETY AND EFFICACY OF EUS-GUIDED SCLEROTHERAPY ON CYST IN THE SUPERIOR RENAL POLE: A COMPARATIVE STUDY WITH LAPAROSCOPIC SURGERY

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Introduction: Simple renal cyst is one of the most common diseases in the urinary system. Intervention is only considered under circumstances of large cysts (>5cm), bleeding, recurrent infection or pain[1]. Ethanol percutaneous sclerotherapy and laparoscopy are two main treatment modalities for simple renal cysts[2].

However, in cases of cysts in superior renal pole, percutaneous sclerotherapy is often excluded due to the unsafety of percutaneous puncture. In recent years, endoscopic ultrasound (EUS) guided fine-needle aspiration has been proven as a safe and efficient treatment for biopsy of renal and renicapsule lesions[3], inspired by which, we successfully performed an EUS-guided sclerotherapy on cyst in the superior renal pole[4].

Since then, we performed nine more cases of EUS-guided sclerotherapy on cyst in the superior renal pole. This research is an retrospective analysis of the nine cases and is aimed to compare the efficacy, safety and cost-benefit analysis of endoscopic ultrasound guided sclerotherapy and laparoscopic surgery treating cyst in the superior renal pole.

Aims & Methods: To compare the efficacy, safety and cost-benefit analysis of endoscopic ultrasound guided sclerotherapy and laparoscopic surgery treating cyst in the superior renal pole.

A retrospective analysis was performed in 25 patients with cyst in the superior renal pole hospitalized in the Second Affiliated Hospital of Soochow University from January 2021 to August 2022.The efficacy, operation time, intraoperative blood loss volume, hospital stay, complications and treatment cost of EUS-guided sclerotherapy (9 cases) and laparoscopic surgery (16 cases) were compared.

Results: The EUS and laparoscopic groups had comparable efficacy (100% vs 87.5%, *P*=0.520). The EUS group exhibited shorter operation time (29.8±4.8 vs 70.1±11.1 min, *P*=0.000), less intraoperative blood loss (0 vs 26.1±5.9 ml, *P*=0.000), shorter length of postoperative hospital stay (3.5±0.7 vs 5.4±2.0 days, *P*=0.014) and lower total cost (10547.85±2388.19 vs15316.09±5352.45 yuan, *P*=0.019). There were no difference on total length of hospital stay(8.1±2.0 vs 9.3±3.1 days) and operation cost (3946.79±490.82 vs 3860.18.17±857.42 yuan) (both *P*>0.05).

Conclusion: Compared with laparoscopic surgery, EUS-guided sclerotherapy was an effective but safer technique in treating cyst in the superior renal pole.

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PP0274

TISSUE SAMPLING OF SPLENIC LESIONS – COMPARISON BETWEEN EUS-FNA AND PERCUTANEOUS ULTRASOUND-GUIDED BIOPSY

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Introduction: Splenic lesions are not uncommon, but diagnosis without tissue can be difficult. Historically, ultrasound (US)-guided percutaneous splenic biopsies were associated with a 13% risk of haemorrhage [1].
Later studies have reported a much lower complication rate [2].
EUS-FNA is an alternative route for tissue acquisition. A systemic review of several small case series have shown the accuracy and safety of EUS-FNA of the spleen [3].
However, there is no direct comparison between the two methods. We present our experience, describing diagnostic efficacy and safety of both techniques.

Aims & Methods: We aim to compare the efficacy and safety of EUS-FNA of the spleen versus US-guided percutaneous biopsy. Patients who underwent EUS-FNA of the spleen from 2011-2019 and US-guided percutaneous biopsy from 2014-2019 at Addenbrooke's Hospital, Cambridge, were retrospectively reviewed. A biopsy was considered adequate when there was sufficient material obtained for histopathological diagnosis. Biopsy negative for malignancy was considered a true negative if there was stability on clinical and imaging follow-up.
For non-diagnostic samples, a repeat biopsy was performed. The need for blood transfusion or therapeutic intervention was considered a major complication.

Results: Eight EUS-FNA of the spleen were done in seven patients, as one case had repeat FNA due to a non-diagnostic sample. Four of the seven subjects had focal splenic masses, one had a cystic lesion, and two had unexplained splenomegaly on CT. 22 or 25G FNA/B needles were used for focal lesions, while 19G needle was used for cystic lesion. Median (range) number of needle passes was 1.5 (1-3), with median (range) aggregate core length of 4mm (1-16). Diagnosis was established in 6 out of 7 patients (85.7%), which included three cases of diffuse large B cell lymphoma, one inclusion cyst, one extramedullary haematopoiesis, and the remaining case was negative for malignancy. Median (range) follow-up duration was 49.7 weeks (18.1-431). One patient had two non-diagnostic samples taken, and his splenic lesions were stable during the study period. There were no major complications.
Four patients had US-guided percutaneous biopsies. On CT, three patients had focal splenic lesions, and the remaining case had unexplained splenomegaly. 16-19G needles were used for biopsies. Median (range) number of punctures was 2.5 (1-3), with median (range) core length of 8mm (6-18). Three out of four patients had biopsy-proven diagnoses (75%), which include splenic Leishmaniasis, benign vascular proliferation, and the remaining was negative for malignancy. Median (range) follow-up duration was 58.1 weeks (3-242).
One patient developed post-biopsy hemorrhage and required splenic artery embolization. This was complicated with myocardial infarction and acute kidney injury requiring ICU care, and he passed away 24 days later. There was one false-negative result. Biopsy from her splenic lesion did not reveal any malignancy, but PET-CT showed avid uptake (SUVmax 14.7) representing a metastasis. This was confirmed by a response to chemotherapy.

Conclusion: EUS-FNA of the spleen has comparable efficacy and is potentially safer than US-guided percutaneous approach. The choice between the two depends on the location of splenic lesions and the available expertise. Further studies are required for a more robust comparison.

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PP0275

MACROSCOPIC ON-SITE MAGNIFIER-BASED EVALUATION TO ESTIMATE VISIBLE TISSUE CORE CUTOFF LENGTHS USING EUS-FNA WITH 22-GAUGE NEEDLES

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Introduction: Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) has been widely used as a safe and effective method for obtaining samples from Solid masses around the gastrointestinal tract. It is difficult for endosonographers to determine the timing of termination of EUS-FNA. However, several reports have validated macroscopic on-site evaluation (MOSE) as safe and effective.

Aims & Methods: We performed a prospective pilot study to explore the value of MOSE in evaluating the specimen quality during magnifier-based EUS-FNA and confirm the cut-off length of visible tissue core (VTC). 79 consecutive patients who underwent EUS-FNA of solid masses around the gastrointestinal tract using 22-G needles were included in the study. After EUS-FNA, endosonographers used a special observation table to on-site evaluate all puncture specimens. Then, the specimens containing VTC were prepared into cell block and stained with haematoxylin-eosin (HE). Pathologists explored the relationship between VTC length and specimen quality. Finally, the receiver-operating characteristic (ROC) curve of the VTC length, with respect to the final diagnoses were plotted, and the accuracy of the area under the curve (AUC) for diagnostic yield was evaluated and to determine the optimal cut-off VTC length with the Youden index. The utility of optimal cut-off VTC length in diagnosis was investigated.

Results: 1. In this study, EUS-FNA was performed on 93 masses in 79 patients, with a total number of needle passes of 249, including 221 needle passes (88.8%) containing VTC. The completion rate of EUS-FNA was 100% and the complication rate was 1.1%. Assisted by MOSE, the sensitivity, specificity, positive predictive value, negative predictive value and histological diagnostic rate of EUS-FNA in this study were 85.9% (73/85), 100.0% (8/8), 100.0% (73/73), 40.0% (8/20) and 87.1% (81/93), respectively. The kappa statistic indicated quite high agreement between EUS-FNA histologic diagnoses and final diagnoses (Kappa=0.511, P<0.05).
2. The pathologist scored the specimen and correlation analysis was performed by Spearman's rank-order correlation. It is concluded that a positive correlation between specimen quality (integrity of tissue structure) and VTC length (rs=0.427, P<0.05). The ROC curve of the VTC length showed the cut-off VTC length of 7.45 mm with area under the curve of 0.838. With this cut-off level, the sensitivity and specificity of EUS-FNA were 80.8% and 66.7%, respectively.
3. Multivariate analyses of factors affecting the tissue diagnostic

rate of EUS-FNA were performed. Inclusion factors were the maximum diameter of lesion, location of lesion, puncture method and the VTC length. The statistical results indicated that the VTC length ≥7.45mm and the maximum diameter of lesion were associated with the higher diagnostic rate of histopathology. However, the tissue diagnostic rate was not related to the location of lesion and puncture method.

Conclusion: 1. MOSE could help endosonographers better assess specimen quality, so as to predict the specimen adequacy independently. We determined that the histological diagnostic yields were significantly improved when the VTC lengths obtained by EUS-FNA ≥7.45mm.

2. MOSE based on magnifying glass is practical for improving the specimen quality and reducing the number of needle passes when ROSE is unavailable. It is a safe, effective and economical diagnostic method for the solid masses around the gastrointestinal tract.

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Disclosure: The authors have nothing to disclose.

PP0276

ABERRANT RIGHT SUBCLAVIAN ARTERY: AN INFREQUENT FINDING IN ENDOSCOPY ULTRASOUND

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Introduction: The aberrant right subclavian artery (ARSA) is the most frequent vascular aortic anomaly with an incidence of 0.4% - 2% in the general population. In 80% of the cases it has a retroesophageal location, also 30% of ARSA is found in patients with trisomy 21. Endoscopic ultrasound (EUS) enables the diagnosis of multiple pathologies and the assessment of vascular structures, in which anomalies such as ARSA can be detected.

The main objective of our research is to evaluate the presence of the ARSA as an infrequent finding in upper EUS.

Aims & Methods: The main objective of our research is to evaluate the presence of the ARSA as an infrequent finding in upper EUS. The population of the study consists in all of the patients referred for upper EUS, for different reasons, excluding those with esophageal stenosis, those referred for linear endosonography and patients under 18y.o, at the Gastroenterology Division of both the Centro Medico Docente La Trinidad and the Clinica Atias, health centers located in Caracas, Venezuela. This is a retrospective, observational descriptive, cross-sectional study

Results: A total of 9,966 patients with upper EUS using a radial transducer were studied, six of them were diagnosed with ARSA, two males and four females, between the ages 39 to 72 (mean of age: 55 for males, 60 for females), all cases were confirmed with computed tomography angiography and none of them were previously diagnosed during their upper endoscopy or any other techniques before EUS. Furthermore, one of the patients with ARSA also had Kommerell's diverticulum.

However, of the six patients only one reported intermittent dysphagia to solids.

Conclusion: Despite being the most common aortic vascular anomaly, ARSA is still a rare finding; it may go unnoticed during upper endoscopy and EUS. With the radial echoendoscope transducer an anechoic tubular structure can be seen emerging from the distal arch of the aorta crossing to the right between the vertebral column and the posterior wall of the esophagus. When comparing the incidence of ARSA with other reports, we had 0.06% versus 0.33% found in another study.

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Disclosure: Nothing to disclose.

PP0277

EFFICACY AND DIAGNOSTIC ADEQUACY OF ENDOSCOPIC ULTRASOUND-GUIDED TISSUE ACQUISITION FOR GASTROINTESTINAL LESIONS IN THE ABSENCE OF AN ON-SITE PATHOLOGIST

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Introduction: Endoscopic ultrasound-guided tissue acquisition (EUS-TA) has been widely used to obtain tissue for the diagnosis of gastrointestinal (GI) lesions with good accuracy and safety, but the diagnostic yield remains highly variable.

Aims & Methods: We performed this study intending to study the diagnostic yield in our center. This is a retrospective study of patients who underwent EUS-TA for upper GI lesions from September 2018 to March 2020 in our center. EUS-TA had been performed by two experienced endo sonographers, using the fanning technique with a 22-G needle without an on-site cytopathologist. Specimens were analyzed through cell blocks and thread biopsies by an experienced pathologist and were categorized into adequate and diagnostic or non-diagnostic.

Results: A total of 176 patients were enrolled with a mean age of 53.6 ± 15.5, with most being male 108 (61.4%). Most lesions were seen in the pancreas among 110 (62.5%) patients. The lesions' mean (SD) size was 2.8 ± 1.5 cm. The average number of passes was 2.35 ± 0.9. There were no complications observed during or post-procedure. The overall adequacy rate of the tissue specimen was 92% for both smears and biopsy specimens. Among pancreatic lesions, the yield rate was seen with FNA smears at 92.5%, which increased to 95.5% when both smears and biopsy specimens were taken. It was lowest for submucosal epithelial lesions at 77.7%.
Conclusion: Using a 22G needle for EUS-guided tissue acquisition by an experienced endo sonographer using MOSE is safe and yields an acceptable yield rate without an on-site pathologist.
Disclosure: Authors declare no conflict of interest.

PP0278

DOUBLE BALLOON ENTEROSCOPY VS SINGLE BALLOON ENTEROSCOPY: A COMPARISON OF EFFICACY AND SAFETY IN A SINGLE TERTIARY CENTRE

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Introduction: The development of the double balloon enteroscopy (DBE) system in 2001 and later, the single balloon enteroscopy (SBE) in 2007 allowed direct visualisation, biopsies and therapeutic interventions of lesions in the small bowel. Previous studies comparing these two techniques show mixed results.
The aim of this study is to compare the efficacy of single balloon and double balloon enteroscopy with regards to technical success, diagnostic yield, therapeutic success and complication rates.
Aims & Methods: The development of the double balloon enteroscopy (DBE) system in 2001 and later, the single balloon enteroscopy (SBE) in 2007 allowed direct visualisation, biopsies and therapeutic interventions of lesions in the small bowel. Previous studies comparing these two techniques show mixed results.
The aim of this study is to compare the efficacy of single balloon and double balloon enteroscopy with regards to technical success, diagnostic yield, therapeutic success and complication rates.
Results: There were 82 patients in the DBE group and 45 patients in the SBE group. The main indications were suspected GI bleeding (DBE 41.5% vs. SBE 48.9%), iron deficiency anemia (DBE 9.8% vs. SBE 4.4%) and small bowel lesions (DBE 28.0% vs. SBE 44.4%) with positive imaging modality, either from prior capsule endoscopy or radiological imaging. Majority of the cases via antegrade approach (DBE 67.1% vs. SBE 77.8%).
We found no significant difference in the technical success (DBE 95.1% vs. SBE 97.8%, p=0.46), diagnostic success (DBE 65.9% vs. SBE 77.8%, p=0.36) and the therapeutic success rate (DBE 61.1% vs. SBE 51.4%, p=0.09) between the groups. Complications occurred in one case from each group (mucosal tear).
Conclusion: The efficacy of DBE and SBE are similar with regards to technical success, diagnostic yield, therapeutic success and complication rate.
Disclosure: Nothing to disclose.

PP0279

RELATIONSHIP BETWEEN ADENOMA DETECTION RATE AND RESPECTIVE WITHDRAWAL TIME IN DIFFERENT COLON SEGMENTS

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Introduction: The 6-minute withdrawal time for colonoscopy is widely considered the standard of care. However, there may not be appropriate if the 6-minute is equally divided into various colon segments. Since the adenoma detection in each colon segment is not the same, there may be differences with the withdrawal time in different colon segments.
Aims & Methods: Our objective was to evaluate the relationships between adenoma detection rate (ADR) and respective withdrawal time in different colon segments. Outpatients, age range 18-75 years, undertaking complete colonoscopy were enrolled in this study from November 2019 to November 2020 in the digestive endoscopy center.
The entire colon was divided into four different segments: ascending colon, transverse colon, descending colon and rectosigmoid colon. The respective withdrawal time and ADR in each colon segment were recorded respectively.
Results: A total of 586 outpatients (279 males, 307 females) enrolled in this study and the general ADR was 38.2%. The positive withdrawal time (adenomas detected) was longer than negative withdrawal time (non-adenomas detected) (334.04±24.21 secs vs 303.65±5.20 secs, t=1.26, P<0.001). ADR in ascending colon, transverse colon, descending colon and rectosigmoid colon were respectively 30.5%, 2.9%, 3.1% and 7.5%.
While all of their positive withdrawal time were longer than negative withdrawal time (94.34±33.76 secs vs 70.40±41.84 secs, t=3.31, P=0.001; 85.40±49.76 secs vs 71.66±36.87 secs, t=1.95, P=0.025; 80.29±39.85 secs vs 69.73±35.96 secs, t=1.40, P=0.016;100.95±55.92 secs vs 80.96±42.87 secs, t=3.61; P<0.001, respectively).
The withdrawal time threshold in the ascending colon, transverse colon, descending colon, rectosigmoid colon determined by receiver operating characteristic (ROC) curve were 77s, 61s, 56s and 109s, respectively. In the ascending colon, ADR was significantly higher (47.0% vs 33.1%, P <0 .001) when the colonoscopy withdrawal time was ≥77s. When the withdrawal time was ≥61s in the transverse colon (42.7% vs 32.7%, P = 0.013), ≥59s in the descending colon (42.3% vs 29.9%, P=0.004) and ≥109s in rectosigmoid colon (52.2% vs 33.9%, P < 0 .001), ADR was also significantly higher.
After adjusting for age, sex and BMI, Logistic regression analysis showed that withdrawal time ≥ 77s in the ascending colon (OR, 1.796; 95% CI, 1.273-2.532; P < 0 .001), ≥ 61s in the transverse colon (OR, 1.535; 95% CI, 1.094-2.155; P = 0.013), ≥56s in the descending colon (OR, 1.722; 95%CI, 1.193-2.486; P =0.004) and ≥109s in the rectosigmoid colon (OR, 2.134; 95% CI, 1.446-2.350; P < 0.001) were independent risk factors for the increase of ADR.
Conclusion: ADR and withdrawal time are all various in individual colon segments. During the operation of colonoscopy, withdrawal time in the ascending colon may be shortened appropriately. The adenomas in the rectosigmoid colon are more likely to be detected and do not take longer withdrawal times. We need to choose the appropriate time according to different colon segments.
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PP0280

THE FEASIBILITY AND SAFETY OF THE MOTORIZED SPIRAL ENTEROSCOPE FOR ENDOSCOPIC BALLOON DILATATION OF STRICTURES IN CROHN'S DISEASE: CASE SERIES

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Introduction: Motorized spiral enteroscopy (MSE) has shown to be safe and effective for deep small bowel enteroscopy in patients with and without prior abdominal surgery, including patients with Crohn's disease.
This case series reports our first results regarding the feasibility and safety of the MSE with endoscopic balloon dilatation in patients with small bowel strictures due to Crohn's disease.
Aims & Methods: Data were collected retrospectively on patients who underwent MSE for endoscopic balloon dilatation of small bowel strictures due to Crohn's disease. Strictures were either postoperative (P.O.) or post-inflammatory (P.I.).
Results: A total of ten consecutive patients with Crohn's disease underwent 13 procedures. Propofol sedation without endotracheal intubation was used in all procedures. Demographic and procedure related data are shown in the table. One patient underwent three procedures with 3–4 month intervals. During the third procedure triamcinolone acetonide was injected at four quadrants of the stricture.
Fluorescence imaging was used during six procedures. The procedure was technically successful in 12/13 of procedures. In one case, dilatation was not performed because of a longer than anticipated and a sharply angulated stricture.
The number of treated strictures ranged from one to five per procedure. Dilatation of multiple strictures in two patients (4 and 5) was achieved within a relatively short procedure duration of 55 and 70 minutes. Two retained video capsules were retrieved.
Besides the anticipated mild abdominal discomfort and/or sore throat in three patients, no adverse events occurred.
Conclusion: These retrospective data show that MSE with CRE dilatation is feasible and safe in a cohort of patients with strictures due to Crohn's disease, postoperatively as well as post-inflammatory. The fact that the distal 16 cm of the endoscope are not covered by the spiral overtube makes cautious introduction of the endoscope beyond a recently dilated stricture feasible and safe.
Therefore, dilatation of multiple strictures in one session is possible, provided that they are at a short distance from each other. Fluorescence imaging guidance may be helpful in severe stenosis, multiple strictures, or sharp angulations.
Disclosure: Nothing to disclose.

	Patients (age/F/M)	Type stenosis	Procedure route	No. of strictures/ Location (cm)	Maximal dilatation (mm)	Procedure duration (min)	Fluorescence imaging (+/-)
1	44/M	P.O	Antegrade	1/ 200 cm from Treitz	15/18/18 *	50/45/40*	+/+/-
2	54/F	P.I. and VCE retention	Ante-/retrograde	4/ 300 cm from Treitz/ 1 50 cm from ICV	15	70	+
3	56/F	Mixed	Antegrade	5/ 150-180 cm from Treitz	18	55	-
4	25/M	P.I. and VCE retention	Antegrade	1/ 100 cm from Treitz	18	35	+
5	26/M	P.O.	Ante-/retrograde	1/ 120 cm from Treitz/280 cm from ICV	18 mm via retrograde route	45	-
6	23/F	P.O.	Ante-/retrograde	1/ 450 cm from Treitz/ 50 cm from ICV	15 mm of ileo-ileal anastomosis (pinpoint)	80	+
7	33/M	P.O.	Ante-/retrograde	1/ 350 cm from Treitz /100 cm from ICV	18 mm via retrograde	60	-
8	52/M	P.O.	Antegrade	1/ 200	18	30	-
9	50/F	P.I.	Retrograde	1/ 100	18	30	+

PP0280 Table.

*= 3 Procedures; P.O= Postoperative; P.I= Post-inflammatory; VCE= Video capsule endoscope; ICV= Ileocecal valve
NB: data on patient number 10 is not shown in the table because of the limited number of rows (10) allowed. No dilatation was done.

PP0281

SAFETY AND EFFICACY OF NOVEL MOTORIZED SPIRAL ENTEROSCOPY IN THE EVALUATION OF SMALL BOWEL DISEASES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Motorized spiral enteroscopy (MSE) has recently been introduced for small bowel evaluation.
Aims & Methods: In this systematic review and meta-analysis, we aim to evaluate the safety and efficacy of MSE for evaluation of small bowel diseases.
A literature search was performed in Embase, PubMed, Medline databases for studies evaluating MSE between Jan-2010 to October-2022.
The primary outcome of the study was diagnostic yield with MSE.
Secondary outcomes included technical success, procedure duration, depth of maximum insertion (DMI), rate of pan-enteroscopy and adverse events.
Results: 10 studies with 961 patients [581(60.5%) males] were included in the analysis. 1,068 MSE procedures were performed by antegrade route in 698, retrograde route in 215 and bidirectional in 155 patients. Technical success was achieved in 94.9% (95% CI 92.9%-96.4%) procedures. The pooled diagnostic yield of MSE was 73.7% (95% CI 70.7% to 76.4%). Pooled rate of pan- enteroscopy by antegrade route was 21.9% (95% CI 18.1%-26.1%), retrograde route was 6.9% (95% CI 2.4%-18.3%) and combined route was 61.2% (95%CI 52.4%-69.3%). Pooled rate of major adverse events was 1.9%(95% CI 1.2%-3.2%).
Conclusion: MSE is a safe and effective tool for evaluating small bowel disorders. High diagnostic yield and low rate of adverse events make it a potential alternative to balloon enteroscopy. However, comparative trials are required in the future.
Disclosure: Nothing to disclose.

PP0282

DEEP LEARNING AND DEVICE-ASSISTED ENTEROSCOPY: MULTIBRAND AND MULTISYSTEM DETECTION OF ULCERS AND EROSIONS

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Introduction: Device-assisted enteroscopy (DAE) plays an important role in management of enteric lesions. Endoscopic observation of erosions or ulcers is frequent and can be associated in many nosologic entities, including Crohn's disease and non-steroid anti-inflammatory drug-induced enteropathy. Despite the rapid expansion of artificial intelligence (AI) application in different image-base procedures of gastroenterology, there is still lack of evidence of AI relevance during DAE. This study aimed to develop and test a Convolutional Neural Network (CNN)-based model for automatic detection of ulcers and erosions during DAE.
Aims & Methods: A unicentric retrospective study was conducted for the development of a CNN, based on a total of 258 DAE exams. DAE was performed by two experienced endoscopists using the double-balloon enteroscopy system Fujifilm EN-580T (n = 152), the single-balloon enteroscopy system Olympus EVIS EXERA II SIF-Q180 (n = 98) and the Olympus PowerSpiral Motorized Enteroscope PSF-1 (n = 8). After double validation, a total of 29513 images were used, of which 633 were considered ulcers or erosions. Data was separated into two sets: training and validation, with the latter being used for the evaluate the model's performance.
Our primary outcome measures were sensitivity, specificity, accuracy, positive predictive value (PPV), negative predictive value (NPV), and area under the curve precision-recall curve (AUC-PR).
Results: Sensitivity and specificity were 86.2% and 99.8%, respectively. PPV and NPV were 91.8% and 99.7%, respectively. Overall accuracy of the CNN was 99.5%. The AUC-PR was 1.00.
Conclusion: To the best of our knowledge, this is the first CNN constructed and validated for automatic detection of ulcers and erosions during DAE, including spiral enteroscopy. The high diagnostic performance of this CNN in multidevice solves a significant issue of technological interoperability, allowing it to be replicated in many technological contexts.
Disclosure: Nothing to disclose.

PP0283

PROPER SIZE AND TIMING OF ENDOSCOPIC DILATION IN ANASTOMOTIC STRICTURE AFTER NEAR-TOTAL ESOPHAGECTOMY

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Introduction: The size or timing of endoscopic dilatation for anastomotic stricture after near-total esophagectomy is not clear.
Aims & Methods: The purpose of this study is to find out the target size and the timing of endoscopic dilatation for stenosis after near-total esophagectomy.
Medical records of patients with endoscopic dilatation for anastomotic stricture after near-total esophagectomy between January 2015 and April 2021 were reviewed. We analyzed the stricture recurrence rate and dilation-free period according to each diameter of dilation.
Results: In the study period, 78 endoscopic dilations in 24 patients were enrolled. The stricture recurrence rate was 91.4% in 13.5mm or less group, 57.9% in 15mm group, and 0% in 16.5mm group. The dilation-free period had a mean of 48.2 (range 14-679) days in 13.5mm or less group and 109.3 (range 14-347) days in 15mm group (p = 0.045). No perforation occurred in this study.
Conclusion: In patients with anastomotic stricture after near-total esophagectomy, safely consider 15mm as the target diameter of dilation, and if this is achieved, follow-up endoscopy and dilation can be considered after 3 months.
Disclosure: Nothing to disclose.

PP0284

YIELD OF CAPSULE ENDOSCOPY AND SUBSEQUENT DEVICE-ASSISTED ENTEROSCOPY OVER A 13-YEAR PERIOD: EXPERIENCE AT A SINGLE QUATERNARY CENTRE

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Introduction: Small bowel capsule endoscopy (SBCE) and device-assisted enteroscopy (DAE) have revolutionized the investigation and management of small bowel pathology in the past two decades.

Previous studies have reported on the yield of SBCE (60%) and DAE (57%) respectively[1], but these have reported on a seven-year period at most, and none have reported concurrently on the yield of SBCE, and any DAE performed as a direct consequence of SBCE.

Aims & Methods: To evaluate the indications, diagnostic yield, procedural factors, and interventions performed in consecutive patients undergoing SBCE and associated DAE, specifically double-balloon enteroscopy (DBE) at our institution, which is a quaternary referral centre for small bowel assessment with these investigations.

This was a single centre retrospective study of consecutive patients who underwent SBCE at the Alfred Hospital between 1st January 2009 to 31st December 2021. After obtaining institutional ethics approval, data were collected with respect to demographics, SBCE procedural factors and findings, as well as findings and interventions of any DBE procedures performed after the SBCE.

Results: A total of 1214 SBCEs were performed, with a median age of 66 years old (IQR 52 – 76; 60.8% men). The most common indications were anaemia (n=853, 70.2%), overt gastrointestinal bleeding (n=320, 26.4%), abnormal imaging (n=17, 1.4%), polyposis syndrome (n=11, 0.9%) and Crohn's disease (n=9, 0.7%). The preparation was adequate in 1139 studies (93.8%) and a complete small bowel study was obtained in 1132 (93.2%). Of the complete studies, abnormal findings were detected in in 588 cases (51.9%), and most commonly these were angioectasias (266/588, 45.2%), erosions (106/588, 18.0%), ulcers (97/588, 8.6%), subepithelial lesions (48/588, 8.2%) and diverticulae (27/588, 4.6%). 165 patients proceeded to a DBE: 117 with an antegrade approach, and 48 with a retrograde approach. Antegrade DBE had a higher yield than retrograde DBE (77.8% vs 54.2%; p=0.002) and there was a higher proportion of procedures where intervention was performed (69.2% vs 37.5%; p<0.001).

	Antegrade DBE (n = 117)	Retrograde DBE (n = 48)	p value
Abnormality detected (yield)	91 (77.8%)	26 (54.2%)	0.002
Specific abnormalities	Angioectasia - 61 Bleeding - 18 Polyp - 14 Diverticulum - 6 Stricture - 4 Erosion - 3 Ulcer - 2 Subepithelial lesion - 2 Other - 6	Ulcer - 5 Diverticulum - 5 Bleeding - 4 Polyp - 4 Angioectasia - 2 Erosion - 1 Other - 6	-
Intervention performed (excluding tattoo)	81 (69.2%)	18 (37.5%)	< 0.001
Specific interventions	Argon plasma coagulation - 60 Clip - 29 Biopsy - 9 Polypectomy - 8 Other - 3	Argon plasma coagulation - 4 Clip - 2 Biopsy - 11 Polypectomy - 4 Dilatation - 1	-

Table 1: Outcomes of double-balloon enteroscopy (DBE) performed as a consequence to small bowel capsule endoscopy.

Conclusion: The indications for SBCE at our institution are consistent with guidelines, and there is a similar yield of abnormal findings as compared to existing literature. DBE, especially antegrade DBE, had high diagnostic and therapeutic yield when pursued after a positive SBCE study.

Our findings from this large dataset of consecutively studied patients over a decade in a real-world setting may aid decision-making for clinicians when utilizing SBCE and determining whether to perform DBE (and if so by which approach) to evaluate for small bowel pathology.

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Disclosure: Nothing to disclose.

PP0285

A "SUGAR-COATED" PROBLEM: ELEVATED HEMOGLOBIN A1C LEVELS ARE ASSOCIATED WITH PROLONGED GASTRIC TRANSIT TIME IN DIABETIC PATIENTS UNDERGOING CAPSULE ENDOSCOPY

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Introduction: Gastroparesis is common in patients with Diabetes *mellitus*, especially in those with poor glycemic control. Due to this association, diabetic patients are at risk of prolonged gastric transit time (PGTT) when undergoing small-bowel capsule endoscopy (SBCE).

Aims & Methods: In this investigation we aimed to assess if there was an association between hemoglobin A1c levels and PGTT in diabetic patients undergoing SBCE.

We have conducted a single-center retrospective study including all consecutive diabetic patients undergoing SBCE for two years. Patients without a valid hemoglobin A1c measurement within 3 months from SBCE were excluded. The assessed outcome was PGTT (defined as SBCE remaining in the stomach for >1h, requiring prokinetic administration and/or endoscopically assisted capsule delivery into the duodenum).

Possible confounders – age, gender, inpatient status, smoking habits, diagnosis of IBD, thyroid disease, prokinetics or antidepressants regular usage - were also assessed.

Results: Final sample included 77 patients, 40 (51.9%) of them males, with a mean age of 70±10 years. PGTT occurred in 33 (42.9%) individuals. Mean hemoglobin A1c levels were significantly higher in diabetic patients with PGTT (7.4±0.8% vs 6.5±0.8%; p<0.001). In a multivariate analysis including significant confounders, hemoglobin A1c levels were still an independent predictor of PGTT (B=1.35; p<0.001). Single-handedly, hemoglobin A1c levels demonstrated very good acuity in predicting PGTT (AUC=0.80; p<0.001), with an optimal cut-off of HbA1c ≥6.8% (sensitivity 81% and specificity 73%).

Conclusion: Hemoglobin A1c levels significantly influenced the occurrence of PGTT in diabetic patients undergoing SBCE. This may eventually allow the performance of preemptive measurements to avoid PGTT in diabetic patients with poor glycemic control.

Disclosure: Nothing to disclose.

PP0286

DELAYED GASTRIC TRANSIT TIME OF CAPSULE ENDOSCOPY FOR PATIENTS WITH ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Introduction: Allogenic hematopoietic stem cell transplantation is one of the effective treatment options for hematological diseases such as acute myeloid leukemia or malignant lymphoma. Graft versus host disease (GHVD) in the gastrointestinal tract and/or cytomegalovirus (CMV) colitis is often seen after stem cell transplantation.

We as endoscopists perform small intestine capsule endoscopy (CE) examinations for patients who are suspected of GVHD in the gastrointestinal tract and CMV colitis.

Gastric retention of CE makes it difficult to observe complete small bowel in several frequencies. It is well known that GVHD in the gastrointestinal tract decreases the motility of the stomach, and is one of the causes of gastric retention. We are now aware of the increasing ratio of gastric retention of the CE examination after late 2018 in our institution. This is also the period that Letermovir was introduced into our hospital.

Therefore, we hypothesize that Letermovir may affect the gastric retention of CE examination and investigated the relationship between Letermovir administration and gastric retention of CE examination.

Aims & Methods: A total of three hundred and thirty-five CE examination among 439 CE performed for patients with allogeneic stem cell transplantation between July 2005 and July 2022 in our hospital was analyzed. One hundred and four CE examinations without CE video data or transported using endoscopic assistance were excluded. Data was acquired from reporting system of CE. Gastric retention was defined that gastric transit time (GTT) being longer than 390 minutes because the average battery duration was 13 hours. CE examination during Letermovir administration was defined as Letermovir being administrated irrespective of administration oral or intravenously. the day CE examination was performed The ratio of gastric retention was compared between the Letermovir administrated and Control groups.

Results: Among 335 CE examination, 183 was male and 152 was female. The median age of the patients was 55 years old (range 15 – 86). Median GGT was 96 minutes (range 31 – 807 minutes). Gastric retention with GTT longer than 390 minutes was observed in 30 CE examinations (9.0%). CE examination during the administration of Letermovir was 142 (42.4%). Gastric retention of CE examination in the Letermovir administrated group was significantly higher than the Control group (19 (13.4%) vs 11 (5.7%), p = 0.0150).

Conclusion: Letermovir might potentially cause gastric retention of CE examination for patients with allogeneic stem cell transplantation. Endoscopic assistance, the transport of the retained CE into the duodenum using snare or net devices based on the real-time monitoring function of CE, may be one of the options to improve efficient CE examination for patients with Letermovir administration.

Disclosure: Nothing to disclose.

PP0287

COMPARISON OF AN ARTIFICIAL INTELLIGENCE CAPSULE ENDOSCOPY SYSTEM (NAVICAM®) WITH CONVENTIONAL CAPSULE ENDOSCOPY (PILLCAM® SB3) IN THE STUDY OF THE SMALL BOWEL: THE NAVIPILL PILOT STUDY

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Introduction: Artificial intelligence may improve reading time and detection rate in small bowel capsule endoscopy (SBCE).

Aims & Methods: The study aimed to compare the effectiveness of artificial intelligence reading (AIR) with Navicam versus conventional reading (CR) with Pillcam SB3.

A prospective pilot trial was conducted in a single center to assess the diagnostic performance of AIR compared to CR (non-inferiority study). Both endoscopic capsules were administered to the same patient in a randomized order at a 60-minute interval. AIR and CR were performed by two experienced independent endoscopists. Diagnostic yield (percentage of significant findings according to the clinical indication), diagnostic accuracy, and reading times of both explorations were assessed. All adverse events related to the study protocol were also registered.

Results: Twenty patients (median age 60 ± 10 years) were enrolled. Navicam and Pillcam showed similar completion rates (100% vs 95%, p=1) and diagnostic yield (80% vs 90%, p=0.5). Overall agreement was 90% (Cohen's kappa 0.62). Compared to CR, in the per-patient analysis, AIR showed sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and diagnostic accuracy of 88%, 100%, 100%, 60%, and 90%, respectively. In the per-lesion analysis, AIR showed sensitivity, specificity, PPV, NPV, and diagnostic accuracy of 97%, 50%, 95%, 60%, and 93%, respectively. AIR showed significantly lower reading time than CR (3.2 vs 27.5 minutes, p<0.001). No adverse events or electromechanical interferences were observed during the study.

Conclusion: AIR with Navicam shows high agreement with CR with Pillcam. AIR demonstrates high diagnostic yield and accuracy, significantly reducing reading times.

Disclosure: Nothing to disclose.

PP0288

CONFIRMATION OF FUNCTIONAL PATENCY USING THE PATENCY CAPSULE. A PROSPECTIVE STUDY USING AN EXTENDED TIME PROTOCOL TO IMPROVE RATES OF CONFIRMED PATENCY

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Introduction: Capsule retention (CR) is one of the major complications of capsule endoscopy. Rates of which range from 2.1% to 8.2% depending on the indication.[1]

Although several radiographic imaging techniques have been investigated to avoid CR, their efficacies for screening patients has not been shown to be adequate.[2]

Reported rates of retention have fallen due to recognition of risk factors for CR as well as the introduction of the patency capsule (PC). The PC is a dummy capsule of the same dimensions as the functional capsule. It begins to break down in the gastrointestinal tract after approximately

30hours reducing the risk of a symptomatic retention. Failure to confirm functional patency using the patency capsule can result in exclusion from capsule endoscopy in patients referred for this test.

Our previously published retrospective analysis of the patency capsules performed in our unit showed an overall functional patency fail rate of 43.1%.[3]

This is due to a number of limitations of the test including difficulty in assessing the position of the capsule on abdominal x-rays in settings where access to cross sectional imaging is limited. While the patency test does reduce CR rates a number of patients may be excluded from capsule endoscopy who may have benefited from the test .

Aims & Methods: The aim of this study was to improve rates of confirmation of functional patency without increasing the risk of CR in a cohort of patients referred for capsule endoscopy with risk factors for CR.

This was a single centre prospective study. All patients presenting for functional patency assessment during the period from July 2022 to February 2023 were invited to participate.

PillCam™ patency capsule (Medtronic) was administered to all patients enrolled. Functional patency was confirmed at 28 hours post ingestion by either the patient reporting the passage of an intact capsule or an abdominal x-ray showing absence of the patency capsule.

Those patients with a patency capsule seen on abdominal x-ray at 28 hours were enrolled in an extended patency arm. At 72 hours post ingestion if the patient had reported interval passage of an intact capsule this was also deemed confirmation of functional patency.

All patients with confirmed functional patency then went forward to capsule endoscopy.

Results: 90 patients were enrolled in the study. 50 (56%) female, with a mean age of 51 years.

Functional patency was confirmed in 47 cases (52%) at 28hours.

Of the 43 (48%) patients where functional patency was not confirmed at 28 hours, 8/43 (19%) patients confirmed passage of an intact capsule by 72 hours post ingestion. Of these 8/9 have had a capsule endoscopy to date. All 8 had a complete small bowel study, of which 4 were within normal limits with minor findings on the other 4. No strictures were identified.

The mean small bowel transit time was similar between the 28 hour and 72 hour groups (240 min vs 239 min, p = 0.99) 50/51 patients with confirmed functional patency went on to have a capsule endoscopy with no CR recorded.

Extended patency assessment improves the overall confirmation of functional patency from 47.8% to 56.7%, with no CR noted.

Conclusion: While effective in minimizing capsule retention rates, functional patency assessment by the patency capsule has limitations due to the nature of the test. This is especially a concern where cross sectional imaging is not available. This Extended functional protocol improves rates of confirmation of functional patency from 47.8% to 56.7% without increasing the risk of capsule retention.

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Disclosure: Nothing to disclose.

PP0289

COMPARISON OF THE RESULTS OF MAGNETICALLY CONTROLLED CAPSULE ENDOSCOPY AND HIGH-DEFINITION GASTROSCOPY WITH PROPOFOL SEDATION: A PROSPECTIVE STUDY IN PATIENTS WITH UNINVESTIGATED FUNCTIONAL DYSPEPSIA

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Introduction: Gastric cancer have a high prevalence worldwide, and early diagnosis and management are essential for better oncological outcomes. Conventional gastroscopies have limitations due to possible complications, patient discomfort, poor tolerance and the need for sedation. Magnetic-controlled capsule endoscopy (MCCE) is a painless and non-invasive diagnostic tool that can explore the gastric mucosal abnormalities.

Aims & Methods: The aim of the present prospective single centre study is to compare the diagnostic accuracy and patient satisfaction of MCCE and gastroscopy.

We examined a total of 89 consecutive young patients referred for uninvestigated functional dyspepsia between 2018 August and 2023 April to our endoscopy unit who preferred MCCE as an initial diagnostic test. 80 (90%) patients underwent same-day MCCE and gastroscopy examinations, while the remaining 10% underwent the procedures within a 2-week interval. All patients underwent MCCE as the first diagnostic procedure. Gastroscopy was performed using an HD Fujifilm 700 series gastroscope. The urea breath test (UBT) was administered to detect Helicobacter pylori infection in patients who were not receiving proton pump inhibitor (PPI).

After the procedures, we evaluated and compared the capsule endoscopy and gastroscopy reports and videos. After both diagnostic procedures, our patients were asked to accomplish a patient satisfaction questionnaire to evaluate the tolerability of each examination, regarding patient discomfort, pain, and anxiety levels during the procedures.

Results: A total of 89 patients were examined (53 males, 36 females, mean age 45). Urea breath test was performed in 43 cases: and detected 18 (41.9%) Helicobacter positive results, and the histology was consistent in 35 cases (81.4%). MCCE and gastroscopy were highly sensitive to detect any focal lesions 1 vs 0 hyperplastic polyp, 3 vs. 3 ulcers, 1 vs. 1 submucosal tumour, 2 vs. 2 early gastric cancer, 1 vs. 1 early gastric B cell lymphoma, and 9 vs. 2 foveolar hyperplasia, respectively. For gastritis, we found 4 vs. 1 proximal gastritis, 53 vs 56 distal gastritis, and 16 vs 16 pangastritis. MCCE had higher diagnostic yield and accuracy than gastroscopy for detecting minimal foveolar hyperplasia (MCCE 9, gastroscopy 2, p=0.01) and upper gastritis (MCCE 4, gastroscopy 1, p=0.02), meanwhile gastroscopy was more accurate in the detection of antral gastritis (MCCE 53, gastroscopy 66, p=0.03). There were no significant differences between the two tests for detecting polyps, ulcers, submucosal tumours, early gastric cancer, lymphoma and pangastritis. All the patients reported that MCCE was a more tolerable diagnostic test than gastroscopy with Propofol sedation based on the questionnaire.

Conclusion: In conclusion, both MCCE and gastroscopy are comparably sensitive diagnostic methods for detecting focal and diffuse lesions, with MCCE offering the advantage of higher patient tolerability and acceptance. The study results suggest that MCCE can be a useful alternative to gastroscopy in young patients (under age 50) referred for uninvestigated functional dyspepsia, to select those patients who really needs gastroscopy and biopsy and therefore it can shorten the waiting lists for routine upper GI endoscopy.

Disclosure: Nothing to disclose.

PP0290

TIMING OF CAPSULE ENDOSCOPY IN OVERT OBSCURE GASTROINTESTINAL BLEEDING

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Introduction: Obscure gastrointestinal bleeding (OGIB) is defined as gastrointestinal bleeding of unknown origin that persists or recurs despite a negative finding from an initial bidirectional endoscopy. According to recent guidelines, capsule endoscopy was recommended first in overt OGIB, but it is unclear when it is appropriate to perform capsule endoscopy in overt OGIB patients.

Aims & Methods: We aimed to analyze clinical outcomes with regard to the timing of capsule endoscopy in overt OGIB patients. We conducted a single-center retrospective study enrolling patients who had undergone capsule endoscopy for overt OGIB between February 2010 to December 2021. We included hospitalized patients who underwent capsule endoscopy for overt OGIB after negative bidirectional endoscopy.

We investigated the diagnostic yield of capsule endoscopy, rebleeding rate, length of hospital stay, initial hemoglobin, and the amount of blood transfusion with regard to the timing of capsule endoscopy.

Results: A total of 118 patients underwent capsule endoscopy to assess overt OGIB. The diagnostic yields in the groups that underwent capsule endoscopy < 48h and > 48h from the last overt OGIB were 50.0% and 22.0%, respectively (P=0.017).

Rebleeding rate and the length of hospital stay were not significantly different between the two groups. Initial hemoglobin level in the group who underwent capsule endoscopy > 48h group was lower than in the < 48h group (8.8±3.0 vs. 10.7±3.7, P=0.015).

Conclusion: Performing capsule endoscopy within 48 hours from the last overt OGIB resulted in a higher diagnostic yield. Performing capsule endoscopy within 48 hours may improve the clinical outcomes of patients with overt OGIB.

Disclosure: Nothing to disclose.

PP0291

EXPANSION INTO PEDIATRICS WITH SMALL BOWEL CAPSULE ENDOSCOPY

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Introduction: Small bowel capsule endoscopy (SBCE) is widely used in adults. However, it is difficult for gastroenterologists and pediatricians alone to ensure safety during examinations due to difficulty in swallowing and understanding of examinations in children.

At present, the onset of Crohn's disease and the like is known even in young children, and early diagnosis and treatment of small intestinal lesions are becoming necessary. So far, we have performed SBCE safely by cooperating with pediatrics, and we report on the method and status.

Aims & Methods: We investigated the safety and diagnostic usefulness of SBCE in children.

111 children aged 3 to 15 years who underwent SBCE from February 2015 to February 2022 at our hospital (75 males, 36 females, average age 11.1 ± 2.8 years)

After consultation with a pediatrician, sedation, if necessary, use of an Advance® (Capsule Endoscope Insertion Aid), and insertion of a patency capsule into the duodenum. After confirming patency, SBCE was conducted later, and the following items were examined. Number of cases with and without advanced use, frequency of use, comparison by age and weight, adverse events at the time of examination, cecal reach rate, presence or absence of lesions, and breakdown of diseases.

Results: Advance® was used in 41 cases (36.9%), used 81 times, of which 3 adverse events (ejection failure) occurred. No complications were observed. In addition, when comparing the age and weight of the advanced use group and the non-use group, a significant difference was observed between the use group (9.7±3.2 years old, 28.0±8.3 kg) and the non-use group (12.2±1.6 years old, 41.2±10.5 kg).

Diagnosis by SBCE was 71 cases (64.0%) with Crohn's disease, 21 cases (18.9%) with other diseases, and 19 cases (17.1%) without findings, for a positive rate of 92/111 (82.9%).

Discussion: SBCE in the field of pediatrics is safe by paying attention to several points, such as Advance® use when necessary, insertion in the prone position, and introduction of sedation with the cooperation of a pediatrician, considering age and weight. The prevalence of lesions was high, and it was considered useful for diagnosing Crohn's disease, especially in the early stages.

Conclusion: SBCE in children can be performed safely and is of great diagnostic value.

Disclosure: Nothing to disclose.

PP0292

VISUALISATION OF THE AMPULLA OF VATER ON SMALL BOWEL CAPSULE ENDOSCOPY

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Introduction: Though small bowel capsule endoscopy (SBCE) has revolutionised the investigation of the small bowel, small lesions may still go undetected.

Aims & Methods: This was a multicentre study whose primary aim was to assess rates of detection of ampulla of Vater during SBCEs and identify any statistically significant variation between different levels of expertise and different reading speeds.

De-identified SBCE videos, selected randomly, each of 15 minutes duration from the 1st duodenal image, were uploaded on secure virtual cloud following ethical approval, data protection clearance and patient consent. Patient age, indication for endoscopy and findings were recorded. The videos were reviewed by 7 gastroenterology experts and 6 trainees from 6 European centres. Data regarding detection of ampulla of Vater (AoV) was

collected. Each video was analysed initially using the mouse-wheel and then at a speed of 10 frames per second (fps). Data was inputted into SPSS and statistical significance assessed via Kappa coefficient.

Results: Data was collected from 30 patients of whom 63.3% were males and whose median age was 63.5 years +/- 7.164. Commonest indications were iron deficiency anaemia (56.7%), small bowel Crohn's disease (16.7%) and overt GI bleeding (13.3%). All patients were given a macrogol based osmotic laxative for bowel preparation.

The following mean detection rates of Ampulla of Vater were observed:

- Trainees using mouse-wheel; 35% (10.5)
- Trainees using 10fps; 21.6% (6.5)
- Experts using mouse-wheel; 33.8% (10.1)
- Experts using 10fps; 20.4% (6.1)

On only taking into consideration the ampullas detected by the standard, mean detection rates using mouse-wheel for trainees is 68.7% and 82.1% for experts, as compared to 50% for trainees and 55% for experts using 10fps, showing a decline in detection rate with higher reading speed.

Table 1. denotes Kappa and p values obtained by comparison of standard/trainee/expert rates in detection of ampulla of Vater.

	Mouse-wheel		10fps	
	Kappa	P value	Kappa	P value
Standard vs Trainees	0.347	0.2	0.400	0.2
Standard vs Experts	0.621	0.2	0.513	0.2
Trainee group	0.135	0.75	0.109	0.2
Expert group	0.493	0.98	0.482	0.2
Trainees vs Experts	0.260	0.2	0.284	0.2

Table 1. Comparison of AoV detection

Mathematical comparison of ampulla detection in mouse-wheel vs 10fps amongst trainees resulted in Kappa 0.323 (p=0.018); and amongst experts resulted in Kappa 0.414 (p=0.01).

Conclusion: The results demonstrate that the rate of concordance in the detection of the ampulla amongst experts declines with a higher speed of reviewing a SBCE.

This suggests that pathology may be potentially missed at higher reading speeds especially in the first part of the small bowel where sometimes a SBCE rushes through. A slower reading speed is advisable especially in those with limited experience in reviewing a SBCE.

Disclosure: Nothing to disclose.

PP0293

IS ENDOSCOPIC PLACEMENT OF CAPSULE ENDOSCOPY MANDATORY IN PATIENTS WITH PREVIOUS GASTROINTESTINAL SURGERIES?

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Introduction: Capsule endoscopy (CE) is an important non-invasive diagnostic modality for the evaluation of small bowel and colon. However, in patients with gastrointestinal tract anatomy altered by surgical interventions, there can be a higher risk of incomplete examination of small bowel and colon.

Aims & Methods: The aim of our study was to evaluate the rate of complete examination and diagnostic yield of CE, in patients with previous gastrointestinal surgery, as well as the impact of endoscopic placement of CE using the AdvanCE device.

Retrospective, cohort study, including patients submitted to CE of the small bowel or colon, detailing patients with previous gastrointestinal surgeries and with endoscopic placement of CE.

Results: A total of 642 patients was included, 17 with previous gastrointestinal surgery (2.6%), from which 9 with gastric bypass and Y-de-Roux (with 3 having esophagojejunostomy and 6 gastrojejunostomy), 3 patients with Bilroth II, 2 with Bilroth I e 3 patients with sleeve gastrectomy.

Endoscopic placement of CE was performed at the discretion of the responsible gastroenterologist and occurred in 8 patients (1.2%). It was 13.3 times more likely to be performed in patients with previous gastrointestinal surgery (11.8% vs 1.0%, p=0.017).

In patients without endoscopic placement of CE, the rate of complete examination of the gastrointestinal tract, adequate bowel preparation and diagnostic yield was comparable between those with and without previous gastrointestinal surgery: 86.7% vs 85.3% (p=1.000), 73.3% vs 78.1% (p=0.751) e 40% vs 38% (p=0.875), respectively.

In patients with gastrointestinal surgery, the rate of complete examination of the gastrointestinal tract was comparable between patients with and without endoscopic placement of CE: 50.0% vs 86.7% (p=0.331). The rate of complete examination of the gastrointestinal tract, adequate bowel preparation and diagnostic yield was not influenced by the different types of surgery, considering patients with gastric bypass vs Y-de-Roux vs Bilroth II: 75.0% vs 80.0% vs 66.7% (p=0.915), 50.0% vs 60.0% vs 66.7% (p=0.902) e 25.0% vs 20.0% vs 66.7% (p=0.363), respectively.

Conclusion: CE is effective, even in patients with previous gastrointestinal surgery, with diagnostic yield and rate of complete examination of the gastrointestinal tract similar to other patients, regardless of the type of surgery. Endoscopic placement of CE with AdvanCE device does not seem to improve outcomes in patients with previous gastrointestinal surgery.

Disclosure: Nothing to disclose.

PP0294

OUTCOMES, HEALTH-CARE UTILIZATION RESOURCES AND PREDICTORS OF EARLY READMISSION AFTER ESOPHAGEAL STENT PLACEMENT

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Introduction: Esophageal stents (ES) are usually placed to relieve malignant obstructions however other non-malignant indications exists. Complications and readmissions after ES continue to pose a significant issue for gastroenterologists and have a significant burden on our health-care system.

Aims & Methods: Retrospective review of the National Readmission Database (NRD) of the year 2019 of adult patients that underwent ES placement during an index admission (IA) from the month of January to November and were readmitted within 30-days of discharge. ICD-10CM/PCS codes were utilized to identified the procedures and comorbidities.

The primary outcome was readmission of any cause. Secondary outcomes were mortality, resource utilization (length of stay (LOS), total hospitalization costs and charges) associated with readmission. Independent risk factors for readmission were identified using Cox regression analysis.

Results: A total of 6,079 patients underwent ES placement in 2019. The most common indication was malignant obstruction (19.1%). A total of 1,642 patients (27.1%) were readmitted within 30-days of discharge and the most common cause of readmission was sepsis (9.3%). Patients that underwent ES placement during IA had a mean age of 65.1 years, 39.8% patients were females, 54.1% of patients had a Charlson Comorbidity Index (CCI) score of ≥3 and 45.9% of patients had associated malnutrition. Readmitted patients were younger (62.5 vs. 66.1 years, P<0.01), more likely to have associated malnutrition (49.1 vs. 44.6%, P=0.04) and there was no difference in the proportion of readmitted females.

The mortality rate during IA was 6.6% and the readmission mortality rate was 8.6% (P<0.01). The mean LOS, hospitalization charges and costs were 7.6 days, $91,543 and $21,310 respectively. Readmission was associated with a total cumulative LOS of 12,514 days and a total $150 million in charges and $34.9 in costs.

After performing a Cox regression analysis younger age [adjusted Hazard Ratio [aHR] 0.98; 95% Confidence Interval [CI] (0.97-0.99)] and undergoing ES placement for non-malignant obstruction [aHR 0.84; (0.72-0.99)] were associated with less risk of readmission. A CCI score ≥3 [aHR 1.38; (1.08-1.77)] had higher risk for readmission.

Conclusion: Early readmissions after ES placement are high (27.1%) and readmission is associated with increased mortality. The most common indication for ES placement is malignant obstruction however undergoing ES placement for benign obstruction is associated with 26% less risk of readmission. Efforts should be put in place to decrease readmission rates and future studies should focus on evaluating risk factors for development and prevention of sepsis post ES placement.

Disclosure: Nothing to disclose.

PP0295

ENDOSCOPIC ULTRASOUND-GUIDED GASTROENTEROSTOMY WITH LUMEN-APPOSING METAL STENTS COMPARED TO DUODENAL STENTING FOR MALIGNANT GASTRIC OUTLET OBSTRUCTION: RESULTS FROM A PROPENSITY SCORE MATCHING ANALYSIS

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Introduction: Malignant gastric outlet obstruction (GOO) and its symptoms significantly reduce quality of life in affected patients. Endoscopic treatment of malignant GOO consists of enteral stent placement or the use endoscopic ultrasound to perform gastroenterostomy (EUS-GE) by means of lumen-apposing metal stents (LAMS).

Aims & Methods: We conducted a retrospective analysis comparing enteral stent placement to EUS-GE for treatment of malignant GOO. Patients treated at our institution were retrospectively identified and a propensity score matching analysis was performed. Primary outcome parameter was treatment failure. Secondary endpoints were time until treatment failure, technical and clinical success rates, and adverse event rates.

Results: 88 patients were included in the final analysis, 44 in each of the two treatment groups, after propensity score matching. Stent failure occurred significantly less in the EUS-GE group (n = 4, 9.1%) compared to enteral stenting group (n =13, 29.5%; *P* = .015). Kaplan-Meier analysis revealed a median time until stent failure of 22.0 weeks (95%-CI: 4.6 – 39.4) in the enteral stenting group compared to 76.0 weeks (95%-CI: 55.9 – 96.1) in the EUS-GE group (*P* = .002 according to log-rank test, Figure 2).

There was no difference in primary technical success (*P* = .306) and clinical success (*P* = .453) between the two groups. Technical success was achieved in 97.7% in the enteral stenting group compared to 93.2% in the EUS-GE group, while rates for clinical success were 72.7% and 79.5%, respectively. There were 9 adverse events in the total study cohort (10.2%), of which three occurred in patients that received enteral stenting and six in the EUS-GE group (*P* = .291).

Conclusion: For treatment of malignant GOO, EUS-GE is superior to enteral stent placement regarding rate of treatment failure and time until treatment failure. In experienced centers, it should be considered as endoscopic first-line treatment of malignant GOO.

Disclosure: Nothing to disclose.

PP0296

SIGNIFICANT ADVANTAGES OF FIXATION OF ESOPHAGEAL SELF EXPANDING METAL STENTS:A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PUBLISHED LITERATURE

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Introduction: Fully covered self-expandable metal stents (FCSEMS) used for benign and malignant esophageal conditionsare prone to migration, which can impact efficacy but also lead to adverse events. Fixation of proximal end of FCSEMS have shown to reduce stent migration in individual studies.

In this systematic review and meta-analysis, we aim to compare rates of stent migration of FCSEMS undergoing fixation (any technique) versus not.

Aims & Methods: PubMed, Embase and Cochrane databases were queried to identify prospective/retrospective studies that compared outcomes of FCSEMS undergoing fixation (FCSEMS-F) versus no fixation (FCSEMS-NF). FCSEMS-F group included use of methods such as sutures, hemoclips and the specific over the scope clip (OTSC).

The primary outcome was pooled estimates of the rate of stent migration. Secondary outcomes included clinical success, mean time to stent migration and overall adverse events (chest or abdominal pain, nausea+/-vomiting, tear or perforation, bleeding). Subgroup Analysis was performed to compare stent migration when FCSEMS fixation was performed with endoscopic suturing vs no fixation.

Clinical success was defined as resolution of a stricture or closure of a fistula/leak/perforation as documented by clinical and endoscopic/radiological follow-up after stent removal. Odds ratios (RR) with 95% confidence intervals (CI) were calculated for dichotomous variables using the random effects model.

Study heterogeneity was assessed using i^2 statistics.

Results: We identified 9 studies of FCSEMS placement comparing fixation versus no-fixation methods including a total 727 patients with 899 stent procedures: FCSEMS-F group (269 patient, 291 stents, mean age 60.4 years) and FCSEMS-NF group (458 patients, 608 stents, mean age 61.7 years).

The stent migration rate for all procedures was 16.1% in FCSEMS-F group compared to 32.8% in FCSEMS-NF group (9 studies, OR 0.36, 95% CI 0.20 -0.64,i^2= 53%).

Clinical success was achieved in 68.9% procedures in FCSEMS-F group compared to 56.1% in FCSEMS-NF group (3 studies, OR 1.94, 95% CI 1.10 – 3.41, i^2=0%).

Mean time to stent migration was longer for FCSEMS-F (29.4 +/- 11.2 days) compared to FCSEMS-NF (21.6 +/- 11days) with a mean difference of 7.8 days (95% CI 5.4 – 10.2; SE 1.2, p< 0.0001). There was no difference in overall adverse events between the 2 groups.

In a sub-group analysis for FCSEMS patients undergoing fixation with endoscopic suturing versus no fixation, the rate of stent migration was significantly lower in the sutured group (16.3% vs 32.8%, OR 0.37,95% CI 0.19 – 0.72, i^2= 55%).

Conclusion: Fixation of FCSEMS (sutured in particular) offer significant advantages in terms of lower stent migration rates, longer duration to stent migration and higher clinical success without any difference in adverse events when compared to esophageal stents not undergoing fixation. Randomized studies comparing various fixation methods is needed to further guide the exact method for stent fixation.

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PP0297

TRANSITIONS OF TREATMENT OUTCOMES AND ADVERSE EVENTS IN GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION

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Introduction: In superficial gastric tumors, endoscopic submucosal dissection (ESD) has become the standard of care, and the treatmenttechnique and strategy have been matured.

On the other hand, the number of cases performed by trainees as anintroduction to ESD is increasing, and the types and handling of antithrombotic drugs are also changing.

Aims & Methods: On these backgrounds, we examined the transitions to clarify how the treatment outcomes and adverse events of gastric ESD have changed.

From 2014 to 2022, 565 patients of superficial gastric neoplasms who underwent ESD were divided into two groups: the first half (n=435) from 2014 to 2020 and the second half (n=130) from 2021 to 2022, where the number of trainees significantly increased. Treatment outcomes (*En bloc* resection rate, curability, procedure time, inflammatory response)and adverse events (perforation, postoperative bleeding, postoperative pneumonia, and pyrexia for unknown reasons) were retrospectively compared between two groups, using the propensity score matching analysis.

Regarding oral antithrombotic agents, antithrombotic drugs were continued, DOAC stopped only 24 hours before treatment, and warfarin was continued after INR value was controlled at <3.0.

Results: Propensity score matching yielded 130 pairs. Trainee's involvement was 29.7% in the first half and 61.4% in the second half. The comparison demonstrated a significant difference for the following outcomes: curability was 86% in the first half and 90.1% in the second half (*P*=0.028), the CRP mean [SD] was 1.32 [2.14] in the first half and 0.82 [0.97] in the second half (*P*=0.032), and postoperative bleeding rate was 5.9% in the first half and 0.0% in the second half (*P*=0.013). Others were similar values for outcomes.

Conclusion: Even with the increased involvement of trainees, treatment outcomes have not chronologically exacerbated. Additionally, inflammatory response and postoperative bleeding have improved. These results suggest that safe and secure gastric ESD can be performed by appropriate technique and strategy under supervise of experts.

Disclosure: Nothing to disclose.

PP0298

ENDOSCOPIC VACUUM THERAPY (EVT) VERSUS SELF-EXPANDING METAL STENT (SEMS) IN THE TREATMENT OF NON-LARGE ANASTOMOTIC DEHISCENCES AFTER ONCOLOGIC IVOR-LEWIS ESOPHAGECTOMY: A MATCHED CASE-CONTROL STUDY

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Introduction: Anastomotic leak remains one of the most critical complication after Ivor-Lewis esophagectomy [1][2]. While intra-cavitary approach for Endoscopic Vacuum Therapy (EVT) has been proved effective for the treatment of large dehiscences [3], no data exist comparing intraluminal EVT and Self-expanding Metal Stent (SEMS) in the management of non-large (<3 cm) anastomotic dehiscences.

Aims & Methods: In this matched-at-enrollment case-control study (1:1), we included patients who received EVT and SEMS for non-large (<3 cm) anastomotic dehiscences after oncologic Ivor-Lewis esophagectomy between May 2014 and July 2022.

The primary outcome was successful closure of the leak. Exclusion criteria were: anastomotic dehiscences > 3 cm, early (≤ 2 days) and late (4 weeks) diagnosis after surgery, severe gastric conduit necrosis, sepsis / septic shock at diagnosis.

Results: Overall, 22 patients treated with EVT and 22 treated with SEMS, were matched by age (p=0.070), sex (p=0.262), BMI (0,247), American Society of Anesthesiologists (ASA) score (p=0.386), neoadiuvant radio/chemotherapy (p=0.15), dehiscence diagnosis modality (0.761), defect type (leak or fistula) (p=1.00), PCR values (p=0.103) surgical re-intervention before endoscopic treatment (p=0.472) and leak size (p=0.931).

EVT and SEMS revealed no difference in leak resolution (90.9% vs 72.7%, respectively; p=0.21), whereas EVT group was associated with higher number of procedures (4.41 vs 2.18, p= 0.05, respectively). Concerning adverse events (AE's), both EVT and SEMS showed no statistical difference in AE's rates (p=0.61).

Overall outcomes of endoscopic procedures are shown in Table 1.

	EVT (n=22)	SEMS (n=22)	p-value
Total number of procedures	125	78	
Adjuvant endoscopic treatment	1 (4.5%)	5 (22.7%)	0.07
Mean number of procedures per patient	4.4 ± 3.2	2.2 ± 1.6	0.05
Hospitalization (days)	45.3 ± 18.0	52.6 ± 29.2	**0.01**
Efficacy outcomes			
Resolution	20 (91%)	16 (72.7%)	0.11
Failure	2 (9%)	6 (27.3%)	
Re-do surgery	1(4.5%)	4 (18.2%)	
In-hospital mortality	1 (4.5%)	1 (9.1%)	
Technical success*	125 (100%)	78 (100%)	1.00
Intraprocedural AE*	2 (1.6%)	2 (2.5%)	0.64
Bleeding	1 (0.8%)	0	
Perforation	0 (0%)	0	
Sedation-related	1 (0.8%)	0	
Ulcers	0	2 (0.9%)	
Migration*	2 (1.6%)	12 (15.3%)	**0.0001**
Follow-up (days)	396.9 ± 89.3	556.7 ± 178.4	

Table 1.

Conclusion: EVT and SEMS has shown similar efficacy outcomes in the treatment of non-large (< 3 cm) anastomotic defects after Ivor-Lewis esophagectomy. Prospective comparison data are needed to validated these findings.

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PP0299

IMPORTANT POINTS OF D-LECS (LAPAROSCOPIC AND ENDOSCOPIC COOPERATIVE SURGERY FOR DUODENAL NEOPLASM) WITH ESD

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Introduction: LECS was reported by Hiki in 2008 as one of the treatments for gastric GIST (1). In 2012, our hospital introduced LECS for the treatment of superficial non-ampullary duodenal adenoma (SNADA) and non-ampullary neuroendocrine tumor (NADNET) using the same method (2). From 2021, D-LECS was divided into D-LECS with FTR, which is a full-thickness resection, and D-LECS with ESD, which is intended for post-ESD reinforcement (3).

Aims & Methods: The aim of this study was to extract cases in which D-LECS with ESD was performed at our hospital and to report the important points that should be noted in treatment. FAP cases were excluded in 99 eligible cases from January 2001 to October 2022.

In addition, there were many cases in the follow-up group at SNADA. Of the 50 cases treated, there were 23 in the endoscopic treatment group, 16 in the LECS treatment group, and 11 in the surgical treatment group. There were 16 D-LECS cases, of which 4 cases for which D-LECS with ESD was performed were extracted. Before the D-LECS insurance coverage, the treatment was approved by the hospital ethics committee and the treatment was introduced.

Results: There were three points of view which were endoscopic aspects, laparoscopic aspects, and aspects to note throughout the treatment. Four examples revealed some important points.

Case 1: Preoperative discussion was insufficient and D-LECS with ESD was decided at the time of surgery. It took nearly 2 hours to resect the lesion with an endoscope and then the laparoscopic side was sutured. After the treatment, it was possible to pass the endoscope through the treated area, but a few days later, a stenosis was formed, and endoscopic dilation was needed to improve.

Case 2: Preoperative discussion was also insufficient. This case had many blood vessels, and the ST hood was needed because it is difficult to perform ESD. When the endoscope was extended, perforation occurred. Once the perforation was made, it was difficult to move the patient, so the muscle layer was sutured with OTSC, and a PGA sheet.

Case 3: The endoscopic strategy and device were improved, and the lesion could be dissected within 1 hour. ESD was performed with Dual Knife J 1.5. Pulling the lesion with an S-O clip without using an ST hood so as not to apply strong pressure to muscle layer. The RDI function was used during hemostasis to avoid the burn effect on the muscle layer. On the other hand, there was a problem that the treatment site was unclear when suturing with a laparoscope.

Case 4: Endoscope operation might be difficult, so a PCF scope was used for ESD. Blood vessels were densely existed on the upper the lesion, and the resection margin became unclear due to hemostasis. Lembert suture was added after a full-thickness suture due to a small perforation.

10 days after the operation, the peristalsis decreased, and the contents did not pass even though the endoscope passed. Most of these caveats have visions for improvement. Technical aspects and device selection can be overcome by referring to published literature.

In addition, we believe that stenosis and passage obstruction can be improved with additional treatment because restenosis has not been observed in endoscopic dilatation. It was important to find an effective treatment for hypoperistalsis.

Conclusion: At present, there are a number of caveats that must be overcome on both the endoscopic side and the laparoscopic side. Therefore, even though D-LECS has been covered by health insurance, it is necessary to consider some strategy before treatment.

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Disclosure: There was no Conflict of Interest.

PP0300

ENDOSCOPIC TREATMENT FOR EARLY DUODENAL PAPILLARY CARCINOMA: LONG-TERM OUTCOMES

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Introduction: This study aims to determine whether endoscopic papillectomy (EP) is a safe and effective treatment for early duodenal papillary carcinoma with long-term follow-up.

Aims & Methods: From June 2012 to September 2021, 48 patients with early duodenal papilloma carcinoma who received endoscopic treatment at Hangzhou First People's Hospital were included. The histological types, percentage of complete resections, postoperative residuals, adverse events, and recurrences were evaluated.

Results: Endoscopic papillectomy (EP) was successful in all patients, 46 were lumped, and two were fragmented, with a 95.8% intact removal rate (46/48). Postoperative pathology indicated 24 cases of high-grade intraepithelial neoplasia, 9 cases of moderately differentiated adenocarcinoma, and 15 cases of highly differentiated adenocarcinoma. The preoperative biopsy pathological positive rate was 70.8% (34/48).

Early postoperative adverse events (within one month after EP) were 16.7% (8/48), including 4 cases of acute pancreatitis, 3 cases of delayed bleeding, and 1 case of acute cholangitis. In addition, 4.2% (2/48) of late adverse events were bile duct stenosis.

The postoperative residual rate was 0%. The median time to recurrence was 17.5 months, and the postoperative recurrence rate was 16.7% (8/48) treated with radiofrequency ablation. Median progression-free survival was 18.6 months (95%CI, 12.1 to 25.1), and median overall survival was 121.5 months (95%CI, 105.6 to 120.9).

Conclusion: Endoscopic papillectomy is a safe and efficient alternative therapy for early duodenal papillary carcinoma. Endoscopic follow-up and treatment are essential because of recurrence.

Disclosure: Nothing to disclose.

PP0301

FULLY VS. PARTIALLY COVERED SELF-EXPANDABLE METAL STENTS FOR ESOPHAGOGASTRIC ANASTOMOTIC LEAK

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Introduction: Self-expandable metal stents (SEMS) are a minimally invasive treatment for anastomotic leaks (AL). Our aim was to compare clinical and safety outcomes of fully covered (FC) and partially covered (PC) SEMS.

Aims & Methods: Retrospective single-centre study including consecutive patients with esophagogastric (oncological) AL treated with FC-SEMS or PC-SEMS (01/2013-12/2022).

Results: A total of 49 patients received esophageal stents (14 FCSEMS and 35 PCSEMS) for AL (82% primary therapy, 18% rescue treatment; 40% submitted to esophagectomy, 60% to total gastrectomy). Technical success was similar between PC-SEMS and FC-SEMS (80 vs 71%, p=0.397). Clinical success without reintervention was 74% with PC-SEMS and 64% with FC-SEMS (p=0.388). Stent migration was higher with FC-SEMS (36% vs 12% with PC-SEMS, p=0.05). Fixation of stent with TTS clips did not reduce the risk of stent migration (p=0.036). Stenosis rate was also similar in the two groups (46% PC-SEMS vs 53% FC-SEMS, p=0.665), and there was no difference in the mean number of dilatations needed to treat stenosis (4.2 in PC-SEMS vs 95.1 in FC-SEMS; p=0.114). Severe adverse advents occurred in two patients, without mortality. Stent-in-stent technique for removal was needed in 83% patients with PC-SEMS (vs 0% with FC-SEMS). AL-related mortality was similar in the two groups (9% PC-SEMS vs 14% FC-SEMS; p=0.662).

Conclusion: PC-SEMS and FC-SEMS are similarly effective and safe for AL-treatment, although FC-SEMS are associated with slightly higher risk of stent migration. The choice of stent should be individualized based on anticipated risks of migration and tissue overgrowth.

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Disclosure: Nothing to disclose.

PP0302

BONE FRAGILITY AFTER GASTRECTOMY FOR GASTRIC CANCER

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Introduction: Gastrectomy for gastric cancer causes long term complications. However, cancer treatment-induced bone loss remains unclear[1].

We have previously evaluated osteoporosis in several disease by using Dual-energy X-ray Absorptiometry(DXA) and high-resolution peripheral quantitative computed tomography (HR-pQCT)[2-4].

Aims & Methods: The aim of this study was to evaluate osteoporosis by using DXA and HR-pQCT more than 5 years after gastrectomy.

This observational study included 42 male patients (21 distal gastrectomy (DG), 21 total gastrectomy (TG)) more than 5 years after gastrectomy due to gastric cancer (GC group) and age-matched 63 male healthy volunteer donors (control group). We excluded women to avoid the effects of menopause.

In osteoporosis markers, such as 25-OH Vitamin D (25OHVD), tartrate-resistant acid phosphatase-5b (TRACP-5b), and procollagen type-I N-terminal propeptide (Total P1NP), were measured in both groups

Areal bone mineral density (aBMD) of the lumbar spine and proximal femur were analyzed by DXA.

Total, cortical, and trabecular volumetric bone mineral density (Tt.vBMD, Ct.vBMD, and Tb.vBMD) of the radius and distal tibia were analyzed by HR-pQCT. Cortical and trabecular thickness (Ct.Th and Tb.Th) of the radius and distal tibia were analyzed by HR-pQCT.

The primary endpoint was the difference of bone mineral density, bone microstructure and bone metabolism markers between the control and the GC groups.

The secondary endpoint was the difference of bone mineral density, bone microstructure and bone metabolism markers between the DG and TG groups.

Results: 1. Gastrectomy on bone mineral density and microstructure.

In DXA, lumbar and femoral aBMD were significantly lower in the GC group (control vs GC; 1.24 ± 0.23 vs 1.08 ± 0.30, $P < 0.01$, control vs GC; 0.88 ± 0.13 vs 0.78 ± 0.15, $P < 0.01$, respectively).

In HR-pQCT, Tt.vBMD of the radius and tibia was also significantly lower in the GC group. Radial and tibial Ct.vBMD were significantly lower in the GC group .Radial and tibial Ct.Th were significantly lower in the GC group.

Radius	Control	GC	P value	Tibia	Control	GC	P value
Tot.vBMD	271.5 ± 58.5	240.8 ± 70.7	P = 0.02	Tot.vBMD	276.9 ± 46.4	243.4± 70.7	P = 0.02
Tb.vBMD	145.1 ± 34.4	130.1 ± 41.8	P < 0.05	Tb.vBMD	159.4 ± 31.2	146.4 ± 39.5	n.s.
Ct. vBMD	847.3 ± 57.5	811.0 ± 83.9	P < 0.01	Ct. vBMD	852.5 ± 52.4	798.3 ± 72.4	P < 0.01
Tb.Th	0.24 ± 0.02	0.23 ± 0.02	n.s.	Tb.Th	0.26 ± 0.02	0.25 ± 0.02	n.s.
Ct.Th	1.01 ± 0.21	0.90 ± 0.24	P = 0.02	Ct.Th	1.49 ± 0.26	1.30 ± 0.33	P < 0.01

The serum intact PTH, TRACP-5b, and Total P1NP levels in the GC group were significantly higher than in control group (control vs GC; med 44.6 vs 55.3, P < 0.01, control vs GC; med 325 vs 474.5, P < 0.01, and control vs GC; med 40.6 vs 46.9, P < 0.01, respectively). The serum 25OHVD and albumin level in the GC group were significantly lower than in control group (control vs GC; med 20.2 vs 16.3, P = 0.05, control vs GC; 4.3 vs 4.1, P < 0.01, respectively).

2. Total and distal gastrectomy on bone mineral density and microstructure

In DXA, lumbar and femoral aBMD was significantly lower in the TG group (DG vs TG; 1.17 ± 0.28 vs 1.00 ± 0.30, P < 0.01, DG vs TG; 0.83 ± 0.13 vs 0.73 ± 0.15, P < 0.01, respectively). In HR-pQCT, radial and tibial Ct.vBMD were significantly lower in the GC group (DG vs TG; 834.1 ± 71.6mg/cm3 vs 787.8 ± 90.5mg/cm3, P = 0.03, DG vs TG; 811.4 ± 72.1mg/cm3 vs 785.3 ± 72.0 mg/cm3, P < 0.01, respectively). There were no differences in osteoporosis markers between the DG and TG groups.

Conclusion: Osteoporosis after gastrectomy was more progressive than healthy volunteers over a long period. Bone deterioration after total gastrectomy was more progressive in the cortical bone than distal gastrectomy.

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Disclosure: Nothing to disclose.

PP0303

DELIVERY OF FIBRIN GLUE AND POLYGLYCOLIC ACID SHEETS VIA THE ENVELOPE METHOD FOR GRAVITATIONAL AND ANTI-GRAVITATIONAL POST-ENDOSCOPIC SUBMUCOSAL DISSECTION ULCERS

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Introduction: Endoscopic submucosal dissection (ESD) is a common treatment for low-risk gastric cancers, but postoperative bleeding, affecting 0%-15.6% of patients, remains a concern. With aging populations and increased antithrombotic agent use, post-ESD bleeding may soon become even more frequent. Fibrin glue with polyglycolic acid (PGA) sheets has shown promise in preventing post-ESD bleeding, but challenges exist, especially when applying sheets against gravity in gastrointestinal ulcers. Moreover, the PGA sheets themselves can be difficult to manipulate and place onto the ulcer bed. The envelope method, developed in 2017, involves storing PGA sheets in a protective envelope that is carried alongside the endoscope, preventing exposure to saliva or mucus which commonly occurs when PGA sheets are individually passed down the endoscope channel. The envelope then adheres to the gastric wall, and clean PGA sheets can be drawn easily using forceps. This method has demonstrated efficient PGA sheet delivery and fixation but was only found to be effective for gravitational ulcers.

Aims & Methods: The study aims to evaluate the envelope method's efficacy in treating both gravitational and anti-gravitational post-ESD ulcers in living porcine stomachs.Gravitational and anti-gravitational artificial ulcers were created via ESD in living porcine stomachs, using a standardized template as a sizing guide. PGA sheets were then applied to each ulcer, employing the conventional and envelope methods six times each. To standardize the ulcer location and characteristics, the sheets were removed after application, and reapplied over the same ulcer bed. To account for minute changes in ulcer environment over time, the method of re-application was alternated between the conventional and envelope methods. The delivery time of PGA sheets and the endoscopic and histological observations of the treated ulcer surfaces were comparatively analyzed. The ulcers were measured with an endoscopic scale, and the delivery time was presented in min/cm^2 to allow for subtle differences in ulcer size.

Results: The envelope method showed significantly shorter application times compared to the conventional method for both gravitational (1.0 min/cm^2 vs 0.32 min/cm^2, p=0.002) and anti-gravitational ulcers (1.2 min/cm^2 vs 0.50 min/ cm^2 p=0.002). In endoscopic examinations, the envelope group demonstrated appropriately applied PGA sheets in anti-gravitational ulcers, with flat sheets and minimal overlapping, while the conventional group showed uneven sheets and clumping. Histologically, the envelope method provided uniform coverage of the ulcer floor with a mixture of PGA sheets and fibrin glue, while the conventional method left gaps between sheets.

Conclusion: The envelope method enables swift transportation and accurate fixation of PGA sheets within living porcine stomachs. This approach is applicable for addressing both gravitational and anti-gravitational ulcers, and may have utility in the prevention of post gastric ESD bleeding.

Disclosure: Nothing to disclose.

PP0304

PREVALENCE OF DUMPING SYMPTOMS AFTER ESOPHAGEAL CANCER SURGERY: A SYSTEMIC REVIEW

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Introduction: Esophageal cancer is the seventh most common type of cancer and sixth leading cause of cancer-related deaths worldwide. Dumping syndrome is a common type of postoperative complications in esophageal cancer patients.

Aims & Methods: This systematic review aimed to assess the prevalence of dumping syndrome after surgery in esophageal cancer patients. A comprehensive literature search was conducted in PubMed, MEDLINE, Web of Science, Embase and the Cochrane Library databases, supplemented by hand-search of reference lists, through March 2023. Random-effects meta-analysis estimated the average prevalence of dumping syndrome after esophageal cancer surgery by study design. Heterogeneity across studies was examined by the I^2 statistic and Cochran's Q test.

Results: A total of 2949 articles were retrieved from the database, among which 17 articles (7 cohort studies, 9 case-series and 1 randomized controlled trial) met the inclusion criteria. The prevalence of dumping syndrome ranged 6%-74% in cohort studies, and meta-analysis estimated the pooled prevalence of 37% (95 confidence interval [CI] 14%-65%; I^2=98%, P for heterogeneity <0.01).

The prevalence of dumping syndrome reported in case-series ranged and meta-analysis estimated the pooled prevalence of 18% (95% CI 7%-34%; I^2=98%, P for heterogeneity <0.01). The randomized controlled study involving 300 patients reported no occurrence of dumping syndrome.

Conclusion: The prevalence of dumping syndrome after esophageal cancer surgery differed greatly as reported in previous studies, which might be explained by differences in definition and assessment of dumping syndrome, length of follow-up and patients' characteristics. Standardized methods in measuring dumping syndrome are needed in future investigations.

Disclosure: None.

PP0305

ENDOSCOPIC MANAGING OF SLEEVE GASTRECTOMY FISTULAS: A INNOVATIVE ESOPHAGEAL STENT

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Introduction: The Luso-Cor esophageal stent was developed to manage fistulas and dehiscences after bariatric and gastric oncologic surgery.

Aims & Methods: The study aims to evaluate the effectiveness and safety of Luso-Cor in treating sleeve gastrectomy fistulas. Retrospective and multi-centric analysis of 28 consecutive patients with fistulas after sleeve gastrectomy who were managed with the Luso-Cor stent, between July 2016 and February 2023. Qualitative variables were analyzed as percentages. Quantitative variables were analyzed as median (min-max) and Mann-Whitney test (non-normal distribution). Predictive factors of fistula closure and adverse events were analyzed with logistic regression. A p-value <0.05 was considered statistically significative. (IBM SPSS 28).

Results: Median age was 45.5 (20-66) years, 78% (n=22) were women. Median fistula orifice size was 5(2 – 20)mm and the location of leaks was: Cardia–71.4%(n= 20); gastric tube–17.9%(n=5); other–10.7%(n=3). The median duration of stent implantation was 6(1–18) weeks. In 28.57%(n=8) patients, a re-intervention was necessary due to: inadequate coaptation of proximal flare of the stent(n=6), migration(n=1) and esophageal stricture(n=1). In 3 cases a new stent was required.

Adverse events were observed in 17.9%(n=5) patients: GI bleeding (n=3), esophageal stricture (n=1) stricture requiring balloon dilation, and recurrent vomiting (n=1). Two patients died, one due to aorto-esophageal fistula and the other one due to pulmonary embolism.

The overall success rate of Luso-Cor stent was 89.3% (25/28). One patient died before stent removal. In 2 of the remaining cases the persisting fistula orifice was closed with an over-the-scope clip (OTSC). The stent was used as first line in 50% (n=14) patients and as rescue therapy in the remaining 50% (n=14)second line, with a significant reduction in the number of endoscopies (3 vs 4) (p=0.031), without difference in efficacy (p=1.225) and adverse events (p=1.195) between groups.

Conclusion: The Luso-Cor esophageal stent was effective in managing sleeve gastrectomy fistulas, with low stent migration rates. The use of the stent as first line therapy significantly o reduced the number of endoscopies until fistula closure.

Disclosure: Nothing to disclose.

PP0306

EFFICACY AND SAFETY OF A NEW STENT IN MANAGING FISTULAS AND STRICTURES AFTER BARIATRIC AND ONCOLOGIC SURGERY

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Introduction: The Luso-Cor esophageal stent was developed for management of fistulas and dehiscences after bariatric and gastric oncologic surgery.

Aims & Methods: The study aims to evaluate the efficacy and safety of Luso-Cor in managing fistulas and strictures after gastric surgery. This is a retrospective and multicentric study involving 35 consecutive patients with adverse events after gastric surgery who were managed with the Luso-Cor® esophageal stent, between July 2016 and February 2023. The adverse events were: fistulas after sleeve gastrectomy (n=28), anastomotic dehiscence (n=4) and gastric tube stricture after bariatric surgery (n=3). The technical success was defined as the effective exclusion of the fistula and the clinical success as fistula closure or effective stricture dilation after stent removal. Endoscopic reinterventions and adverse events were analyzed with descriptive statistics.

Results: Median age was 50(20-84) years, 69%(n=24) were women. Median fistula orifice size was 5.5(2–20)mm. The median duration of stent implantation was 6(1-18) weeks. An endoscopic reintervention was required in 31.43% (n=11) patients due to the following reasons:

Inadequate coaptation of the proximal flare to esophageal wall (n=6), migration (n=3), stricture (n=1), stent fracture (n=1).

Adverse events were observed in 14.23% (n=5) patients: GI bleeding (n=3), esophageal stricture requiring balloon dilation (n=1), recurrent vomiting (n=1).

The technical success in exclusion of fistulas / anastomotic dehiscences was 100%(32). There were 5 deaths: sepsis (n=3); aortoesophageal fistula 3 cm above the proximal edge of the stent (n=1) e probable pulmonary thromboembolism (n=1).

After a median stent implantation of 6 (1-18) weeks, a clinical success rate in fistula closure of 93%(26/28) was observed. In two patients with persistent fistulas after stent removal were successfully managed with 10 mm over-the-scope-clips. The clinical success of the stent in managing strictures with concomitant fistulas was 100%(13/13) and isolated stricture was 33%(1/3). One patient required endoscopic dilatation and the other underwent total gastrectomy.

Conclusion: The innovative design of the Luso-Cor. stent is very effective in managing fistulas and concomitant strictures after gastric bariatric and oncologic surgery. The esophageal anchoring reduces the migration risk and facilitates the stent removal.

Disclosure: Nothing to disclose.

PP0307

COMPARISON OF GEL IMMERSION ENDOSCOPIC MUCOSAL RESECTION (EMR) AND UNDERWATER EMR FOR SUPERFICIAL NON-AMPULLARY DUODENAL EPITHELIAL TUMORS (SNADETS)

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Introduction: The most popular endoscopic therapy for SNADETs is endoscopic mucosal resection (EMR), however it is difficult due to major serious adverse events and poor curative outcomes that result in a high recurrence rate. Underwater endoscopic mucosal resection (UEMR) has recently attracted attention as a safe and effective method for superficial non-ampullary duodenal epithelial tumors (SNADETs).

However, water is a fluid and it does not remain in all areas, and because it mixes easily with other substances, it sometimes becomes cloudy and reduces visibility. A new endoscopic gel product that does not mix with fluids and tends to remain in the injected area has recently been applied to EMR and is known as gel immersion EMR (GIEMR) or under-gel EMR. Unlike water, this gel product does not mix with intestinal fluids or blood, thus ensuring a good view of the gastrointestinal tract.

Furthermore, it tends to stay in the injected area due to its viscoelasticity, which may shorten the treatment time.

Aims & Methods: In the present study, we compared the efficacy and safety of UEMR and GIEMR for treatment of SNADETs.

From February 2019 to January 2023, patients who underwent UEMR or GIEMR for SNADETs at the municipal hospitals were included in the study, and treatment outcomes were compared retrospectively in both groups. We identified 31 lesions of SNADETs with 3–18 mm in diameter who underwent UEMR or GIEMR. One lesion was excluded from the analysis because it was found to be in the stomach after surgery.

The primary endpoint in this study was the difference in procedure time between the GIEMR and UEMR groups. The procedure time was defined as the time from the start of normal saline or gel injection into the lumen until the polyp was completely removed. En bloc resection rate, R0 resection rate and adverse events were evaluated as secondary endpoints.

Results: The 30 lesions in 29 patients were divided into the UEMR (n=12) and GIEMR (n=18) groups. There were no differences in age, gender, location, morphology and histological type between the UEMR and GIEMR groups, although the GIEMR group had a significantly larger median tumor diameter size (7 mm vs 11 mm, P=0.0006). GIEMR significantly reduced the procedure time compared with UEMR (5.5 min vs 10 min, P=0.016).

There was no significant difference between the UEMR and GIEMR groups for *en bloc* resection rate (91% vs 94%, P=1.0) and R0 resection rate (58% vs 78%, P=0.42). No serious complications were observed in either group.

Conclusion: GIEMR was safe and had good therapeutic results for SNADETs and showed the potential to accelerate the procedure time compared with UEMR. This method may be particularly useful in areas where immersion in water is difficult. A multicenter study is needed to confirm the validity of our results.

Disclosure: Nothing to disclose.

PP0308

EFFICACY OF ENDOSCOPIC BAND LIGATION FOR DUODENAL NEUROENDOCRINE NEOPLASMS: A SINGLE-CENTER OBSERVATIONAL STUDY

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Introduction: Duodenal Neuroendocrine Neoplasms (dNENs) are rare neoplasms (2.7% of all NENs) (1), but their incidence is on the rise. Most of them are smaller, low-grade neoplasms with an indolent course. The role of endoscopic resection and active surveillance of dNENs needs to be reviewed (2).

The term neuroendocrine tumor (NET) generally refers to well-differentiated disease, neuroendocrine carcinoma (NEC) refers to poorly differentiated disease, and NEN is an umbrella term inclusive of both.

Aims & Methods: This is a single-center observational retrospective study of duodenal Endoscopic Band Ligation (dEBL) done between June 2020 and February 2023 at the Asian Institute of Gastroenterology (AIG Hospitals), Hyderabad, India.

The primary aim was to study the therapeutic efficacy of dEBL for dNENs. All patients having histological or molecular radiology (Gallium 68 DOTATEC) confirmation of a neuroendocrine neoplasm either at our center or outside were included. The size, number, and location of lesions were recorded. On histopathology examination, the grade and Ki 67 index were noted (3).

The presence of lymph node, hepatic, and skeletal metastasis was assessed at the time of diagnosis through cross-sectional imaging and Gallium 68 DOTATEC scans (4). All patients underwent follow-up endoscopies 3–12 months after dEBL, and those who were indicated underwent repeat imaging.

Results: During the study period, n = 138 (M: F: 107:31, age: 53.92±11.95 years) patients underwent dEBL. Most lesions (90%) were non-functional and were incidentally diagnosed on endoscopy. The most common site was the first part of the duodenum and duodenal bulb (n = 123, 89%), with the majority of patients having single lesions (n = 118, 85%). The size of lesions (endoscopic or radiologic) was <1cm in n=110 (80%) patients.

Diagnostic endoscopic ultrasound was done in n=82 (59%) patients and showed lesions arising from the 2nd layer of the duodenum. Biopsy showed Well differentiated NENs (with or without duodenitis) in n = 108 (78%) patients, with a Ki67 index less than 3% in 61/92 (67%) patients.

A DOTATEC scan done in n = 77 (56%) patients showed uptake in n = 37/77 (48%) patients. The mean SUV max was 23.61. Follow-up endoscopies were done in n = 104 (76%) patients at 3–12 months post-procedure, which showed complete clearance of the lesion in n = 92 (95%) patients (therapeutic efficacy).

Twelve patients had residual lesions on endoscopic evaluation and underwent repeat DOTATEC scans, of which four showed residual lesions for which a repeat dEBL was done. Eleven patients (8%) had post-procedure upper abdominal pain, which subsided with conservative management.

Conclusion: Endoscopic duodenal banding should be considered a safe and effective treatment modality for all well-differentiated, low-grade dNENs after excluding metastases.

Further prospective studies should be done to establish this modality as the gold standard of treatment and include it in the algorithm for the management of dNENs.

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Disclosure: Nothing to disclose.

PP0309

WHAT DO PATIENTS THINK OF CYTOSPONGE?: SURVEY OF 829 PATIENTS IN AN ESTABLISHED EARLY DIAGNOSIS UPPER GI SERVICE

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Introduction: Due to pandemic restrictions we established a new early diagnosis service for patients with reflux symptoms and those on our existing Barrett's surveillance programme using Cytosponge as initial investigation in 2020. As this was the first time Cytosponge had been used in routine clinical practice in this setting it was important to involve patients in the evaluation of the service.

Aims & Methods: The service was established in a district general hospital with catchment area 600,000**.** All patients who had a Cytosponge procedure between 01/05/2021 and 04/04/2023 were asked to complete a one-page survey about their experience on the same day as the procedure, prior to leaving the hospital. The survey contained demographic data and questions regarding their degree of discomfort using a visual analogue scale as well as whether they had had a previous endoscopy, and which one they preferred, if they thought the test was acceptable and whether they would be willing to have a Cytosponge again. There was also space for free text comments.

Results: 829 patients completed the survey at least partially. No patients declined to participate. 393 (49.5%) were female, 401 Male(50.5%) 93% described themselves as white ethnicity 3.4% as Asian/Asian British, 1.2% as Black or Black British,2.2% as Mixed/other.

99.5% found the information leaflet helpful. Only 20/816 (2.5%) respondents felt that Cytosponge was an unacceptable test. 15% described no discomfort, 77% mild or minimal discomfort, 3% moderate discomfort, 5% severe/significant discomfort. 778 patients (94%) would be willing to have a Cytosponge again.

445/819 (54%) reported having a previous gastroscopy.329/383 (86%)reporting a preference preferred Cytosponge to gastroscopy.

Conclusion: These results support previous data from the BEST studies, and are the largest single site dataset showing the excellent acceptability of Cytosponge in the real-world setting. The evidence from patients for their preference for Cytosponge over gastroscopy will also give support for its use as in Barrett's surveillance programmes going forward where multiple gastroscopies were previously required.

Disclosure: Nothing to disclose.

PP0310

OUTCOME AFTER ENDOSCOPIC SLEEVE GASTROPLASTY FOR OBESITY AND IMPACT OF GLP1 AGONIST ON WEIGHT LOSS

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Introduction: Endoscopic sleeve gastroplasty (ESG) is a less invasive alternative to surgery for patients with obesity. The post procedure recovery is quicker and patients can be discharged one day after procedure.

Aims & Methods: We aimed to determine the outcome after ESG in patients with obesity and benefit of adding GLP1 agonist after ESG. All patients undergoing ESG at our center from 2017 up to 2020 were retrospectively recruited. Patients with BMI ranging from 30 to 40 kg/m^2 were eligible for ESG. The baseline demographic and clinical profile and reports of investigations were recorded. The date of procedure and follow up details including weight at various time points were noted. The procedure was done by Apollo^{TM} overstitch device.

The primary outcome was loss of at least 10% weight from baseline after ESG. The secondary outcome was loss of >20% weight after surgery. Multivariate analysis was performed using logistic regression to asses the predictors of weight loss after ESG including use of GLP1 agonist.

Results: Forty-six patients underwent ESG during the study period. Their mean age was 39.9+8.8 years and 91.3% were females. The mean BMI before ESG was 35.1±2.9 kg/m^2 and mean weight was 90.2±11.5 kg. Follow-up data was available for 41 patients: the mean duration of follow-up was 29.4±14.8months.

The primary outcome (weight loss >10%) was achieved in 68.3% patients. Weight loss >20% was noted in 19.5% subjects. The mean weight 6-12 months after ESG was 80.8±11.2 Kg and after 2 years was 87.6±12.6 Kg.

Multivariate analysis was done using age, gender, baseline weight and use of GLP1 agonist as variables for predicting weight loss after ESG (Table 1). We did not find any significant predictors including use of GLP1 agonist (p=0.2).

	Weight loss >10% (n=28)	Weight loss <10% (n=13)	p
Age (Years)	39.9±9	37.4±9.2	0.3
Gender (Female)	25 (89.3%)	12 (92.3%)	0.98
Weight before ESG (Kg)	90.4±12.8	88.9±8.6	0.76
Use of GLP1 agonist after ESG	11 (39.3%)	8 (61.5%)	0.2

Table 1.

Conclusion: ESG leads to weight loss in about two-third of patients although the effect is not sustained after 2 years. Use of GLP1 agonist does not have additional impact on weight loss.

Disclosure: Nothing to disclose.

PP0311

DUODENAL MUCOSAL RESURFACING PROCEDURE TRAINING AND IMPLEMENTATION

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Introduction: The duodenum plays a key role in regulating metabolism and is known to be dysfunctional early in the development of metabolic diseases such as type 2 diabetes (T2D). Duodenal mucosal resurfacing (DMR) is a non-pharmacologic, investigational, endoscopic treatment designed to hydrothermally ablate the duodenal mucosa to restore the metabolic functionality of the duodenum in people with T2D. DMR has a CE mark, reimbursement in select medical centres in Germany, and has been evaluated in over 300 patients to date with favorable safety and metabolic benefits observed.

As part of the currently enrolling, global, pivotal Revitalize 1 trial for DMR, competency-based training and implementation have evolved to support scalable education of advanced-endoscopist investigators.

Aims & Methods: Here, we describe the current endoscopist training program for DMR, demonstrate its alignment with the European Society of Gastrointestinal Endoscopy[1] and the American Society for Gastrointestinal Endoscopy[2] training and effectiveness principles, and provide evidence that training methodology for DMR has led to acceptable and consistent safety outcomes in Revitalize 1.

The training program consists of three core elements designed to enhance advanced-endoscopist proficiency toward safe and efficacious execution of the DMR procedure:

1. Structured didactic overview of the DMR system, procedure, and core competencies;
2. Initial hands-on tracking of the DMR catheter through the validated DMR training simulator; and
3. Hands-on live-patient cases focused on the successful execution of the DMR procedure and demonstration of core competencies.

The DMR simulator was developed and validated to complement the didactic component of the training program and recapitulate endoscopy skills necessary to perform the procedure as intended. Successful training was defined as completion of the full program with demonstration of competency in core DMR skills and troubleshooting techniques using the simulator.

Procedural success was defined as performing ablations along the anatomical length of the duodenum from immediately beyond the ampulla of Vater to the Ligament of Treitz, while minimizing longitudinal gaps between areas of ablated mucosa.

Results: The DMR training program has been used to train therapeutic endoscopists in 6 centres in the EU and US as investigators in Revitalize 1. All centres successfully completed training in ~3 hours within 2 weeks of the first case. Nine open-label patients have been treated, to date, with 100% procedural success rate.

Baseline characteristics were consistent with uncontrolled T2D despite multiple glucose-lowering medications and insulin: 66.7% male, median (min, max), age 60 (45, 68) years, HbA1c 8.5% (7.6%, 9.1%), weight 96 (85,

128) kg, and diabetes duration 13 (7, 24) years. Adverse events (AEs) definitely or probably related to the device and/or procedure included sore throat (n=2), abdominal bloating (n=1), and abdominal pain (n=1). AEs were mild and resolved without sequalae. No observed long-term device- or procedure-related AEs, no device- or procedure-related SAEs, and no unanticipated AEs have been observed to date.

Conclusion: The three core elements of the DMR training program, inclusive of the DMR simulator, are scalable and have been reproducibly employed to train advanced therapeutic endoscopists to safely perform the DMR procedure. Results thus far suggest that DMR appears to be a safe, broadly accessible, and disease-modifying approach to treat metabolic disease, such as T2D, via therapeutic endoscopy.

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PP0312

BLOWN-OUT MYOTOMY AFTER ACHALASIA TREATMENT; PREVALENCE AND ASSOCIATED SYMPTOMS

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Introduction: Peroral endoscopic myotomy (POEM) may result in a distended distal esophagus, referred to as a blown-out myotomy (BOM). It has been suggested that BOM may have functional and symptomatic consequences. The aim of this study was to investigate the prevalence, risk factors and associated symptoms of BOM after achalasia treatment using a clinical trial dataset (POEMA trial).

Aims & Methods: We analyzed data of newly diagnosed symptomatic achalasia patients (based on an Eckardt greater than 3) in our center who participated in a previous randomized controlled trial in which they were randomly allocated to undergo treatment with POEM or pneumatic dilation (PD). Follow-up was planned at 3 months, 1, 2 and 5 years after treatment and included an esophagram, endoscopy, HRM and symptom questionnaires. We defined a BOM as a >50% increase in esophageal diameter at its widest point in the distal esophagus between the lower esophageal sphincter and 5 cm above.

Results: In total 74 patients were treated in our center, of which 5-year follow-up data was available in 55 patients (32 (58%) patients randomized to POEM, 23 (42%) PD). During the 5-year follow-up a part of the patients received retreatment which resulted in 15 (27%) patients that were treated with PD only and 40 (73%) patients treated with POEM or PD + POEM. In the group initially treated with POEM the incidence of BOM increased from 11.5% (4/38) at three months, 21.1% (8/38) at 1-year, 27.8% (10/36) at 2-years and 31.3% (10/32). A BOM was seen in none of the patients treated with PD alone and 32.5% of the patients ever treated with POEM at 5-year follow-up (p=0.011).

There were no differences in baseline LES-resting pressure (25.8 (21.8-34.0) mmHg vs 36.0 (26.4-46.3) mmHg, p=0.168) and baseline IRP-4 (24.7 (17.8-36.5) mmHg vs 31.0 (21.7-38.7) mmHg, p=0.240) between patients ever treated with POEM with or without a BOM. Achalasia subtype type did seem to be a risk factor for the occurrence of a BOM in our cohort, as BOM occurred in 25% (2/8) of type 1, 27% (7/26) of type II and 67% (4/6) of type III achalasia (p=0.152).

Patients that developed a BOM had higher total Eckardt score and Eckardt regurgitation component compared to patients that underwent POEM without BOM development (3 (2.75-3.25) vs 2 (1.75-3) p=0.032) and (1 (0.75-1 vs 0 (0-1) p=0.041). The barium column surface (barium height * width) was not significantly different at 1 minute (12.2 (8.4-19.1) cm^2 vs 10.5 (3.0-17.6) cm^2, p=0.345) or at 5 minutes (10.8 (2.7-18.9) cm^2 vs 7.2 (0-12.8) cm^2, p=0.197) in patients with or without a BOM.

In addition, at 5-year follow-up no significant difference was seen in IRP-4 (13.4 (9.1-18.8) mmHg vs 12.1 (8.5-16.7) mmHg, p=0.377) and LES-resting rate (18.1 (14.3-26.0) mmHg vs 22.3 (13.7-29.8) mmHg, p=0.642) in patients with or without a BOM. POEM patients more often report reflux symptoms (based on GERDQ > 8) when a BOM is present compared to when no BOM is present (85% (11/13) vs 46% (2/16), p=0.023)).

BOM did not have an effect on presence of reflux esophagitis (54% (7/13) vs 41% (11/27), p=0.329) or PPI use (54% (7/13) vs 44% (12/27), p=0.413). Acid exposure time (measured at 1-year follow-up) was significantly higher in patients with a BOM compared to no BOM ((24.5% (8-47)) vs 6% (1.2-18.7), p=0.027).

Conclusion: a BOM was seen in one third of patients treated with POEM regardless of achalasia subtype, resulting in a higher acid exposure, more reflux symptoms and symptoms of regurgitation.

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All other authors declare no competing interests.

PP0313

COMPARISON STUDY OF TREATMENT OUTCOMES OF COLD SNARE POLYPECTOMY AND UNDERWATER ENDOSCOPIC MUCOSAL RESECTION FOR NON-AMPULLARY DUODENAL ADENOMAS 10 MM OR LESS

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Introduction: Cold snare polypectomy (CSP) and underwater endoscopic mucosal resection (UEMR) represent relatively novel techniques for the management of superficial non-ampullary duodenal epithelial tumors. While CSP has been demonstrated to be safe and efficacious in a large-scale clinical trial for non-ampullary duodenal adenomas (NADAs) with a diameter of less than 10 mm [1], UEMR has been shown to be safe and effective in a prospective clinical trial for NADAs with a diameter of less than 20 mm [2]. However, there is no consensus on which technique should be used for NADAs 10 mm or less.

Aims & Methods: This study aimed to evaluate the treatment outcomes of CSP and UEMR for NADAs 10 mm or less. Patients who underwent CSP or UEMR for NADAs 10 mm or less at our institution between January 2015 and December 2022 were included, excluding FAP and local recurrence cases. Adenomas were defined as either Vienna classification category 3 on preoperative biopsy or endoscopically diagnosed as adenomas. The decision to perform either CSP or UEMR, as well as mucosal closure at the ulcer base after resection, was left to the discretion of the endoscopist. Procedure time was measured from snare visibility on the monitor until the end of resection for CSP, and from the beginning of water immersion until the end of resection for UEMR. The resected specimens were pinned to the corkboard and submitted to the pathology department. Follow-up endoscopy was conducted 2–3 months after endoscopic treatment to confirm the presence or absence of residual lesions, followed by an annual endoscopic examination.

Results: A total of 51 lesions were treated using CSP, while 29 lesions were treated with UEMR. The location of the lesions was distributed as follows: 9.8%, 84.3%, and 5.9% for the first, second, and third regions in the CSP group; and 13.8%, 82.5%, and 6.3% in the UEMR group (p=0.84). The difference in lesion diameter between the CSP and UEMR groups was not statistically significant (6.3±2.5 mm and 7.3±2.2 mm, respectively; p=0.06). Preoperative biopsy was performed in 43.1% of the CSP group and 58.6% of the UEMR group (p=0.18). The mean procedure time for CSP and UEMR was 4.6±4.2 min and 6.1±6.9 min, respectively (p=0.29). Mucosal closure at the ulcer base was performed in 56.9% of the CSP group and 100% of the UEMR group (p<0.01).

Neither group experienced intraoperative perforation, postoperative bleeding, or delayed perforation (95% CI: 0–7.0% for the CSP group, 0–11.9% for the UEMR group). The en-bloc resection rates were 96.8% for CSP and 100% for UEMR (p=0.17), and the electric current application rate for CSP was 7.8%.

The final pathological diagnosis in the CSP group was 82.4% adenoma, 3.9% intramucosal adenocarcinoma, and 13.7% non-neoplasm, while in the UEMR group, it was 89.7% adenoma, 10.3% intramucosal adenocarcinoma, and 0% non-neoplasm (p=0.02). The lateral and vertical margin-negative rates were 62.8% and 94.1% in the CSP group, and 62.1% and 100% in the UEMR group, respectively (p=0.95 for lateral margin, p=0.19 for vertical margin). Local recurrence was detected in 3.9% of the CSP group and 0% of the UEMR group.

Conclusion: The rates of negative margins for both lateral and vertical margins were comparable between CSP and UEMR. Despite this, two recurrence cases were observed in the CSP group. UEMR was as safe as CSP, with no intraoperative or postoperative adverse events reported. Furthermore, given that the preoperative diagnosis of adenoma may include a certain number of adenocarcinomas, UEMR may be considered the preferred method for endoscopic resection of NADAs ≤10 mm in size.

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PP0314

HYBRID ZPOEM PROCEDURE FOR ZENKER'S DIVERTICULUM TREATMENT – WHERE SPEED MEETS EFFICACY

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Introduction: The mainstay of treatment of Zenker's diverticulum is cricopharyngeal myotomy. Although flexible endoscopic septotomy is widely implemented, complete myotomy is difficult to assess resulting in recurrence rates of 11%. On the other hand, ZD peroral endoscopic myotomy allows complete myotomy visual confirmation, at the expense of procedure length and complexity. To overcome these limitations, a hybrid technique that allies FES simplicity and fastness to zPOEM efficacy is proposed: 1-septum isolation with overtube; 2-standard FES until middle of the diverticulum; 3-muscular septum isolation by zPOEM until the base of the diverticulum; 4-complete myotomy; 5-residual mucosal flaps section; 6-mucosotomy closure with TTS clips.

We aim to demonstrate the feasibility, effectiveness and safety of the hybrid zPOEM technique for the treatment of ZD.

Aims & Methods: A retrospective analysis including patients with ZD treated by hybrid zPOEM procedure from April 2021 to February 2023 was made. Technical success, early clinical success (dysphagia score ≤ 1), adverse events and recurrence rates were evaluated.

Results: 11 patients (male 54.5%, mean age 72.9 years) underwent hybrid zPOEM procedure for treatment of ZD (mean size 23.18mm, range 15-30mm). The procedure was technically successful in all patients, with a mean procedure time of 21.6 minutes. Early clinical success was achieved in all patients, although 1 patient maintained occasional regurgitation due to incomplete mucosal flaps section. Mean symptoms scores improved from baseline for dysphagia (1.5 vs 0), regurgitation (1.5 vs 0.1), halitosis (0.5 vs 0), cough (0.5 vs 0) and hoarseness (0.3 vs 0). During a mean follow-up time of 10 months, no recurrence was recorded. No intra- or post-procedure AE were recorded.

Conclusion: Hybrid zPOEM technique is a fast, safe and effective procedure, where, by combining classic FES and zPOEM, one can have the best of both techniques. This procedure should be considered as a first-line therapeutic option in third-space-endoscopy experienced centers.

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PP0315

UTILITY AND ADVANTAGE OF THE UNROOFING TECHNIQUE FOR GASTROINTESTINAL SUBEPITHELIAL TUMORS: A MULTICENTER RETROSPECTIVE COHORT STUDY

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Introduction: To evaluate the utility of the unroofing technique in the diagnosis of gastrointestinal subepithelial tumors (SETs), we performed a multicenter retrospective study.
Aims & Methods: This study was conducted in 10 hospitals and involved all eligible patients who underwent unroofing techniques to gain biopsy for gastrointestinal SETs between April 2015 and March 2021. The primary endpoint was the rate of correct diagnosis with the unroofing technique, and the secondary endpoints were the incidence of adverse events and the factors contributing to the correct diagnosis.
Results: The study included 61 patients with 61 gastrointestinal SETs, a median tumor size of 20 mm, and a median procedure time of 38 minutes with 82% successful tumor exposure. The rate of tissue acquisition was 98.4%, and the rate of pathological diagnosis was 72.1%. In 44 cases with a pathological diagnosis, two showed discrepancies with the postresection pathological diagnosis. No factors, including facility experience, organ, tumor size, or tumor exposure, significantly affected the correct diagnosis. No significant differences in the correct diagnosis rate were observed between less than ten experiences and more than ten experiences (74.1 vs. 70.6%). The correct diagnosis rates for tumors <20 mm and ≥20 mm were 76.9% and 65.7%, respectively. There was one case of delayed bleeding and two cases of perforations.
Conclusion: The diagnostic yield of the unroofing technique was acceptable. The unroofing technique was beneficial regardless of institutional experience, organ, tumor size, or actual tumor exposure.
Disclosure: Nothing to disclose.

PP0316

COMPARISON OF EFFICACY OF SAVARY-GILLIARD'S BOUGIE DILATION AND ENDOSCOPIC RADIAL INCISION IN ESOPHAGEAL STRICTURES SECONDARY TO CAUSTIC INJURY

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Introduction: Esophageal strictures are major secondary complications of ingesting caustic agents. Standard management techniques are often unsuccessful.
Aims & Methods: The aim of our study is to show that endoscopic radial incision (ERI) is more effective than Savary-Gilliard's bougie dilatation (SGBD) in properly selected cases. Twenty-eight patients (10 males, 18 females, and a mean age 41.36±16.5) with post-caustic esophageal strictures were included in the study and randomly assigned to two equal groups, where 14 were treated with SGBD and the other 14 with ERI. We have defined and compared total procedure time, complications during and after procedures, as well as the necessity to repeat the technique.
Results: In short segment strictures (≤1cm in length), the requirement for repeating the procedure was 10 in SGBD vs. 3 in ERI ($p > 0.006$). Regarding the duration of the procedure, no statistically significant difference was observed ($p = 0.167$). In terms of complication rates, in SGBD, one complication occurred, while there was none in the ERI group ($p > 0.5$). In long segment strictures (≥1 cm in length), the duration, complication rate, and necessity to repeat the procedure were the same in both the SGBD and ERI groups ($p > 0.1$).
Conclusion: Overall, in short segment strictures, ERI was more effective in terms of the demand to repeat the procedure. However, there was no difference in duration or complication rate. In long segment strictures, the results were the same.
Disclosure: Nothing to disclose.

PP0317

EFFICACY FOR DIAGNOSES OF SCIRRHOUS GASTRIC CANCER AND SAFETY OF ENDOSCOPIC ULTRASOUND-GUIDED FINE-NEEDLE ASPIRATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The diagnosis of advanced gastric cancer (AGC) is occasionally challenging for endoscopists. In particular, scirrhous gastric cancer (SGC) is often missed by esophagogastroduodenoscopy (EGD) alone because it may not form obvious ulcers or tumors.
Early detection of SGC is difficult, and the prognosis is often poor. Considering the rapid progression of SGC, an accurate endoscopic diagnosis of the disease is desirable. SGC is diagnosed using computed tomography, EGD, and EGD-biopsy. In AGC, except for SGC, a definitive diagnosis can be made in >90% of cases when EGD findings are combined with EGD-biopsy.

However, SGC is often difficult to diagnose even with EGD-biopsy. One report has indicated that the false-negative proportion of EGD-biopsy in SGC is >50%, because compared to other AGCs, SGC presents a variety of endoscopic findings, as well as special growth forms and morphological features.

Therefore, the usefulness of endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) instead of EGD-biopsy in the diagnosis of SGC has recently been reported, and the positive diagnosis proportion is as high as 71.4%–82.6%. Against this background, we believe that EUS-FNA is an alternative for diagnosing EGD-biopsy-negative SGC.

Therefore, we conducted a systematic review and meta-analysis to analyze the EUS-FNA diagnosis rate from previous reports in the diagnosis of SGC, verify the advantages and disadvantages of EUS-FNA, and evaluate the utility of EUS-FNA for the current SGC diagnostic landscape.

Aims & Methods: A systematic review was conducted using the PubMed (MEDLINE) and Ichushi-Web (NPO Japan Medical Abstracts Society) data and included all entries since their inception to October 10, 2022, in which SGC was evaluated using EUS-FNA.

The following electronic search terms were used to retrieve the literature in PubMed: ("endosonography" [MeSH] OR "endosonography" [tiab] OR "EUS"[tiab] OR "biopsy, fine needle" [MeSH] OR "fine needle aspiration" [tiab] OR "fine needle biopsy" [tiab]) AND ("linitis plastica" [MeSH] OR "linitis plastica"[tiab] OR "stomach neoplasms" [MeSH] OR "gastric cancer"[tiab]).

Additionally, Ichushi-Web created an electronic search strategy based on the above words. The primary outcome was the proportion of SGC diagnosed using EUS-FNA. In addition, we analyzed the proportion of adverse events associated with EUS-FNA. The study protocol was registered in the UMIN Clinical Trials Registry on October 10, 2022 (No: UMIN000049169).

Results: The electronic search identified 1890 studies; overall, 4 studies met the selection criteria and reported data on EUS-FNA performed on 114 patients with suspected SGC.

In our systematic review, the overall diagnostic yield of EUS-FNA for SGC was 82.6% (95% confidence interval, 74.6–90.6%) and the statistical heterogeneity was 0% (I^2 = 0%), indicating a low heterogeneity.

Furthermore, the EUS-FNA diagnostic proportion for SGC lymph node metastasis was 75–100%, indicating a high diagnostic performance. No apparent adverse events were observed in these 4 studies.

Conclusion: We believe that EUS-FNA is a useful examination because of its minimally invasive nature and high tissue diagnostic proportion. In particular, we consider it to be a useful alternative examination for patients with suspected SGC who cannot be definitively diagnosed by CT or EGD-biopsy.

Disclosure: Nothing to disclose.

PP0318

PER ORAL ENDOSCOPIC MYOTOMY USING A NOVEL SUPER PULSED THULIUM FIBER LASER

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Introduction: Per Oral Endoscopic Myotomy (POEM) is typically performed with diathermy and an ESD knife. Laser is an energy source used in urology for stone management and has also been reported for POEM[1].

In this case series, we compared POEM using a novel 1920 nm super pulsed thulium fiber laser (POEM-L) to historical data of POEM performed with diathermy (POEM-D) at our center[2].

Aims & Methods: We aimed to evaluate the feasibility of a novel 1920nm super pulsed thulium fiber laser for POEM. Collected data from the first 10 patients with achalasia who underwent POEM-L at Haukeland University Hospital from February 2022 until March 2023 were analyzed. The patients were followed up with respect to acute and delayed complications and the efficiency of the treatment with Eckhart score (ES). The historical data on POEM-D were 84 patients treated from January 2014-2019. All POEM-L was performed under general anesthesia using a 365 or 550 micron 1920 nm super pulsed thulium fiber laser in combination with a 4,5-7 Fr triple-lumen cannula for fiber stability. Physiological saline was used for irrigation, and the energy used was 10-30W for all the phases of POEM-L.

Results: Ten patients, 4 males and 6 females with symptomatic achalasia and Eckardt score ≥6 were included. The mean age was 38.5 years old. Based on HRM, 2 patients had achalasia type I, 6 type II, and two with type III. Four patients (40 %) were treatment naïve, 3 (30%) had undergone pneumatic balloon dilatation, 1 (10%) had previous Heller´s myotomy combined with Dor fundoplication, and 3 (30%) had undergone previous POEM. The patients who had redo-POEM had POEM-D as the first treatment. The median resting pressure over the lower esophageal sphincter (LES) was 24.4 mmHg (Range (14.1-45.0 mmHg) prior to POEM. All 10 patients (100 %) patients had posterior myotomy. The median myotomy length was 7 cm (range 5-14 cm). The procedure time was mean 107 min for POEM-L, compared to 130 min for POEM-D, p=0.01. Dysphagia improved in all patients on follow-up, but clinical success (ES≤3) in nine patients. The ES was significantly reduced from median 7 (range 5-10) before POEM to 0.5 (range 0-8) at 1-12 months (p <0.001). None of the patients reported post-operative symptoms of daily reflux, while one had used PPI regularly before POEM. Patients who underwent POEM-L were hospitalized for mean 2.0 days compared to a mean of 3.2 days after POEM-D (p<0.001)

In 9 cases, we were able to use the same instrument to complete all steps of the POEM procedure including mucosal injection and incision, submucosal tunneling, vessel dissection and coagulation, and myotomy.

Conclusion: POEM with a novel 1920 nm super pulsed thulium fiber laser is feasible. Treatment results seem non-inferior to POEM-D. Compared to POEM-D, patients who underwent POEM-L have significantly shorter hospital stay. The mean procedure time was shorter. POEM-L is promising, but a learning curve and dedicated accessories are needed. Further studies are needed to confirm the findings.

References: 1. Liu, J. et al. Preliminary study of 1940 nm thulium laser usage in peroral endoscopic myotomy for achalasia. Dis. Esophagus 31, 1–6 (2018).

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Disclosure: Pham KDC is a consultant for Ambu, Olympus, Taewoong Medical, and Ziehm Imaging and has received a speaker fee from Boston Scientific, Nanovi and Ovesco.

PP0319

ENDOFLIP TAILORED SELECTIVE CIRCULAR POEM REDUCES SHORT TERM POST-PROCEDURAL GASTRO-ESOPHAGEAL REFLUX DISEASE SYMPTOMS IN TREATMENT NAÏVE PATIENTS BUT NOT IN PREVIOUSLY TREATED

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Introduction: Approximately 1/3 patients submitted to Per Oral Esophageal Myotomy (POEM) will develop Gastro-esophageal Reflux (GERD) Symptoms. Several technical characteristics of the procedure and recently Endoluminal functional luminal imaging probe (EndoFLIP) data have been correlated to it.

Aims & Methods: We aimed to evaluate the rate of short-term GERD development among patients submitted to EndoFLIP tailored or not POEM. We included consecutive patients submitted to POEM from 11/2015 to 2/2023. GERD development was assessed by the GERD health-related quality of life (GERD-HRQL) questionnaire and considered positive if ≥13. Patients were evaluated at 3-months post-POEM.

Results: We included 96 patients (M/F: 57/39 mean age: 48 min: 17 - max: 78). Achalasia type distribution was 1/2/3/unclassified: 24/68/1/3. Treatment naïve/experienced were 55/41 .In tailored procedure were submitted 38 while in non-tailored 58 patients. Mean pre-procedural Eckardt score was 7±2 while mean pre-procedural distensibility index (DI) was 2.2±1.6. Anterior approach was selected in 77 while posterior in 19 patients and did not differ between tailored (33/38, 86.8%) vs non-tailored POEM (44/58, 75.9%, p=0.295) while the mean length of myotomy was 10.6±3.4 cm but differed (9.3±2.9 11.4±3.4, p=0.02). GERD was diagnosed in 18/96 (18.7%) and did not differ when comparing tailored vs non-tailored procedure (8/38, 21.1% vs 10/58, 17.2%, p=0.790). The rate of GERD was numerically increased in previously treated vs naïve patients (11/41, 26.8% vs 7/55, 12.7%, p=0.113). When isolating patients with non-tailored POEM, GERD rates did not differ among treated vs untreated (5/31, 16.1% in naïve vs 5/27, 18.5%, p=1.000). While in patients with tailored procedure the rate was significantly increased among previously treated vs naïve patients (6/14, 42.9% vs 2/24 8.3 %, p=0.034). Tailored procedure vs non-tailored procedure led to decreased numerically rates of GERD development in naïve patients (8.3% vs 16.1%, p=0.443) and increased numerically rates among previously treated (non-tailored 18.5% vs tailored 42.9%, p=0.140). In the total cohort GERD development was not correlated to the approach (anterior: 14/77, 18.2% vs posterior: 4/19, 21.1%, p=0.750) or the length of myotomy (10.4 ±3.7 vs 10.7 ± 3.4 cm, p=0.768). In patients with tailored procedure only Baseline DI was correlated to GERD development post POEM even if numerical differences were noted as far as post procedural DI and ΔDI were considered (Table 1).

	GERD development by GERD-HRQL at 3 months	GERD absence by GERD-HRQL at 3 months	p
IRP baseline (mmHg)	25.4±15.8	23.3±8.3	0.509
DI pre-procedural	2.9±1.7	2.0±1.5	0.038
Eckardt baseline	6±2	7±2	0.245
Length of myotomy (cm)	8.3±2.2	9.5±3.1	0.133
DI post-procedural	5.3±2.7	4.5±2.0	0.241
ΔDI	2.8±1.8	2.4±1.4	0.390

All values expressed as mean ± SD.

Table 1.

In the multivariate analysis only previous treatment was correlated to short term GERD development (p=0.004, OR: 7.412 95% CI: 1.890-29.064).

Conclusion: Short term GERD symptom development after POEM by selective circular myotomy occurs in 1 out of 5 patients. These rates did not differ among tailored vs non tailored procedure though they were significantly reduced among treatment naïve patients who underwent tailored POEM. Even if DI especially in the pre-procedural setting may predict short term post POEM GERD development in patients submitted to tailored POEM, only experience to previous treatments was independently correlated to development of GERD at 3 months post-POEM as diagnosed by the use of GERD-HRQL.

Disclosure: Nothing to disclose.

PP0320

LONG TERM SINGLE CENTER COMPREHENSIVE ANALYSIS OF POST-POEM GASTROESOPHAGEAL REFLUX AND ITS SEQUELAE IN MORE THAN 500 PATIENTS

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Introduction: Peroral endoscopic myotomy (POEM) is considered a standard method for achalasia treatment with excellent long term treatment success. However, the benefits of POEM are tempered by the risk of post-POEM reflux complications.

Aims & Methods: The aim of this retrospective analysis of prospectively collected data was to assess the long-term post-POEM reflux. Data from all consecutive patients who underwent POEM between December 2012 and April 2023 were analyzed. The patients assessed symptoms at 3 and 12 months after the procedure and every year thereafter.

The patients underwent upper GI endoscopy, high-resolution manometry (HRM) and 24-hour pH monitoring 3 months after the procedure; endoscopy was then repeated at 2-3 years and at 6 year follow-up. Reflux esophagitis, reflux parameters measured by 24h pH monitoring (off PPIs), reflux symptoms and the use of proton pump inhibitors (PPIs) were the principal outcomes.

Results: A total of 539 POEM procedures (20x re-POEM) were performed in 519 patients. Three months after the procedure, 390 patients underwent 24h pH monitoring with abnormal acid exposure in 178 of them (45.6% [95% CI: 40.7, 50.6]). Reflux esophagitis was present in 181/463 patients (39.1% [95% CI: 34.7, 43.6]; LA C/D in 20 patients, 4.3%) at 3 months, in 94/263 patients (35.7% [95% CI: 30.2, 41.7]; LA C/D in 5 patients, 1.9%) at 24-36 months and in 18/88 patients (20.5% [95% CI: 13.3, 30]; LA C/D in 0 patients) 6 years after procedure.

Follow- up questionnaires were completed in 185, 161 and 106 patients 48, 60, 72 months after the procedure and 34.6%, 35.7% and 34.4% of patients claimed occasional heartburn and 18.1%, 20.4% and 19.6% experienced occasional regurgitation of gastric content.

However, only the minority (under 2% of the patients at 48, 60, 72 months) experienced the symptoms on daily basis. PPIs were administered to 53.3%, 48.4% and 54.3% of patients at 48, 60 and 72 months after POEM with majority of them (80%) taking PPIs on daily basis.

We also investigated whether there were any differences in patients with and without PPIs. In patients with PPIs, there were less cases of reflux esophagitis 3 months after POEM (32.4% vs. 43.5%). More patients with

PPIs experienced post-POEM heartburn (42.3% vs. 25.9%) at 48 months and at 60 months (48.7% vs. 25.4%). There were no significant differences in terms of pathological reflux on 24-hour pH monitoring and in the occurrence of severe esophagitis between patients with vs. without PPIs.
Regarding severe reflux complications, there were no new cases of Barrett's esophagus and esophageal adenocarcinoma. One patient developed peptic stricture, which was successfully treated with balloon dilation. The outcomes were not different among patients who underwent anterior (60%) vs. posterior myotomy (40%).
Conclusion: The rate of post-POEM reflux esophagitis decreases over time, however approximately 50% of patients require long-term antisecretory treatment. Even if the risk of reflux complications is low, patients after POEM should remain under long-term surveillance.
Disclosure: Nothing to disclose.

PP0321

G-POEM REDUCES HOSPITALIZATION RATES, NASOJEJUNAL FEEDING TUBE USE AND MEDICATION USE IN PATIENTS WITH GASTROPARESIS

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Introduction: Gastric Per-oral Endoscopic Myotomy (G-POEM) has been proposed as a new treatment modality for patients with gastroparesis and is considered to be effective in two out three patients. Most studies focus on post procedural data of gastric retention during gastric emptying study and patient oriented self-reported scoring system as Gastroparesis Cardinal Symptom Index (GCSI) in order to measure G-POEM effectiveness.
Aims & Methods: We aimed to evaluate the effectiveness of G-POEM focusing on clinical post procedural evidence: hospitalisation rate, nasojejunal feeding tube and medication use. We analysed retrospectively data from consecutive patients undergoing G- POEM from 09/2018 to 2/2023 in our department. Epidemiological, laboratory and clinical pre-procedural and post-procedural data as also data about adverse events during and after the procedure were collected.
Results: In total 45 patients (M/F: 14/31, mean age: 36±12 years) were included, with mean follow up of 23±17 months. Gastroparesis etiology was: diabetic/idiopathic/Ehlers-Danlos syndrome/other: 23/16/5/1 with mean disease duration 6.7±5.6 years. Pre-procedural mean gastric retention (%) at 1 hour was 71.8±28.6. Two patients had gastric electrical stimulation devices in situ, while 14/45 (31.1%) reported previous Botox injection.
Baseline prokinetic (metoclopramide/domperidone/erythromycin) use was reported among 35/39 (89.7%), anti-emetics (ondasendron, cyclizine) in 21/39 (53.8%) and 9/39 (23.1%) patients were using prucalopride.
Nasojejunal feeding tube was placed in 10/45 (22.2%) patients. At least one hospitalization was documented in 24/38 (63.2%) patients. The mean number of hospital admissions was 4.3±9.1.
After G-POEM rate of prokinetics (13/38, 34.2%, p=<0.001), anti-emetic (0/38, 0%, p<0.001) and prucalopride use (10.5%, p=0.224) was reduced. Moreover NJ tube was placed in only 1 patient, rate also significantly reduced (1/45, 2.2%, p=0.007).
Additionally the rate of patient admitted at least for one time in the hospital post G-POEM was also significantly reduced (23/33, 36.4% vs 24/38, 63.2%, p=0.033). Post procedural admission rates (at least one hospital admission after G-POEM) did not differ among patients with diabetic or idiopathic gastroparesis (diabetic: 7/17 (41.2%) vs 5/12 (41.7%), p=1.000). No differences were noted also as far as prokinetics (6/16, 37.5% vs 4/17, 37.4%, p=1.000) and prucalopride (2/16, 12.5% vs 2/11, 18.2%, p=0.897).
The mean hospital stay after the procedure was 1.05±1.11 days. Perforation during G-POEM was observed in 5/45 (11.1%) patients while significant bleeding was reported in 3/45 (6.6%). All adverse event with the exception of one perforation were managed endoscopically. One patient died during hospitalization though not directly due to procedural adverse event.
Conclusion: Our study points out that G-POEM benefits significantly patients with gastroparesis as it reduces both post-procedural hospitalization rates, need for nasojejunal feeding tube use as also medication use, independently of disease etiology. Procedural complications may develop though the vast majority are managed endoscopically.
Disclosure: Nothing to disclose.

PP0322

ENDOSCOPIC BAND LIGATION FOR WEIGHT LOSS: CLINICAL TRIAL

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Introduction: In a previous case study, we reported the use of endoscopic band ligation for weight loss (1). Based on this, we performed the same procedure on 13 female cases.
Aims & Methods: This trial aimed to assess the efficacy and safety of endoscopic band ligation for weight loss among 13 female cases with initial body weight (kg) mean ± SD of 104.769 ± 17.316 (80–145), BMI mean ± SD of 40.4315 ± 4.9145 and a mean excess weight (kg) of 40.0769 ± 14.3669.
For the endoscopy, the patients were sedated with propofol, and oxygen was used for endoscopic air insufflation. The ligatures were applied in the gastric body, starting distally; five parallel rows were created with 20–30 bands, with the last one placed in the proximal body. The entire procedure lasted 20–30 min.
Results: No immediate complications occurred during the endoscopy. After the procedure, the patients remained well and were discharged within 2–3 h. For the first three days, most complained of nausea, vomiting, and epigastric pain, and one patient experienced mild hematemesis. All complications were controlled with medications (pantoprazole 40 mg twice daily for the 1st month, plus antiemetics and antispasmodics as required). The patients consumed a pureed diet for 2 weeks, followed by a soft diet for another 2 weeks. A follow -up endoscopy after 1 month revealed nicely healed ulcer scars in the gastric body, causing marginal narrowing of the lumen.
The patients' weight loss (kg) was mean ± SD 96.6154 ± 16.8004, corresponding to 22.336% excess weight loss and 7.8752% total weight loss after 1 month, Table 2.
Conclusion: Endoscopic band ligation for weight loss is a new procedure that may help in the management of obesity. The procedure was safe and cost-effective; however, more studies are needed to assess the effectiveness and safety of band ligations in the management of obesity.
References:
1. Abeid Mohamed, Kaddah Tarek. Endoscopic band ligation for weight loss. Endoscopy 2021; 53: E287–E288.
Disclosure: Nothing to disclose.

PP0323

SAFETY AND EFFICACY OF ENDOSCOPIC RETROGRADE APPENDICITIS THERAPY FOR PERIAPPENDICEAL ABSCESS: A MULTICENTER ANALYSIS

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Introduction: Currently, endoscopic retrograde appendicitis therapy (ERAT) is indicated only for acute uncomplicated appendicitis, though its utility can be extended to patients who are poor surgical candidates in more complex appendiceal disease such as those with periappendiceal abscess. Current treatments of periappendiceal abscess include emergency surgery, nonsurgical management with or without percutaneous drainage, and interval appendectomy after nonsurgical management.

Herein, we highlight the utility of ERAT, which allows for interventional, noninvasive management of periappendiceal abscess without surgery.

Aims & Methods: The aim of this study was to evaluate the safety and efficacy of ERAT for treating periappendiceal abscess.

Twenty-four consecutive periappendiceal abscess patients were evaluated between May 2017 and May 2022 at three tertiary care Hospitals in China. The diagnosis of periappendiceal abscess was confirmed by direct colonoscopy imaging and computed tomography (CT) and/or ultrasonography (US). The baseline characteristics of all the patients, procedure success rate, procedure time, postoperative length of hospital stay, complications, and recurrence rate were recorded.

Results: The success rate of ERAT was 95.8% (intubation failed in one patient due to the closure/blockage of the appendix opening). All the patients (100%) patients had abdominal tenderness, 56. 5% had abdominal rebound pain, 21.7% had fever, and 86.9% patients had elevated white blood cells before the ERAT. The mean procedure time was 33.79 minutes with standard deviation (SD) of 17.1 min. The mean length of postoperative hospital stay was 5.4 (SD 2.6) days. Time to relief of abdominal pain after the ERAT was 28.2±19.4 hours. After the ERAT procedure WBC get back to normal range in 2.2±1.3 days. No complication observed in any of the patient. Antibiotics were routinely administered for 3 days after the ERAT. We followed up the patients at 3, 6, 12, 24 and 36 months respectively. Recurrence occurred in 8.7% of the patents at mean 26.9 (SD 10) months of follow-up.

Conclusion: Preliminary evidence suggests that ERAT is safe and effective alternative option for treating periappendiceal abscess, making it a valuable addition to the armamentarium of interventional endoscopy. The practice of ERAT currently remains predominantly limited to the Eastern world. As the treatment paradigm of appendicitis evolves, it is crucial that novel techniques such as ERAT be evaluated at a global scale alongside the evolving standard of care therapies.

Disclosure: None to declare.

PP0324

ENDOSCOPIC SUTURING FOR NON-BARIATRIC APPLICATIONS IN THE UPPER GASTROINTESTINAL TRACT CAN BE PERFORMED WITH HIGH RATES OF IMMEDIATE TECHNICAL AND CLINICAL SUCCESS

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Introduction: Endoscopic suturing offers a novel minimally invasive technique for deploying full thickness sutures in the gastrointestinal (GI) tract. Indications range from defect closure, post operative leaks, fistula repair, stent fixation and tissue plication for endoscopic sleeve gastroplasty.

Here we report our updated experience of endoscopic suturing for non-bariatric applications in the upper GI tract using the Apollo OverStitch™ device (Apollo Endosurgery, Austin, Texas). This represents the largest and most diverse case series in a UK cohort of patients.

Aims & Methods: We retrospectively evaluated cases where the Apollo OverStitch™ device was used at our tertiary upper GI centre. The primary outcomes were immediate technical and clinical success. Technical success was defined as the successful application of sutures. Immediate clinical success was defined according to indication. For defect closure this was evaluated using on the table fluoroscopy/endoscopic visualisation. For stent fixation it was determined by the absence of stent migration at follow up endoscopy.

Secondary outcomes included defect recurrence at follow up investigation. We also evaluated long term clinical success by assessing for resolution of the index clinical issue at the time of latest follow up.

Results: The Apollo OverStitch ™ device was used 56 times across 35 patients (57% female) between August 2018 and March 2023. The mean age of patients at the time of the index procedure was 58 (+/-17.3 years). Outcomes according to indication are highlighted below (Table 1).

Indications	Number of applications	Number of patients	Technical success rate	Clinical success rate	Recurrence	Adverse events reported
Iatrogenic duodenal perforation	5/56 (9%)	4/35 (11%)	2/5 (40%)	2/2 (100%)	1/2 (50%)	Nil
Anastomotic Oesophageal fistula	12/56 (21%)	7/35 (20%)	11/12 (92%)	11/11 (100%)	8/11 (73%)	Nil
Iatrogenic Gastric perforation	1/56 (18%)	1/35 (3%)	1/1 (100%)	1/1 (100%)	0/1 (0%)	Bleeding
Post PEG gastrocutaneous fistula	6/56 (11%)	4/35 (11%)	6/6 (100%)	6/6 (100%)	3/6 (50%)	Nil
Congenital tracheoesophageal fistula	3/56 (5%)	1/35 (3%)	3/3 (100%)	3/3 (100%)	3/3 (100%)	Nil
Spontaneous oesophageal perforation	1/56 (18%)	1/35 (3%)	1/1 (100%)	1/1 (100%)	0/1 (0%)	Nil
Iatrogenic oesophageal perforation	5/56 (9%)	3/35 (9%)	4/5 (80%)	2/4 (50%)	1/2 (50%)	Nil
Leak Post sleeve gastrectomy	9/56 (16%)	4/35 (11%)	9/9 (100%)	8/9 (89%)	5/8 (66%)	Bleeding
Stent fixation	14/56 (25%)	10/35 (29%)	14/14 (100%)	9/14 (36% Stent migration rate)	N/A	Nil

Table 1: Overview of case series for patients undergoing endoscopic suturing in the upper GI tract.

There were five cases (5/56, 8.9%) of technical failure. Three (3/5, 60%) involved iatrogenic perforations at the junction between D1/D2. Three cases (3/37, 8.1%) of immediate clinical failure were reported for the defect closure cohort. In the defect closure cohort there was a recurrence rate of 61.8% (21/34), with a long term clinical success rate of 68.2% (15/22). 14 cases of stent fixation were conducted with a stent migration rate of 35.7% (5/14).

There were two (2/56, 3.6%) cases of bleeding following endoscopic suturing. In both cases bleeding was stemmed endoscopically on the table and prior to the end of the procedure.

Conclusion: Our case series suggests that the Apollo OverStitch™ device can be used for a diverse range of indications with high rates of immediate technical and clinical success.

We note a high recurrence rate reflecting that many defects require repeat suturing attempts to achieve durable long term closure. We postulate that this may be related tissue epithelisation and/or friability impacting opposition.

Furthermore, technical failure occurred most with perforations at the D1/D2 junction. This is likely related to acute angulation which impedes the ability to deploy sutures.

The heterogenous follow up data from this case series impacts the ability to draw firm conclusions regarding long term outcomes. There is an ongoing prospective multicentre registry which will assist in evaluating long term outcomes.

Disclosure: Nothing to disclose.

Poster presentations

H. pylori

Poster Presentations
H. Pylori

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H.Pylori

PP0325

HELICOBACTER PYLORI INFECTION DIAGNOSIS AND MANAGEMENT: CURRENT PRACTICES OF GREEK GASTROENTEROLOGISTS

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Introduction: Helicobacter pylori infection plays a significant role in the development of diseases with high morbidity and mortality, such as peptic ulcer disease and gastric cancer. However, diagnosis and management of H. pylori infection vary significantly depending on country, area and specialty.

Aims & Methods: Aim of this study was to record the current practices of Greek gastroenterologists for screening and treatment of Helicobacter pylori infection while also comparing them to practices in other countries and recommendations of international guidelines. An anonymous questionnaire consisting of 19 questions regarding the management of Helicobacter pylori infection was sent with the aid of the Hellenic Society of Gastroenterology to all members of the society. Statistical analysis was performed with SPSS software.

Results: The questionnaire was completed by 180 gastroenterologists, with a response rate of 31.4%. Diagnostic tests to confirm Helicobacter pylori infection are ordered by 98.3% of the physicians for patients with current peptic ulcer disease, by 95.6% for patients with gastric lymphoma, by 90.1% for patients with a family history of gastric cancer and by 92.8% for patients with an endoscopic appearance suggestive of gastritis.

The majority of gastroenterologists (55.8%) tested for H. pylori in patients with gastroesophageal reflux disease (GERD). Histopathology was the most preferred (60.6%) method by the physicians for patients for which testing is decided during endoscopy, while urea breath test was the most preferred method (67.8%) for patients where the decision to test was taken regardless of endoscopy.

The sensitivity of the test had the most crucial role in the decision of the screening method for most physicians (60.2%). Most gastroenterologists use quadruple eradication regimens that are supported by international guidelines (90%) and 65.6% of the physicians answered that they systematically recommend the addition of probiotics to standard therapy. 51.7% selected ten days of treatment, while 44.4% 14 days. Lastly, most physicians answered that they always (82.8%) or usually (13.9%) confirm the eradication of the pathogen.

The majority of physicians (79.4%) used the urea breath test for confirmation of eradication. Sensitivity was again the most crucial factor influencing the decision of most physicians (59.7%). When asked about their perceived percentage of Clarithromycin-resistant species in Greece, 45.4% of the physicians believed it to be 21-30%, 19.3% believed it to be 11-20% and 14.9% believed it to be 31-40%.

Conclusion: The majority of Greek gastroenterologists conform to the recommendations of international guidelines regarding the diagnosis and management of Helicobacter pylori infection, except for the screening of patients with GERD. Greek gastroenterologists show a preference for the urea breath test for screening and confirmation of treatment success, while probiotics are used by a considerable number of doctors in addition to standard therapy.

Disclosure: Nothing to disclose.

PP0326

ASSOCIATION BETWEEN *HELICOBACTER PYLORI* INFECTION AND NASAL POLYPS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: *Helicobacter pylori* (*Hp*), a definite carcinogen, is associated with nasal polyps. This finding encourages screening of patients with nasal polyps, with subsequent eradication of the positive subjects. *Hp* has been isolated from multiple sites throughout the body including nose and is associated with a plethora of extragastric manifestations. Current evidence reported discrepant data regarding association between *Hp* infection (*Hp*-I) and nasal polyps.

Aims & Methods: Aim of this meta-analysis was to assess for first time the strength of this association. We performed an electronic bibliographical search in established medical databases (PubMed, Cochrane, and EMBASE). The enrolled studies were evaluated for risk of bias using the Newcastle-Ottawa scale. The primary outcome was the prevalence of active *Hp*-I in nasal polyps compared to patients with normal nasal mucosa. Subgroup analysis based on the different study areas and diagnostic methods used to detect *Hp-I* (PCR, immunohistochemistry, CLO test) was performed to assess for source of heterogeneity. The study outcomes were compared between the two groups through a random-effects model, expressed as odds ratio (OR) and 95% confidence interval. Heterogeneity was calculated through I^2 tests. Publication bias was verified through visual assessment of funnel plots.

Results: Twelve studies were eligible. Male-to-female ratio was 2:1, and age ranged 17-78 years. All studies had good quality (6/8 Newcastle Ottawa scale). The cumulative pooled rate of *Hp*-I in the nasal polyp group

was 32.3%, and in controls 17.8% (OR:4.12, though with high heterogeneity I^2=66%). Subgroup analysis demonstrated that in European studies, the prevalence of *Hp*-I for nasal polyp group was significantly higher than in controls, yielding null heterogeneity. Subgroup analysis based on the diagnostic technique resulted in null heterogeneity for immunohistochemistry with preserving statistically significant difference in *Hp*-I prevalence between nasal polyp and control groups.

Conclusion: This first positive systematic review and meta-analysis strengthens further the plethora of extragastric manifestation of *Hp*. Screening for the bacterium in patients with nasal polyps with subsequent eradication might be a reasonable strategy.

Disclosure: Nothing to disclose.

PP0327

ASSOCIATION BETWEEN *HELICOBACTER PYLORI* INFECTION AND GASTROESOPHAGEAL REFLUX DISEASE: MENDELIAN RANDOMIZATION STUDY

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Introduction: Previous epidemiological studies have examined the association between *Helicobacter pylori* and gastroesophageal reflux disease (GERD) but the findings were inconsistent.

This study aimed to explore the causal relation between *Helicobacter pylori* IgG and six specific antibody levels and risk of GERD using mendelian randomization analysis.

Aims & Methods: We used summary-level data from two large genome-wide association studies (GWAS), i.e. the FinnGen research project and the UK biobank cohort.

Eighteen single nucleotide polymorphisms (SNPs) associated with levels of IgG and six *Helicobacter pylori* specific antibodies (UreA, CagA, VacA, Catalase, OMP, and GroEL) were used as instrument variables to predict levels of these markers for *Helicobacter pylori* infection.

Associations between these SNPs and GERD risk were examined primarily using the inverse variance weighted method, and secondly using MR-Egger, weighted median, simple mode, and weighted mode methods. We further conducted multivariable mendelian randomization analysis on the association between levels of the six specific antibodies and risk of GERD.

Results: Genetically predicted Helicobacter pylori IgG antibody levels were not associated with risk of GERD in either FinnGen (odds ratio [OR]=0.992, 95% confidence interval [CI] 0.961-1.025) or UK Biobank (OR=0.999, 95%CI 0.998-1.001). Genetically predicted levels of the six Helicobacter pylori specific antibodies were not associated with risk of GERD, except for UreA antibody levels in MR-Egger method only (OR=1.138; 95%CI 1.005-1.289) for which pleiotropy was indicated (MR-Egger intercept -0.029, P=0.048). Multivariate MR also found no associations between levels of Helicobacter pylori specific antibodies and risk of GERD.

Conclusion: This Mendelian randomization study found no evidence for a causal relation between Helicobacter pylori infection and the risk of GERD.

Disclosure: Nothing to disclose.

PP0328

HELICOBACTER PYLORI AND SARS- COV-2: A DANGEROUS PATHOGENETIC CORRELATION?

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Introduction: The correlation between Covid-19 and non-respiratory bacteria, such as Helicobacter pylori (Hp) is mostly unexplored. The following consideration led us to further investigate this topic: SARS-CoV-2 binds ACE-2 receptors (ACE-2r) to enter cells, which are widely expressed in the GI tract; in addition, Hp is known to induce changes in the structure of the microvilli of the GI epithelium, e.g. by increasing the expression of ACE-2r[1].

Furthermore, Hp tends to increase gastric pH due to both its urease activity and its ability to induce intestinal metaplasia and gastric atrophy[2]; an alkaline pH is a favorable condition for SARS-CoV-2 to best perform its functions to bind with ACE-2r[3].

Aims & Methods: This is a retrospective preliminary observational cohort study including 1532 outpatients with digestive symptoms referred to private gastroenterological ambulatories: 825 referring to pre-pandemic period (pPP) (Jan 2020-Apr 2022), 707 to pandemic period (PP) (Sep 2017-Dec 2019).

The study aimed to compare the C13 urea breath test (C13UBT) positivity rate and the the delta over the baseline (DOB) (an indirect indicator of Hp bacterial load) between the pPP and the PP.

Results: Patients who underwent C13UBT for the detection of Hp were 316. 36 out of 179, and 74 out of 137, respectively in pPP and PP, tested positive for Hp: the percentage of patients tested positive for Hp during the PP (54.01%) was significantly higher than the one of pPP (20.11%) (p=0.000016). The DOB in the PP was 40.4 ± 17.5, significantly higher when compared to the mean value found in the pPP: 17.4 ± 16.5 (the cut-off for positivity is > 3.5) (p =0.0001).

Conclusion: The results of this study suggest that there is a pathogenetic correlation between HP and Sars-Cov2 infection. We can assume that SARS-Cov-2 infection, whether current or previous, may somehow favour the rooting and replication of Hp.

Several hypotheses could explain this data: Sars-CoV-2 infection weakens the immune system of patients; the limited availability of BT, due to organisational restrictions in public structures (applied to contain the spread of the virus during the PP), delayed the diagnosis of Hp infection, allowing bacteria to proliferate undisturbed; Sars-CoV-2 binds to ACE-2 receptors and causes damage to GI cells leading to morphological changes that make the environment more propitius for Hp.

In this regard, it is recalled that there are no data in the literature about the morphological ultrastructural changes of GI cells in Covid 19, while the HP adhesion mechanism is deeply known[4].

In conclusion, neglecting the search for Hp represents a risk condition for GI diseases (e.g. dyspepsia, peptic ulcer, gastric cancer), especially considering the remarkable increased incidence of Hp infections and DOB during the PP.

In this respect, a recent study showed that the higher the DOB, the higher the bacterial load, but more significantly, the greater the ability of the bacterial strains to produce urease: the strains with the greatest urease activity are CagA+ strains (i.e. those with the greatest oncogenic potential)[5].

Therefore, it can be assumed that the higher the DOB, the greater the risk of developing serious gastric problems in the absence of treatment. Thus, we recommend not to neglect the symptoms that may point to an Hp infection, despite the considerable difficulties encountered in this period to access BT. All the more so considering that Hp can lead to symptoms such as heartburn, which patients often self-medicate with chronic PPI intake, an additional risk factor that increases Covid-19-related morbidity and mortality[6].

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Disclosure: Nothing to disclose.

PP0329

DYSPEPSIA AND PSYCHOLOGICAL STATE IN PATIENTS WITH HELICOBACTER PYLORI-ASSOCIATED CHRONIC GASTRITIS AND VIRULENCE FACTORS CAGA+, VACA+

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Introduction: Nowadays the question of whether Helicobacter pylori-associated chronic gastritis is the cause of dyspepsia is controversial. There is no data about the association between dyspepsia symptoms and the presence of Helicobacter pylori (*H. pylori*) virulent factors (CagA+, VacA+).

Aims & Methods: The aim of this study was to evaluate the frequency of dyspepsia symptoms, anxiety and depression, indicators of quality of life in patients with *H. pylori*-associated gastritis with *H. pylori* virulent factors (CagA+, VacA+) and without them. The diagnosis of chronic gastritis (CG) was established based on esophagogastroduodenoscopy with proximal jejunoscopy, chromoscopy with magnification up to ×115 and narrow-band imaging (NBI) followed by morphological examination of the stomach.

The *H. pylori* virulence factors (CagA+, VacA+) were determined by the PCR method and total immunoglobulins (IgA, IgG) level to the *H. pylori* CagA, VacA protein antigen by the ELISA method. The hospital Anxiety and Depression (HADS) questionnaire was used to assess the level of anxiety and depression. The questionnaire "MOS36 - Item Short - Form Health Status Survey" (SF-36) was used to assess the quality of life.

Results: The cross-sectional study included 50 patients with *H. pylori*-associated gastritis and virulent factors (CagA+, VacA+) (Group 1) and 34 patients with CG without virulent factors (Group 2).

Dyspepsia symptoms of varying intensity were found in 64 patients (76.2%). Dyspeptic symptoms were found in 37 (74%) patients of Group 1 and in 27 (79.4%) patients of Group 2.

Epigastric pain was recorded in 30 patients (60%) of Group 1 and 12 patients of Group 2 (35.3%) (p=0.026).

There was no statistical difference between the groups in the frequency of burning in the epigastrium, feeling of early satiety and postprandial fullness (p>0.05).

Subclinical anxiety was present in 9 (18%) patients of Group 1 and 5 patients (14.7%) of Group 2, clinical anxiety in 17 (34%) patients of Group 1 and 4 (11.8%) of Group 2 (p=0.041).

Subclinical depression was detected in 13 (26%) patients of Group 1 and 2 (5.9%) patients of Group 2, clinical depression in 7 (14%) patients of Group 1 and 3 (8.8%) patients of Group 2 (p=0.032).

Role physical (RP) (50 vs. 75; p = 0.0001), bodily pain (BP) (57.5 vs 77.5; p=0.0001), general health status (GH) (45 vs. 75; p=0.0001), vital activity (VT) (55 vs. 80; p=0.0011) and mental health (MH) (56 vs. 84; p=0.0001) were significantly lower in patients with *H. pylori*-associated gastritis with virulent factors (CagA+, VacA+); physical functioning (PF) (95 vs. 95), social functioning (SF) (62.5 vs. 75) and role emotional (RE) (66.7 vs. 66.7) were not statistically different between the two groups (p>0.05).

Conclusion: Our study reveals that epigastric pain, a higher level of anxiety and depression and a decrease in the quality of life according to indicators RP, BP, GH, VT and MH were observed statistically significantly more often in patients with *H. pylori*-associated gastritis and virulent factors (CagA+, VacA+).

Disclosure: The Authors declare no conflict of interest.

PP0330

ASSOCIATION OF HELICOBACTER PYLORI AND ANAEMIA

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Introduction: There has been a growing body of evidence to suggest a relationship between Helicobacter pylori (H.pylori) gastritis and iron deficiency anemia (IDA) in the absence of peptic ulcer disease.

This study aims to find out whether there is any association of H.pylori infection with iron deficiency and iron deficiency anaemia in Bangladesh.

Aims & Methods: This was a cross sectional study. Association of H.pylori infection and anaemia was studied in a group dyspeptic patients who was found to have no mucosal lesion at upper GI endoscopy and in whom Rapid urease test (RUT) was done to detect H.pylori infection. H.pylori positive patients were considered as group A and H.pylori negative were considered as group B. A total of 194 patients of both sex aged 18 to 60 years were included(group A-134, group B- 60) for the study.

Five ml of blood was collected from each patients for estimation of haemoglobin level, serum iron level, serum ferritin , mean corpuscular haemoglobin (MCH) and mean corpuscular volume.

Results: In the multiple regression model H.pylori infection was associated with a 28.8% decreased serum ferritin (95% CI = -4.85 to – 9.1); r2=0.271).

Mean MCV of the study patients was estimated and compared between groups. The mean MCV was found 85.45±6.93 (on fL) in group A and 88.73±4.58 (on fL) in group B. The difference was found to be statistically significant between the two groups (p=0.001).

Mean MCH of the study patients was estimated .The mean MCH was found 27.6±2.4 pg in group A and 28.8±1.4 pg in group B. The difference was found to be statistically significnat (p<0.05).

S. ferritin >39 ug/L was found in 91 % group A, 67.9% of group B and <15ug/L was found in 18% of group A and 13..4% in group B subjects. This difference is statistically significant.

In male patients frequency of depleted/low iron stores anemia was 2 in low hemoglobin level in Group A but none was in Group B. Adequate iron store was found in 8 and 5 patients in group A and group B respectively. The differences was not statistically significant (p>0.05).

In male patients frequency of depleted/low iron stores was 12 in normal hemoglobin level in Group A. In Group B depleted/low iron stores was found in 2 patients with normal hemoglobin level. Adequate iron store was found in 40 and 36 patients in group A and group B respectively. The difference was statistically significant (p<0.05)

In female patients frequency of depleted/low iron stores anemia was 8 in low hemoglobin level in Group A but none was found in Group B. Adequate iron store was found in 7 and 1 patients in group A and group B respectively. The difference was not statistically significant (p>0.05).

Frequency of depleted/low iron stores anemia was 27 in patients with normal hemoglobin level in Group A and 2 in Group. Adequate iron store was found in total 63 and 45 patients in group A and group B respectively. The difference was statistically significant (p<0.05).

Conclusion: This study revealed an association of iron deficiency anaemia, low serum ferritin , low MCH and MCV with H.pylori infection. So there is a possibility of causal relation between H. Pylori infection and iron deficiency anaemia.

References: To be provided if the abstract is accepted or earlier on request.

Disclosure: Nothing to disclose.

PP0331

RELATIONSHIP BETWEEN *HELICOBACTER PYLORI* INFECTION AND GASTRIC MUCOSAL INJURIES IN PATIENTS TAKING ASPIRIN

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Introduction: The mechanism of aspirin-induced gastric mucosal injury is thought to be mediated by multiple processes involving either topical or systemic effects. Recently, it has been reported that topical effects play a pivotal role in causing gastric mucosal injury [1,2].

It is known that almost all aspirin-induced gastric mucosal injuries were observed in low intragastic pH condition (pH<4) [3].

Though it depends on the severity and distribution of gastritis caused by *Helicobacter pylori* (*H. pylori*), gastric acid secretion is recovered after the eradication of *H. pylori* [4].

Therefore, because intragastric pH may decrease dramatically, the prevalence and severity of gastric mucosal injuries in patients taking aspirin may also change after the eradication.

Aims & Methods: The aim of this study is to reveal the relationship between *H. pylori* infection and gastric mucosal injuries in patients taking aspirin. This study was a retrospective cross-sectional study. Data were extracted from the records of subjects who underwent upper gastrointestinal endoscopy at our department between April 2015 and March 2020. We focused on the subjects taking only aspirin as an anti-thrombotic agent, and selected the subjects whose *H. pylori* infection status was known.

After that we divided into three groups (non-infection, current infection, and past infection of *H. pylori*) and compared the severity of gastric mucosal injury, individually. Severity of gastric mucosal injury was evaluated endoscopically based on the modified LANZA score (m-LANZA score). Statistical analyses were performed by using Fisher's exact test.

We evaluated separately for subjects with concomitant use of potassium-competitive acid blocker (P-CAB) or PPI (user) and subjects without concomitant use of P-CAB, PPI nor histamine H2 receptor antagonist (H2RA) (nonuser).

Results: 311 subjects out of 6,031 were taking only aspirin as an anti-thrombotic agent. In group of non-infection (43 men, 32 women; mean age 69.0±15.6 years), average MLS was 0.51±1.16 (user: n=45, score0=33, score1=8, score2=1, score3=1, score4=0, score5=2) and 1.21±1.70 (nonuser: n=29, score0=18, score1=0, score2=3, score3=5, score4=1, score5=2). In group of current infection (12 men, 5 women; mean age 67.7±11.4 years), average MLS was 0.86±1.86 (user: n=7, score0=5, score1=1, score2=0, score3=0, score4=0, score5=1) and 1.29±1.89 (nonuser: n=7, score0=4, score1=0, score2=2, score3=0, score4=0, score5=1). In group of past infection (107 men, 51 women; mean age 74.7±7.5 years), average MLS was 0.39±1.07 (user: n=104, score0=86, score1=8, score2=4, score3=2, score4=1, score5=3) and 0.90±1.62 (nonuser: n=49, score0=34, score1=4, score2=3, score3=4, score4=2, score5=4).

There was a statistically significantly difference between user and nonuser in group of non-infection (p=0.040) and in group of past infection (p=0.023). Mean MLS in group of current infection was high more than expected because intragastric pH might be high in *H. pylori*-positive patients. We considered because many subjects which were *H. pylori*-positive but whose gastric acid secretion was not so impaired might be included in this study.

Conclusion: There was no significant difference between *H. pylori* infection and gastric mucosal injuries in patients taking low dose aspirin. However, concomitant use of P-CAB or PPI can prevent gastric mucosal injuries in *pylori*-negative patients taking low dose aspirin.

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Disclosure: Nothing to disclose.

PP0332

INFLUENCE OF CYTOKINE GENETIC POLYMORPHISMS IN *HELICOBACTER PYLORI*–ASSOCIATED GASTRIC INFLAMMATION ACCORDING TO SEX IN SOUTH KOREA

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Introduction: Backgrounds: Genetic polymorphisms in inflammation related-cytokines are known to be associated with an increased risk of gastric cancer. However, the relationship between their polymorphisms and the severity of gastric inflammation remains unclear.

We investigated the effects of cytokine genetic polymorphisms on the severity of gastric inflammation in *Helicobacter pylori* (*H. pylori*)-infected subjects according to sex.

Aims & Methods: This study incorporated 892 subjects with current *H. pylori* infection (445 males and 447 females) including 525 healthy controls, 182 patients with gastric ulcer, 185 patients with duodenal ulcer. Genotyping of *IL-1B*-511, *IL-8*-251, *IL-8*-781, *IL-10*-1082, *IL-10*-592, *IL-6*-572, *TNF-A*-308, *TGF-B*-509, *IL1RN* variable number of tandem repeat, *ALDH2*, *GSTP1* and p53 codon 72 were determined by polymerase chain reaction-restriction fragment length polymorphism.

Degrees of monocyte infiltration, neutrophil infiltration, atrophic gastritis (AG) and intestinal metaplasia (IM) in the antrum and corpus were evaluated accordingly to the updated Sydney System. The severity of gastric inflammation was divided into two groups, no/mild and moderate/severe, and were compared between genotypes adjusted age, disease status and *H. pylori* virulent factors.

Results: In males, moderate/severe AG of the corpus was significantly higher in *IL-1B*-511 C/C than *IL1B*-511 T carriers (17.9 vs 7.7%; adjusted hazard ratio (HR) = 3.140, 95% confidence interval (CI) = 1.320-7.471; p = 0.018), while no associations between *IL-1B*-511 polymorphism and gastric inflammation were found in females. *IL-8*-251 A/A was significantly associated with moderate/severe AG of the corpus than *IL-8*-251 T carriers only in females (21.2 vs 6.6%; adjusted HR = 3.520, 95% CI = 1.539-8.051; p = 0.003). *IL-8*-781 T/T showed significantly more frequent in females with moderate/severe AG of antrum than *IL-8*-781 C carriers (12.9 vs 4.6%; adjusted HR = 2.835, 95% CI = 1.166-6.892; p = 0.022), and conversely, *IL-8*-781 C carriers were significantly associated with moderate/severe AG of the antrum than *IL-8*-781 T/T in males (23.3 vs 8.3%; adjusted HR = 3.573, 95% CI = 1.033-12.362; p = 0.044). No significant associations were observed in the frequencies of the genotypes of other genetic polymorphisms with severity of gastric inflammation.

		Male				Female			
		Atrophic gastritis of the corpus							
		No / mild	Mod / severe	P value*	HR (95% CI)	No / mild	Mod / severe	P value*	HR (95% CI)
IL-1B-511	C/T+T/T	251 (92.3)	21 (7.7)	0.018	1	238 (90.2)	26 (9.8)	0.309	
	C/C	45 (82.1)	10 (17.9)		3.140 (1.320-7.471)	64 (94.1)	4 (5.9)		
IL-8-251	T/T+A/T	258 (90.8)	26 (9.2)	0.764		256 (93.4)	18 (6.6)	0.003	1
	A/A	36 (92.3)	3 (7.7)			41 (78.38)	11 (21.2)		3.520 (1.539-8.051)
		Atrophic gastritis of the antrum							
IL-8-781	C/T+C/C	198 (76.7)	60 (23.3)	0.044	3.573 (1.033-12.362)	146 (95.4)	7 (4.6)	0.022	1
	T/T	33 (91.7)	3 (8.3)		1	148 (87.1)	22 (12.9)		2.835 (1.166-6.892)

*adjusted by age, disease status and *H. pylori* virulence factor; Mod, moderate; HR, hazard ratio; CI, confidence interval

Table. Summary of the results of this study

Conclusion: These results suggest that cytokine genetic polymorphisms such *IL-1B*-511 C/T, *IL-8*-251 T/A and *IL-8*-781 C/T are one of several factors that determine severity of AG with sex difference.

Disclosure: Nothing to disclose.

PP0333

HELICOBACTER PYLORI WITH *TRX1* HIGH EXPRESSION PROMOTES GASTRIC DISEASES BY UPREGULATING THE IL23A/NF-KB /IL8 PATHWAY

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Introduction: Gastric cancer is a malignant tumor that seriously endangers human physical and mental health worldwide. *H. pylori* infection is considered to be the major cause of gastric cancer.

Differences in clinical outcomes after *H. pylori* infection may be related to bacterial virulence. Thioredoxin-1 (Trx1) and Arginase (RocF) expressed by *H. pylori* were found to be closely related to its pathogenicity and promoted gastric cancer pathogenesis in our previous study.

Aims & Methods: To explore whether Helicobacter pylori Trx1 and RocF can be used as a marker of highly pathogenic Helicobacter pylori and its pathogenesis.

We investigated the expression level of *H. pylori trx1* and *H. pylori rocF* in human gastric antrum tissues using reverse transcription and quantitative real-time PCR (RT-qPCR) and clarified the clinical application value of *trx1* and *rocF* for screening highly pathogenic *H. pylori*. The pathogenic mechanism of Trx1 were further explored by RNA-seq of GES-1 cells co-cultured with *trx1* high or low expressing *H. pylori*.

Differentially expressed genes and signaling pathways were validated by RT-qPCR, Enzyme-linked immunosorbent assay (ELISA), western blot, immunohistochemistry and immunofluorescence. We also assessed the adherence of *trx1* high and low expressing *H. pylori* to GES-1 cells.

Results: We found that *H. pylori trx1* and *H. pylori rocF* were more significantly expressed in the gastric cancer and peptic ulcer group than that in the gastritis group and the parallel diagnosis of *H. pylori trx1* and *H. pylori rocF* had high sensitivity.

Trx1 high expressing *H. pylori* had stronger adhesion ability to GES-1 cells and upregulated the interleukin (IL) 23A/Nuclear factor κappaB (NF-κB)/IL17A, IL6,IL8 pathway.

Conclusion: In conclusion, *H. pylori trx1* and *H. pylori rocF* can be used in clinical screening of highly pathogenic *H. pylori* and predicting the outcome of *H. pylori* infection. *trx1* high expressing *H. pylori* enhances the adhesion capacity and promotes the development of gastric diseases by upregulating the NF-κB signaling pathway and related inflammatory cytokines.

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Disclosure: The authors declare that there is no competing interests associated with the manuscript.

PP0334

CLINICOPATHOLOGICAL FEATURES AND SERUM RISK MARKERS OF METACHRONOUS GASTRIC CANCER AFTER ERADICATION

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Introduction: Recently, the number of ESD cases of early gastric cancer detected after Helicobacter pylori eradication (GCAE) has been increasing. As the number of years since eradication increases, the management of metachronous carcinomas after ESD for GCAE has also become an issue. Serum gastrin level has been reported to be useful in identifying groups at high-risk of developing gastric cancer.

In this study, we investigated the clinicopathological characteristics of patients with early-stage GCAE who underwent ESD at our department. Furthermore, we determined the risk of metachronous GCAE after ESD and the correlation between serum gastrin level and metachronous GCAE.

Aims & Methods: We retrospectively analyzed a total of 300 lesions in 245 patients who underwent ESD for GCAE with known period after eradication at Hiroshima University Hospital between April 2010 and December 2019 and examined their clinicopathology.

We divided 220 lesions in 194 patients with initial GCAE who had no history of gastric endoscopic resection before successful eradication into the "metachronous gastric cancer (MGC) groups" and "no metachronous gastric cancer (NGC) groups".

Then, we examined the clinicopathological characteristics of metachronous gastric cancer cases. We classified 74 lesions in 63 patients of male and differentiated type cancers who have not been using PPIs into two groups: 37 lesions in 32 patients with gastrin level of less than 80 pg/ml and 37 lesions in 31 patients with gastrin level higher than 80 pg/ml.

Results: At a median follow-up of 4.0 years, 16 patients (8.2%) developed metachronous gastric cancers. Males were more predominant in the MGC group than in the NGC group (male / female; 16/0 vs. 223/74, p=0.02), which included increased cases of severe atrophy of the background gastric mucosa (mild to moderate / severe; 3/13 vs. 94/84, p=0.01), more lesions in the U and M regions of stomach (U-M / L; 19/4 vs 121/76, p=0.05), and a higher proportion of synchronous multiple lesions (synchronous tumor/ no synchronous tumor; 11/12 vs. 160/37, p=0.01). The relationship between gastrin levels and metachronous gastric cancer was examined, revealing that gastrin levels were higher in the MGC group. The group with a gastrin level of 80 pg/ml or higher had a significantly higher incidence of metachronous lesions than the group with that of less than 80 pg/ml (OR 6.88; 95% CI, 1.61–29.3; p=0.01).

Conclusion: These results that male patient with severe atrophy, the rates of localization to the U and M regions of stomach and the incidence of synchronous multiple lesions before ESD indicate should be noted and surveyed more strictly for metachronous gastric cancers developing after ESD of GCAE. Patients with gastrin 80 pg/ml or higher had increased risk of MGC, indicating that gastrin level may be a serological marker for MGC.

Disclosure: Nothing to disclose.

PP0335 WITHDRAWN

PP0336

ENDOFASTER® FOR MINIMALLY-INVASIVE REAL-TIME DIAGNOSIS OF HELICOBACTER PYLORI INFECTION DURING ENDOSCOPY: PRELIMINARY RESULTS FROM A TERTIARY CENTER

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Introduction: *Helicobacter pylori* (Hp) is a major factor involved in both neoplastic and non-neoplastic gastroduodenal disease [1,2].

Biopsies are frequently performed to identify this agent during esophagogastroduodenoscopy (EGD). Nevertheless, the prevalence of the infection is decreasing in developed countries, thus biopsies are frequently negative and have no clinical impact [3].

Endofaster® (NISO Biomed SRL, Turin, Italy) provides real-time analysis of gastric juice ammonium, allowing the diagnosis of Hp infection [4].

Aims & Methods: This preliminary study aimed to assess the performance of this device in a real-life clinical setting. We prospectively enrolled patients undergoing EGD and biopsies following the Sydney protocol at a single tertiary center. All patients were off proton-pump inhibitors for ≥1 week. Gastric juice was aspirated (4 mL) before any water was instilled for cleaning the mucosa. The pH and NH3 values were assess.

A value of NH_3>62 ppm/mL were compatible with Hp infection. Histology was considered the *gold-standard*. The performance of the device was determined regarding its sensitivity, specificity, accuracy and area under the curve (AUC).

Results: A total of 39 patients were included in the analysis, with a similar distribution between gender (male patients, n=20, 51%). The cohort had a median age of 56 years (IQR 48-66). A total of 19 patients (50%) had severe hypochloridria (pH>4.5). A NH_3 >62 ppm/mL suggested Hp infection in 21 patients (54%). Histology confirmed Hp infection in 18 patients (46%). The *Endofaster®* had a sensitivity, specificity and overall accuracy of 77.8%, 66.7% and 71.8%. The AUC was 0.784.

Conclusion: The *Endofaster®* demonstrated an adequate performance for the detection of Hp infection when compared to gastric biopsies. Further development of these non-invasive techniques, combined with the advent of artificial intelligence, may help to optimize the diagnosis of Hp infection and reduce the high costs associated with histopathological analysis.

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PP0337 WITHDRAWN

PP0338

IRISH *HELICOBACTER PYLORI* ANTIBIOTIC RESISTANCE SURVEILLANCE TO GUIDE CLINICAL PRACTICE

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Introduction: Antibiotic resistance is one of the main reasons for *H. pylori* treatment failure. International guidelines recommend that the choice of antibiotics used to treat *H. pylori* in a given population should be based on the pattern of antibiotic resistance in that region. However, *H. pylori* antibiotic resistance testing is not routinely carried out in the majority of Irish Hospitals. Recent evidence from the European Helicobacter and Microbiota Study Group has indicated that resistance to certain commonly used antibiotics to eradicate *H. pylori* varies between European countries, and in certain areas resistance has reached a sufficient level to avoid prescribing these antibiotics as empirical therapy (1).

In addition, previous antibiotic use positively correlates with resistance for two major classes of antibiotics commonly used to treat H. pylori infection (1).

Because antibiotic resistance is a constantly evolving process, the European Helicobacter and Microbiota Study Group and the Maastricht VI/Florence consensus report (2) have highlighted the importance for local resistance surveys to be carried out on a regular basis in order to guide clinicians in their choice of therapy for successful eradication of H. pylori.

Aims & Methods: In this multisite study we aimed to assess the rate of primary and secondary antibiotic resistance for *H. pylori* in Ireland, with a view to guiding national treatment strategies. The study comprised of four sites with samples analyzed from two large urban teaching hospitals and two rural teaching hospitals. Patients attending for gastroscopy were invited to participate in the study.

Following informed consent, 1 antrum and 1 corpus gastric biopsy were collected from each patient and transported to the laboratory in selective medium. Antibiotic susceptibility testing was carried out by E-test (bioMerieux) and resistance classified according to the EUCAST clinical breakpoints MIC values.

Results: In total, 126 isolates were successfully cultured and antimicrobial susceptibility assessed. 103 of these were isolates of treatment naïve patients (50±16 years old, 59% male) and 23 were of previously treated patients (48±12 years old, 61% female).

As can be seen in table 1, primary antibiotic resistance rates have reached alarmingly high levels for both clarithromycin and metronidazole, and reach nearly double the rate of resistance with the previously treated group.

Antibiotic	clarithromycin	metronidazole	levofloxacin	tetracycline	amoxicillin	rifampicin
Primary Resistance (%)	37.9	44.7	21.4	10.7	33.3	16.7
Secondary Resistance (%)	65.2	73.9	30.4	17.4	30.4	17.4

Table 1: Antibiotic susceptibility rates for H. pylori isolated from Irish Hospitals.

Conclusion: Antibiotic resistance rates have reached significant levels for all major classes of antibiotics for the treatment of *H. pylori*. Of note, first-line clarithromycin triple therapy can no longer be recommended in Ireland.

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Disclosure: Nothing to disclose.

PP0339

EVALUATION OF MOLECULAR-BASED CLARITHROMYCIN RESISTANCE TESTING IN HELICOBACTER PYLORI COMPARED TO CULTURE-BASED TESTING IN THE IRISH HEALTHCARE SETTING

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Introduction: Antibiotic resistance in H. pylori (Hp) is becoming a more significant challenge in the management of Hp infection. Resistance surveillance is recommended to guide clinicians in the most appropriate therapy in a given population. Molecular methods offer a more rapid alternative for the detection of Hp resistance to antibiotics than traditional culture-based methods.

Aims & Methods: To evaluate the diagnostic accuracy of molecular-based clarithromycin susceptibility testing in Hp compared to culture and E-test in the Irish healthcare setting.

Following ethical approval and informed consent, adults were recruited prospectively from 2 centres (Tallaght University Hospital and Letterkenny University Hospital, Ireland), regardless of previous Hp treatment history. During routine gastroscopy, subjects had two supplementary biopsies (1 antrum and 1 corpus) taken for Hp culturing and DNA extraction. After successful Hp growth, clarithromycin susceptibility testing was performed by the Etest (Biomerieux) method and resistance was determined according to EUCAST 2023 guidelines.

DNA was then extracted from biopsies and underwent PCR using the RIDA®GENE Helicobacter pylori assay (R-Biopharm AG, Germany) for detection of Hp and clarithromycin resistance-associated point mutations (A2146C, A2146G and A2147G).

Results: In all, samples from 191 culture-positive patients (mean age 48.4 ± 15.3 years; 45.0% (N=86) female) were analysed. The rates of clarithromycin resistance detected by culture-based and molecular methods were 49.2% (N=94/191) and 38.7% (N=74/191), respectively (P=0.05; Fisher's exact test).

Results were in agreement between both methods in 84.3% (N=161/191) of cases. The sensitivity and specificity of the Ridagene assay compared to culture for the detection of clarithromycin resistance were 74.2% (95% CI: 64.4-82.6%) and 94.7% (95% CI: 88.0-98.3%), respectively. The positive predictive value was 93.5% (95% CI: 85.5-97.9%) and the negative predictive value was 78.1% (95% CI: 69.4-85.3%).

Conclusion: While the Ridagene assay was easy to use and more rapid than Hp culture, the low sensitivity compared to culture in our cohort may limit its use to cases where culture-based methods are unsuccessful. Further studies are required to characterise the full spectrum of clarithromycin resistance mechanisms present in our population.

Disclosure: Nothing to disclose.

PP0340

SAFETY AND EFFECTIVENESS OF VONOPRAZAN AND AMOXICILLIN DUAL REGIMEN WITH *SACCHAROMYCES BOULARDII* SUPPLEMENTATION AS A RESCUE THERAPY FOR *HELICOBACTER PYLORI* INFECTION: A PILOT STUDY

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Introduction: Vonoprazan (VPZ)-based regimens are an effective first-line therapy for *Helicobacter pylori* infection. However, their value as a rescue therapy needs to be explored.

Aims & Methods: We assessed a VPZ-based regimen as a *H. pylori* rescue therapy.

Patients with a history of *H. pylori* treatment failure were administered 20 mg VPZ twice daily, 750 mg amoxicillin 3 times daily, and 250 mg *Saccharomyces boulardii* twice daily for 14 days. ^{13}C-urea breath tests were used to assess *H. pylori* status; adverse events were recorded using a questionnaire.

Results: We enrolled 68 patients with 1–3 previous eradication failures. The overall eradication rates calculated using intention-to-treat and per-protocol analyses were 92.6% (63/68) and 92.3% (60/65), respectively. The eradication rate did not differ with the number of treatment failures. The rates of clarithromycin, metronidazole, and levofloxacin resistance were 91.3% (21/23), 100% (23/23), and 60.9% (14/23), respectively. In 60.9% (14/23) patients, the *H. pylori* isolate was resistant to all 3 antibiotics. The eradication rate was higher among patients without anxiety (96.8%) than among patients with anxiety (60.0%, $P = 0.025$).

No severe adverse events occurred; 95.6% (65/68) patients showed good compliance. Serological examination showed no significant changes in liver and kidney function.

Conclusion: Vonoprazan and amoxicillin dual regimen with *S. boulardii* supplementation is a safe and effective *H. pylori* rescue therapy, with an acceptable eradication rate (>90%), regardless of the number of prior treatment failures. Anxiety was associated with eradication failure, and the regimen may need to be adjusted for patients with anxiety.

Disclosure: Nothing to disclose.

PP0341

TRENDS IN THE PRESCRIPTION OF EMPIRICAL TREATMENTS AND THEIR EFFECTIVENESS IN NAÏVE PATIENTS OVER 10 YEARS (2013-2022) IN EUROPE: DATA FROM THE EUROPEAN REGISTRY ON THE MANAGEMENT OF *HELICOBACTER PYLORI* INFECTION (HP-EUREG)

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Introduction: The impact of consensus, prescription choices, and efficacy trends on clinical practice over time has not been studied in depth.

Aims & Methods: International, multicenter, prospective, non-interventional registry aimed to evaluate the decisions and outcomes of *H. pylori* management by European gastroenterologists. All infected adult patients were systematically registered at AEG-REDCap e-CRF from 2013 to December 2022. *Variables included*: previous eradication attempts, prescribed treatment, adverse events, effectiveness outcomes, by geographical region (east, south-east, centre, south-west and north). Modified intention-to-treat (mITT) and time trend analyses were performed. Data were subject to quality review.

Results: So far, 59,689 patients from 32 European countries have been included, and 46,797 (78%) were first-line empirical prescriptions. Overall, the most common prescribed treatments in the 2013-22 period were triple therapies; however, a shift in antibiotic regimens was identified. Triple therapies decreased from over 50% of prescription in 2013/15 to less than 20% in 2020/22; likewise, non-bismuth concomitant therapy use decreased from 21% in 2013/14 to 13% in 2020/22, while three-in-one single-capsule increased from 0-1% in 2014/2015 to 21% in 2020/22. An increase in the average duration of treatments from 9.7 days in 2013 to 13 days in 2022 was identified, as well as in the use of high-dose of PPIs increasing from 17% in 2013 to 35% in 2022. Detailed description of most common treatments is shown in Table 1. Regarding the effectiveness of each specific treatment, no trend was identified (data now shown); however, there was a ≈10% overall improvement in first-line mITT overall effectiveness from 85% to 93% in 10 years of evolution, both globally and in each geographic region, especially after the year 2018 (Table).

Conclusion: European gastroenterological practice is constantly adapting to the newest published evidence and recommendations (reducing the use of triple therapies and increasing both the duration of treatment and the dose of PPIs), with a subsequent progressive improvement in overall effectiveness.

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Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Quadruple-C+A+B	2.0%	2.7%	6.8%	20.5%	13.7%	21.7%	10.8%	9.8%	9.4%	10.3%
Single-capsule*	0.1%	0.0%	0.5%	13.2%	24.5%	18.7%	21.7%	16.5%	18.2%	21.1%
Quadruple-M+Tc+B	2.1%	1.9%	0.5%	0.2%	0.4%	0.5%	1.4%	1.2%	1.1%	1.5%
Concomitant-C+A+M/T	21.8%	21.5%	27.0%	22.7%	20.9%	8.0%	13.4%	12.8%	13.1%	10.6%
Sequential-C+A+M/T	11.8%	3.5%	1.9%	0.9%	0.5%	0.7%	0.11%	0.1%	0.3%	2.8%
Triple-A+L	2.3%	2.2%	3.1%	1.8%	0.3%	0.3%	0.4%	0.3%	0.4%	0.9%
Triple-A+M	3.6%	3.0%	1.7%	0.8%	0.9%	0.5%	1.9%	0.7%	1.0%	1.6%
Triple-C+M	3.4%	6.4%	8.8%	6.3%	1.4%	0.7%	1.1%	10.2%	4.9%	4.1%
Triple-C+A	48.5%	54.6%	44.7%	29.2%	32.1%	31.0%	35.2%	34.6%	32.7%	29.9%
Therapy length										
7 days	27.5%	28.1%	24.4%	16.2%	7.9%	1.7%	2.1%	4.5%	2.9%	9.5%
10 days	55.1%	52.6%	55.1%	46.5%	47.2%	41.6%	34.7%	29.4%	34.1%	43.2%
14 days	17.4%	19.3%	20.4%	37.3%	44.9%	56.7%	63.2%	66.1%	62.9%	47.3%
PPI doses										
Low	66.6%	56.6%	47.3%	37.9%	39.7%	25.0%	30.1%	45.3%	40.5%	28.6%
Standard	16.9%	25.5%	26.7%	24.1%	23.7%	41.3%	30.9%	19.5%	25.4%	36.7%
High	16.5%	17.9%	26.0%	38.0%	36.6%	33.7%	39.0%	35.2%	33.8%	34.6%
Eradication rate (mITT)	85.0%	85.1%	85.7%	87.6%	87.7%	91.4%	91.5%	92.7%	92%	93%
Geographical región										
East	89.7%	80.2%	85.3%	83.4%	77.7%	91.3%	90.4%	96.0%	96.4%	96.8%
South-east	87.3%	85.1%	85.2%	84.2%	86.3%	88.0%	89.3%	89.7%	89.1%	92.0%
South-west	83.4%	86.9%	86.2%	89.9%	91.1%	90.9%	87.7%	85.3%	91.5%	95.3%
Centre	87.9%	93.0%	92.8%	95.2%	88.0%	91.9%	91.3%	89.4%	86.1%	90.1%
North	84.6%	84.3%	86.4%	84.9%	87.2%	80.5%	89.8%	86.5%	82.1%	88.0%

PP0341 Table 1. Prescriptions and effectiveness trends of first-line empirical treatments in Europe in the period 2013-2022

PPI: proton pump inhibitor; mITT: modified intention-to-treat; A – amoxicillin. C – clarithromycin; M – metronidazole; T – tinidazole; L – levofloxacin B; – bismuth salts; Tc – tetracycline. *Three-in-one single-capsule containing metronidazole. tetracycline and bismuth; **Low dose PPI – 4.5 to 27 mg omeprazole equivalents. b.i.d.; standard dose PPI – 32 to 40 mg omeprazole equivalents. b.i.d.; high dose PPI – 54 to 128 mg omeprazole equivalents. b.i.d.

PP0342

PRESCRIPTION PATTERN OF PROBIOTICS AS AN ADJUVANT THERAPY FOR *HELICOBACTER PYLORI* ERADICATION: RESULTS OF THE EUROPEAN REGISTRY ON THE MANAGEMENT OF *HELICOBACTER PYLORI* INFECTION (HP-EUREG)

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Introduction: The clinical scenarios in which probiotics (PB) are useful as adjuvants to *Helicobacter pylori* eradication therapy have not been well established.

Aims & Methods: Aims: To determine the use and factors associated with the prescription of PB adjuvants to *H pylori* eradication regimens, by European gastroenterologists in clinical practice.

Methods: Prospective, multicentre, non-interventional registry (Hp-EuReg) of the clinical practice of European gastroenterologists. Data were collected in an AEG-REDCap e-CRD from 2013 to 2022. All data from countries with at least 30 cases undergoing eradication therapy and at least 1 case with associated PB were included, using patients without PB as controls. Analysis was performed by geographic area.

Results: A total of 36,699 patients were included, 8,233 (22%) with PB. Multiple PB formulations were used, including 9 genera and 32 species, the most frequent being *Saccharomyces boulardii* (2,315), *Lactobacillus rhamnosus* (1,897), *Bifidobacterium breve* (1,765), *Lactobacillus reuteri* (1,732) and *Lactobacillus acidophilus* (1,447). Forty-one percent of the formulations were multi-genus, 34% were symbiotic and 11% were combined with other products.

As factors associated with prescribing, there was a higher rate of females in the PB group (64% vs 60%; p<0.0001), with similar age (49 vs 51). Patients in the PB group had a higher rate of resistance to clarithromycin (11.4 vs 1.4), metronidazole (10.7 vs 1.4) and dual (10.7 vs 1.4). In terms of line of eradication therapy, PB use was more frequent (p<0.0001) in patients in 5th (28%) and 6th line (46%) compared to 1st (22%), 2nd (23%), 3rd (24%) and 4th (24%).

The rate of PB use varied between the different eradication regimens, being most frequent in sequential (74%), followed by hybrid (38%) and dual (33%). In contrast, the rate was lower in classic bismuth quadruple (24%), or the same in single capsule (21%), triple (17%) and non-bismuth quadruple (15%).

The percentage of PB use per country ranged from 95% in Serbia to 0.2% in Slovenia. The central geographical area had by far the highest prescription rate (83%). The rates in the rest were 38% in the east, 9% in the southeast, 7% in the southwest and 1% in the north. We observed that the rate of adverse effects in the non-PB group was higher in the central area than in the other areas (38% vs. 28%; p<0.0001), suggesting that in areas with less PB use there may be a prescription of PBs driven by the expectation of adverse effects.

Conclusion: The prescription of PB adjuvant to eradication therapy is very heterogeneous. There is greater use of PB associated with sequential, dual and hybrid therapies, patients with antibiotic resistance, advanced lines of treatment and women. In areas with lower PB use, there seems to be a prescription bias towards patients with a higher expected risk of adverse effects.

Disclosure: Nothing to disclose.

PP0343

CLINICAL PHENOTYPES THROUGH *MACHINE LEARNING* OF FIRST-LINE TREATED PATIENTS DURING THE PERIOD 2013-2022: DATA FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)

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Introduction: The segmentation of patients in homogeneous groups, according to their clinical variables and treatments, could help to improve the effectiveness of current eradication therapies.

Aims & Methods: 1. To determine the most important characteristics of the treatments used in the European Registry on *H. pylori* management (Hp-EuReg), using machine learning techniques.

2. To evaluate the effectiveness of the treatments according to the year of the visit and the country using a cluster decomposition.

Sub-study of the Hp-EuReg, a systematic, prospective, registry of the routine clinical practice of European gastroenterologists on the management of *H. pylori* infection. All cases with a first-line empirical eradication treat-

ment registered from June 2013 to December 2022, were included in the current analysis. *Boruta,* a random-forest-like method was used to determine the following 'most important' variables: compliance, duration of treatment, PPI dosage, patient's country, and treatment scheme.

Results: In total, 35,852 European patients were analysed. Table 1 shows the increasing trend in the effectiveness of treatments, from an average 87% in 2013 to 93% in 2022 (more than 100 patients/clusters). The cluster 3 in 2016 (lowest effectiveness) was composed of 97.5% triple therapy with clarithromycin-amoxicillin/metronidazole, mainly in Slovenia (54%), with a majority (85%) of 7-day prescriptions, and 99% compliance. The highest effectiveness was obtained in cluster #1 in 2022, with 81% of Spanish cases, 32% of concomitant therapy with clarithromycin-amoxicillin-metronidazole/tinidazole and 63% of bismuth quadruple therapy with tetracycline-metronidazole (prescribed as single capsule), 69% of 10 days prescriptions, and 32% of 14 days treatment length.

year	# of *clusters* (# of patients)	*Effectiveness % (number of patients)* per cluster		
		1	2	3
2013	3 (3,239)	85.2 (1,491)	90.2 (440)	85.2 (1,308)
2014	3 (4,292)	88.5 (433)	86.1 (2,706)	85 (1,153)
2015	3 (3,693)	88.9 (351)	86.5 (2,913)	85.8 (429)
2016	3 (4,350)	91.4 (1,655)	88.1 (2,084)	80.2 (611)
2017	3 (3,665)	84 (1,629)	91.4 (1,741)	85.1 (295)
2018	3 (3,668)	89.5 (2,181)	91.8 (1,171)	92.1 (316)
2019	3 (3,695)	89.1 (2,133)	88.6 (1,324)	92.3 (238)
2020	3 (3,092)	92.9 (198)	85.4 (1,573)	89.9 (1,321)
2021	3 (4,018)	85.8 (246)	91 (1,886)	80.6 (1,886)
2022	3 (2,140)	95.4 (936)	93 (128)	91.6 (1,076)

Simple underlining highlights the lowest effectiveness in clusters/year with more than 100 patients, and double underlining the highest effectiveness.

Table 1. Trends in the overall effectiveness (by modified intention-to-treat, per cluster) between 2013 and 2022 in Europe.

Conclusion: Cluster analysis allowed both to identify patients with homogeneous treatment groups, as well as to assess the effectiveness of the different first-line treatments, its compliance, the region where it was administered, and the prescription year.

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PP0344

EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG): ANALYSIS OF 2,254 EMPIRICAL RESCUE THERAPIES ON THIRD AND SUBSEQUENT LINES

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Introduction: *Helicobacter pylori* treatment´s effectiveness decreases as treatment eradication attempts fail.

Aims & Methods: To evaluate the use and effectiveness of empirical rescue therapies on third and subsequent lines in Europe.

Sub-study of the the European Registry on *H. pylori* Management (Hp-EuReg), an international, multicenter, prospective, non-interventionist registry starting in 2013 aimed to evaluate the decisions and outcomes of *H. pylori* management by European gastroenterologists (32 countries, 300 researchers).

All infected adult patients were systematically registered at AEG-REDCap e-CRF until January 2023, all cases with three or more eradication attempts were extracted. Only the empirically prescribed therapies were analyzed. Data were subject to quality review.

Results: In total, 2,254 rescue treatments were included: 1,624, 424, 150 and 56 in third-, fourth-, fifth- and sixth-line treatments, respectively. Mean age was 52 years, 67% of patients were women and 5% were allergic to penicillin. Sixty-three different therapy regimens were used, being three-in-one single-capsule bismuth quadruple therapy the most commonly prescribed, as shown in the table.

Overall effectiveness was 73% by modified intention-to-treat (mITT), and 74% by per-protocol (PP) analyses. Bismuth quadruple therapy as single-capsule provided the highest mITT cure rate (86%).One regimen achieved an optimal eradication rate (≥90%, by mITT): quadruple PPI-bismuth-tetracycline-metronidazole, only when high-dose PPIs and 14 days' prescriptions were used. The use of doxycycline instead of tetracycline was associated with lower eradication rates in classical bismuth quadruple therapies (p<0.05).

		Modified intention-to-treat		Per-protocol	
Rescue therapy	**Use, N (%)**	**n**	**Effectiveness (95% CI)**	**n**	**Effectiveness (95% CI)**
PPI-Single capsule B-Tc-M	633 (28%)	588	86 (83-89)	566	88 (85-90)
Triple PPI-A-L	253 (11%)	194	77 (71-83)	193	77 (70-83)
Quadruple PPI-A-L-B	202 (9.0%)	182	72 (66-79)	176	74 (67-81)
Quadruple PPI-B-Tc-M	182 (8.1%)	176	74 (68-81)	171	74 (67-81)
Triple PPI-A-R	128 (5.7%)	108	59 (50-69)	104	61.5 (52-71)
Quadruple PPI-C-A-M	117 (5.2%)	109	62 (53-72)	106	63 (54-73)
Quadruple PPI-B-D-M	115 (5.1%)	112	62 (52-71)	108	62 (52-72)
Triple PPI-C-A	51 (2.3%)	43	56 (40-72)	41	56 (40-73)
Triple PPI-A-M	47 (2.1%)	44	59 (43-75)	42	59.5 (43-76)

A, amoxicillin; B, bismuth; C, clarithromycin; D, doxycycline; L, levofloxacin; M, metronidazole; Tc, tetracycline; R, rifabutin; CI, confidence interval.

Table 1. Overall eradication rates of the most prescribed empirical therapies on third and subsequent lines.

Conclusion: Empirical rescue treatments in third and subsequent lines obtain, in general, suboptimal eradication rates in Europe; however, bismuth quadruple therapy as single-capsule obtained encouraging results. Only the optimised bismuth quadruple therapy with tetracycline-metronidazole achieved ≥90% effectiveness.

Disclosure: Olga P. Nyssen received research funding from Mayoly and Allergan.

Javier P. Gisbert served as speaker, consultant, and advisory member for or received research funding from Mayoly, Allergan, Diasorin, Gebro Pharma, and Richen.

PP0345

SIXTH-LINE ERADICATION THERAPY AGAINST *HELICOBACTER PYLORI* INFECTION: PRELIMINARY DATA FROM THE EUROPEAN REGISTRY ON THE MANAGEMENT OF *HELICOBACTER PYLORI* INFECTION (HP-EUREG)

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Introduction: *H. pylori* infection can remain after several eradication attempts. The objective of this study was to evaluate the effectiveness of the sixth-line rescue treatment in Europe.

Aims & Methods: Systematic and prospective registry on the clinical management of *H. pylori* infection. All cases with six eradication attempts registered in AEG-REDCap up to December 2022 were evaluated. The modified intention-to-treat (mITT) and per-protocol (PP) effectiveness was analysed.

Results: Overall, 81 patients were included, mainly from Spain (44% of cases), Italy (26%) and the United Kingdom (17%). The mean age was 52 years, with 52% women and 1.2% of patients allergic to penicillin. Culture was performed in 26 cases (32%), of which: 13 (50%) had bacterial antibiotic resistance to clarithromycin, 12 (46%) to nitroimidazole, and 8 (31%) to quinolones. In addition, 8 (35%) patients had dual resistance (both to clarithromycin and metronidazole) and 7 (27%) triple resistance (also to levofloxacin). Twenty-two different therapeutic combinations were used, most of them prescribed for 14 days (57%) and with low doses (39%) of PPIs.

The most frequent treatments were: quadruple bismuth-tetracycline-metronidazole prescribed as three-in-one single-capsule (17%), triple amoxicillin-rifabutin (15%), quadruple bismuth-furazolidone-amoxicillin (11%), triple amoxicillin-levofloxacin (7.4%), and classical quadruple bismuth-tetracycline-metronidazole (6.2%). The highest eradication rates (mITT) were achieved with the single-capsule (77%) and with the quadruple therapy with bismuth-furazolidone-amoxicillin (67%).

Overall effectiveness was 53%, both by mITT and PP analyses. Additional information on effectiveness, tolerability, compliance, and prior therapies is shown in the table.

Use of antibiotics (or bismuth) in any of the previous treatments (1st to 5th line)	n (%)	Misuse of same antibiotic in 6th line, n (%)
Duration of previous eradication lines (1st to 5th line)	**Median**	**Interquartile range**
1st line	8.5	7-10
2nd line	10	7-10
3rd line	10	7-10
4th line	10	7-14
5th line	10	7-14
***Most frequent 6th line prescriptions**	**n (%)**	**Effectiveness % mITT (95% CI)**
[1]Single-capsule+PPI	14 (17)	77 (46-95)
Triple-PPI+A+R	12 (15)	50 (19-81)
Quadruple- PPI+B+A+F	9 (11)	67 (30-92)
Triple-PPI+A+L	6 (7.4)	40 (5.2-85)
Quadruple-PPI+M+Tc+B	5 (6.2)	40 (5.3-85)
Dual-PPI+A	5 (6.2)	20 (0.5-72)
Triple-PPI+A+B	5 (6.2)	20 (0.5-72)
Quadruple-PPI+C+A+M	5 (6.2)	20 (0.5-72)
Other-PPI+C+A+M+B	4 (4.9)	50 (6.7-93)
Duration of 6th line prescriptions	**Median**	**Interquartile range**
7 days	14	10-14
10 days	**n (%)**	
14 days	2 (2.6)	
	25 (37)	
	40 (57)	
[2]PPI doses in 6th line prescriptions	**n (%)**	
Low	42 (57)	
Standard	3 (4.1)	
High	29 (39)	
Use of probiotics, n (%)	23 (28)	
Overall effectiveness	**n (%)**	
mITT	76 (53)	
PP	74 (53)	
Incidence of at least one adverse event, n (%)	19 (24)	
Compliance, n (%)	74 (94)	

TABLE: Prescriptions, effectiveness, tolerance and compliance in sixth-line treatments against Helicobacter pylori infection.

**The most frequent treatments represent 80% of the total 6th line prescriptions; mITT, modified intention-to-treat; PP, per-protocol; n, number of patients treated; CI: confidence interval; A, amoxicillin; B, bismuth; C, clarithromycin; L, levofloxacin; M, metronidazole; Tc, tetracycline hydrochloride; R, rifabutin; [1]Quadruple therapy-M+Tc+B as a single-capsule; NA, not applicable; PPI, proton pump inhibitor; [2]low doses: 4.5–27 mg; standard doses: 32–40 mg; high doses: 54–128 mg, all omeprazole equivalent 2 times a day.*

Conclusion: Sixth-line eradication treatments in Europe obtain suboptimal eradication rates. The only therapies that reach acceptable outcomes are the bismuth quadruple therapies with either tetracycline-metronidazole (single-capsule) or with furazolidone-amoxicillin.

Disclosure: Olga P. Nyssen received research funding from Mayoly and Allergan.

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PP0346

EFFECTIVENESS OF THE RECOMMENDED THERAPEUTIC PROTOCOLS IN HELICOBACTER PYLORI ERADICATION: A SINGLE CENTRE TEN-YEAR EXPERIENCE

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Introduction: Antibiotic resistance is a growing challenge in the eradication of Helicobacter pylori (Hp). However, the benefits of sensitivity-guided approach compared to empirical regimens is to be established. In this study, we evaluated the effectiveness of the recommended therapeutic protocols, as well as the factors linked to therapeutic failure.

Aims & Methods: A single centre, prospective cohort study, including all consecutive patients undergoing Hp eradication therapy between 2013 and 2022. The evaluated therapeutic protocols were the triple therapy

(TRI), concomitant quadruple therapy (QUADC), sequential quadruple therapy (QUADS), and bismuth-based quadruple therapy (QUADB). We analysed the demographic and clinical characteristics of the population, and compared the regimens' effectiveness, adherence and adverse events.

Results: Included 523 patients, 57% female, with a median age of 56 years (IQR 46-65). The main indication for eradication was dyspepsia (59.8%). The prescribed therapeutic protocols were QUADC in 34.4% of patients, QUADB in 28.7%, TRI in 25.6%, and QUADS in 11.3%. The compliance rate was 97.1%, with no significant differences between the regimens (p=0.49).

According to intention-to-treat analysis, the eradication rates in naive patients were TRI 76.1%, QUADS 82%, QUADB 91.1% and QUADC 92.5%. There were statistically significant differences between QUADB/QUADC vs. QUADS/TRI eradication rates (91.9% vs. 78.3%, p<0.001) and adverse event rates (16.2% vs. 4.4%, p<0.001).

Multivariate analysis demonstrated an association between therapeutic failure and the following: previous eradication therapy (OR-2.6; 95%CI: 1.5-4.6), noncompliance (OR-80.1; 95%CI: 9.8-664.6) and lack of statin use (OR-2.7; 95%CI: 1.2-6.1).

Conclusion: Bismuth-based quadruple therapy and concomitant quadruple therapy are the most effective therapeutic regimens. To achieve the best eradication rates, attention should be direct to significantly modifiable factors such as non-compliance or absence of concomitant statin use.

Disclosure: Nothing to disclose.

PP0347

PREVENTIVE EFFECT OF *HELICOBACTER PYLORI* ERADICATION ON THE ISCHEMIC STROKE AND CEREBRAL ATHEROSCLEROSIS

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Introduction: A few studies have suggested the association between *Helicobacter pylori* (HP) infection and atherosclerosis including coronary heart disease and ischemic stroke. However, the effect of HP eradication on ischemic stroke has not been well evaluated, so far.

Aims & Methods: The objective of this study was twofold: (1) to compare the risks of ischemic stroke and cerebral atherosclerosis as a pre-clinical stage of ischemic stroke according to HP eradication status among HP-infected patients (HP-eradicated vs. HP-non-eradicated), and (2) to compare these risks in HP-eradicated patients to those in HP-naive subjects.

We conducted a prospective observational cohort study. HP tests with gastroscopy were performed in Seoul National University Bundang Hospital from May 2003 to February 2023. HP infection was diagnosed through ≥1 findings of histopathology, rapid urease test or culture.

Propensity score matching for each group was calculated with relevant covariates, including age, sex, alcohol, smoking, hypertension, diabetes mellitus, dyslipidemia, atrial fibrillation, and aspirin intake. Patients in HP-eradicated group were matched in a 2:1 and 1:1 ratio with patients in HP-non-eradicated and HP-naive groups, respectively. Ischemic stroke and cerebral atherosclerosis were confirmed by brain MRI. The risk of ischemic stroke and cerebral atherosclerosis was analyzed using Cox-proportional hazard regression analysis.

Results: A total of 8,025 patients were included. After 2:1 matching, HP-eradicated group comprised 2,030 patients and HP-non-eradicated group comprised 1,015 patients(Figure). In a Cox-proportional hazard analysis, HP-eradicated group was associated with a significantly lower risk of ischemic stroke and cerebral atherosclerosis (hazard ratio [HR] 0.651, 95% confidence interval [CI] 0.451-0.941, p=0.026) (Table). In a second analysis, we included 2,064 patients with HP-eradicated and 2,064 HP-naive subjects, after PSM at a 1:1 ratio. In a Cox-proportional hazard analysis, the risk of ischemic stroke and cerebral atherosclerosis was not significantly different between the two groups (HR 1.109, 95% CI 0.777-1.584, p=0.569).

Variables	Univariate analysis			Multivariate		
	HR	95% CI	*p*-value	HR	95% CI	*p*-value
HP-eradicated	0.649	0.451 - 0.936	0.021	0.651	0.451 - 0.941	**0.026**
Age	1.043	1.028 - 1.059	<.001	1.027	1.010 - 1.043	**0.001**
Sex	1.769	1.235 - 2.532	0.002	1.500	1.042 - 2.159	**0.029**
Diabetes	2.626	1.713 - 4.025	<.001	1.263	0.778 - 2.049	0.345
Hypertension	3.175	2.226 - 4.529	<.001	1.800	1.178 - 2.049	**0.007**
Dyslipidemia	2.486	1.744 - 3.543	<.001	1.568	1.042 - 2.360	**0.031**
Atrial fibrillation	3.049	1.776 - 5.237	<.001	1.771	1.007 - 3.112	**0.047**
Aspirin	2.510	1.690 - 3.727	<.001	0.971	0.608 - 1.551	0.903

Table. Univariate and multivariate analysis of potential risk factors for ischemic stroke and cerebrovascular atherosclerosis in patients after propensity-score matching between HP-eradicated and HP-non-eradicated group

Conclusion: This large prospective observational cohort study suggested that HP eradication has preventive effect on the ischemic stroke and cerebral atherosclerosis.

Disclosure: Nothing to disclose.

PP0348

THE EFFICACY AND SAFETY OF VONOPRAZAN IN DUAL/TRIPLE/QUADRUPLE REGIMENS BOTH IN FIRST-LINE AND RESCUE THERAPY FOR *HELICOBACTER PYLORI* ERADICATION: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: The efficacy of *Helicobacter pylori* (*H. pylori*) eradication regimens containing a proton pump inhibitor (PPI) plus antibiotics has gradually declined in recent years due to higher rates of antimicrobial resistance and insufficient acid inhibition. Vonoprazan (VPZ) is a novel potassium-competitive acid blocker which provides a stronger and longer-lasting effect on gastric acid suppression than PPIs. Our objective was to perform a systematic review and meta-analysis evaluating the efficacy and safety of VPZ for *H. pylori* eradication.

Aims & Methods: We conducted bibliographical searches in PubMed, Embase and the Cochrane Library up to April 2023. *Selection*: studies evaluating the use of VPZ in the eradication treatment. *Outcomes*: Efficacy was assessed by intention-to-treat analysis. Safety was also evaluated. Results were combined by meta-analysing risk differences (RD) and were stratified by dual, triple and quadruple therapy, first-line and rescue therapy, and by the presence of clarithromycin resistance.

Results: Overall, 75 studies were included, evaluating 44,992 patients, where 22,264 had received VPZ and 22,658 a PPI-based eradication therapy. The overall eradication rate with VPZ was 88% (95%CI=87-90%, 75 studies, I^2=88%). When only RCTs were considered, similar results were obtained (87%, 95%CI=85-90%, 35 studies I^2=84%).

When comparing dual, triple and quadruple VPZ-containing therapies, a tendency towards better efficacy with those regimens using a greater number of antibiotics was observed: 85%, 88% and 95%, respectively. However, when we compared the eradication rates between VPZ-based dual vs. triple regimens, no significant differences were reported, either in the overall analysis (P=0.17) or in the meta-analysis of studies directly comparing these regimens (P=0.21).

The eradication rate with VPZ-based therapy in first-line was 87% (95%CI=86-89%, 55 studies, I^2=89%), and 90% (95%CI=87-93%, 37 studies, I^2=84%) when used as rescue therapy. Among treatment-naïve patients, a significant superiority in the VPZ vs. PPI-based regimens was reported (87% vs. 70% respectively; RD=0.12, 95%CI=0.10-0.14, P<0.00001, I^2=83%). However, no significant differences were shown between VPZ and PPIs when used in rescue therapy. When focusing on RCTs only, similar results were obtained.

Among those patients with clarithromycin-resistant strains, an overall efficacy of VPZ-based therapies was 81% (95%CI=75-85%, 18 studies, I^2=60%), while in those with clarithromycin-susceptible strains it was 92% (95%CI=89-95%, 18 studies, I^2=87%). We found a significant superiority of VPZ vs. PPIs (75% vs. 39%; RD=0.35, 95%CI=0.27-0.42, P<0.00001, 7 studies, 797 patients) in clarithromycin-resistant patients; whereas no significant differences were found in the clarithromycin-susceptible group. RCTs subgroup analysis showed similar results.

The overall incidence of adverse events with VPZ was 18% (95%CI=15-20%, 69 studies, I^2=97%). No significant differences were found between VPZ and PPIs regimens tolerability.

Conclusion: The efficacy of VPZ-based regimens was over 85% in all treatments evaluated. The advantage of triple over dual VPZ could not be demonstrated in direct comparisons. In treatment-naïve patients as well as in those cases with clarithromycin-resistant strains, VPZ-based regimens performed better than PPIs-based ones; however, in rescue therapy and in clarithromycin-susceptible patients, this advantage was not confirmed. Tolerability was similar in both VPZ and PPIs regimens.

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PP0349

EFFICACY AND TOLERABILITY OF BISMUTH-BASED ERADICATION THERAPY WITHOUT PROTON PUMP INHIBITORS FOR *HELICOBACTER PYLORI* INFECTION IN PATIENTS WITH CORPUS ATROPHIC GASTRITIS: A RETROSPECTIVE SINGLE-CENTER EXPERIENCE

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Introduction: Corpus atrophic gastritis(CAG) is a disease characterized by impaired gastric acid secretion and hypochlorhydria with increased risk of gastric cancer, especially in patients with *Helicobacter pylori*(Hp) infection. Efficacy of eradication therapy regimens(ETR) are commonly reported in association with pump pomp inhibitors(PPIs). In CAG patients, PPIs are not indicated. The efficacy of ETR without PPIs may be different from that with PPIs. Data on the efficacy and safety of ETR without use of PPIs in the CAG patients are lacking.

Aims & Methods: This study aimed to assess the eradication rate(ER) and safety of modified ETR with single-pill bismuth-based therapy without PPIs(SPBTnoPPIs) compared to (i) other ETR, amoxicillin-based therapy, without PPIs(ABTnoPPIs) in CAG patients, and (ii) ETR with SPBT therapy with PPIs(SPBTandPPIs) in no-CAG patients, in the first-line treatment of Hp infection.

In this retrospective study, a total of 113 consecutive patients histologically Hp positive were included between 2001 and 2020: CAG was diagnosed in 76 patients [77.6% females, median age 58.5 years(26-88)], and 37 patients were not affected by CAG [51.4% females, median age 58(22-81)].

CAG patients received SPBTnoPPIs: a modified ETR with SPBT(containing bismuth, tetracycline, metronidazole) without PPIs for 13 days, 3 pills t.i.d. since 2015(when placed on the market), or ABTnoPPIs: a sequential or concomitant amoxicillin-based therapy with or without bismuth, without PPIs before 2015. No-CAG patients received SPBTandPPIs: SPBT for 13 days, 3 pills t.i.d., with single dose of PPI in the morning, 30 min before breakfast.

The efficacy of Hp treatment was assessed by histopathology in all patients at 6 ± 3 months after treatment. Biopsy protocol and histopathological evaluation were performed according to the updated Sydney system. ER was expressed according to intention-to-treat(ITT) and per-protocol(PP) approach.

Results: 46 and 30 CAG patients underwent SPBTnoPPIs and ABTnoPPIs, respectively. 3(6.5%) patients on SPBTnoPPIs and 2(6.7%) patients on ABTnoPPIs did not complete therapy(by patient's decision)(p=1.00).

The 37 no-CAG patients were treated with SPBTandPPIs. No patients in this group interrupted the therapy.

In CAG patients, the overall ER at ITT and PP-analysis was 88.2% and 90.1%, respectively. In no-CAG patients, the overall ER was 80.4%(both at ITT and PP-analysis).

CAG-patients treated with SPBTnoPPIs compared to ABTnoPPIs showed a significantly higher ER at ITT-analysis(p=0.02) and at PP-analysis(p=0.01).

CAG-patients treated with SPBTnoPPIs compared to no-CAG patients received SPBTandPPIs showed a higher ER at ITT-analysis(p=0.07), and a significantly higher ER at PP-analysis(p=0.02)(Table1).

4 CAG-patients(8.7%) patients on SPBTnoPPIs reported mild adverse events(1 abdominal discomfort, 1 nausea, 1 vomit, 1 diarrhea) compared to 2(6.7%) CAG-patients on ABTnoPPIs(1 abdominal discomfort, 1 vomit) (p=1.00). No-CAG patients did not report any adverse events(p=0.125).

n(%) * SPBTnoPPIs vs ABTnoPPIs ** SPBTnoPPIs vs SPBTandPPIs	SPBTnoPPIs n=46	ABTnoPPIs n=30	SPBTandPPIs n=37	*p**	*p***
ER at ITT analysis	44 (95.7)	23 (76.7)	30 (81.1)	0.024	0.071
ER at PP analysis	42 (97.7)	22 (78.6)	30 (81.1)	0.013	0.022

Table.

Conclusion: A modified SPBT regimen without PPIs(3 days more but less pills/day) showed a high ER of about 95% in CAG patients with good compliance and tolerability.

This theraputical regimen may be considered beneficial in patients with CAG and it may be considered as first-line therapy in this specific setting.

Disclosure: Nothing to disclose.

PP0350

ANTIBIOTIC SUSCEPTIBILITY PATTERNS AND CLARITHROMYCIN RESISTANCE DETERMINANTS IN HELICOBACTER PYLORI IN NORTHEAST OF SPAIN. A ONE-YEAR PROSPECTIVE STUDY

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Introduction: *H. pylori* represents one of the most widespread bacterial infections worldwide and increases the risk of gastric adenocarcinoma and lymphoma. It has been designated a Class I carcinogen by the WHO which leads to the recommendation that all infected patients should be treated [1,2].

Clarithromycin is a key antibiotic in the treatment of *H.pylori* infection and according to the recent Maastricht VI Consensus Report, empirical treatments for *H. pylori* eradication should be based on clarithromycin resistance rates. When individual susceptibility testing is not available, the recommended first-line empirical treatment differs according to the local rate of resistance to this antibiotic [3,4,5].

As gastric biopsy culture is invasive and expensive, this technique is mainly performed following treatment failure. However, clarithromycin resistance rates should be studied in different regions of the world according to the fore mentioned recommendations.

Aims & Methods: The aim of this study was to describe the antibiotic resistance profile of *H.pylori* isolates from gastric biopsies in our geographical area.

A prospective study was performed from October 2021 to December 2022 in our Hospital, a referral tertiary hospital covering an area of 340,000 inhabitants. Gastric biopsies from patients that underwent gastric endoscopy routinely were collected and immediately transported to the laboratory of Microbiology for *H. pylori* culture and antibiotic susceptibility testing (AST). Pathological Anatomy (PA) results and empirical treatment data were collected from medical records.

Results: 641 gastric biopsies were cultured and *H. pylori* was isolated in 148 by microbiological culture (positivity rate of culture: 22.2%). The median age of patients was 58 years; 52% of them were women and 84.7% were outpatients.

141 out of 148 isolates were available for AST. Most *H. pylori* isolates (60.3%) were susceptible to all tested antibiotics. Metronidazole and levofloxacin resistance rates were 17%.

Rates of resistance to clarithromycin, rifampicin and amoxicillin were 12%, 4.3% and 3.5% respectively. None of the isolates was resistant to tetracycline.

Co-resistance to two antibiotics was detected in 8.5 % of the isolates. The resistance phenotype levofloxacin and clarithromycin was the most frequent co-resistance detected (n=5). Four isolates (2.8%) were resistant to three antibiotics concomitantly. Two of them presented the triple amoxicillin, levofloxacin and metronidazole resistance.

Dual clarithromycin and metronidazole resistance was found in one isolate and another isolate presented the triple clarithromycin, metronidazole and levofloxacin resistance.

The multiplex real-time PCR assay that detects the most frequent mutations associated with clarithromycin resistance in *H. pylori* was performed on 84 biopsies. The most frequent detected mutation was A2143G (78.9%), followed by A2142G (21.1%).

PA results were available in 623 of 641 cultured biopsies. Results were coincident in 93.4 % of the specimens processed by PA and Microbiology.

Conclusion: The lack of resistance to tetracycline in our isolates suggests that the use of this antibiotic in bismuth containing quadruple therapies could be a good option. Clarithromycin resistance rate below 15% and the high rates of metronidazole resistance may support the use of triple therapy with clarithromycin, amoxicillin and PPI in our area.

As antibiotic susceptibility patterns depend on each geographical area and may vary over time, empirical antibiotic treatments for *H. pylori* infection should be based on local information.PA results were available in 623 of 641 cultured biopsies. Results were coincident in 93.4 % of the specimens processed by PA and Microbiology.

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Disclosure: Nothing to disclose.

PP0351

BISMUTH-CONTAINING QUADRUPLE THERAPY FOR *HELICOBACTER PYLORI* ERADICATION: A MULTICENTER RANDOMIZED CLINICAL TRIAL OF 10 AND 14 DAYS

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Introduction: *Helicobacter Pylori* (*H. pylori*) infection is a major cause of cause peptic ulcer, cancer, MALT lymphoma, etc. Bismuth-containing quadruple therapy for 14 days is the main eradication program recommended by the current guidelines[1-3]. However, the optimal duration for *H. pylori* eradication therapy remains controversial.

Aims & Methods: The aim of this study was to compare the clinical effect of the 10-day bismuth-containing quadruple treatment regimen with the 14-day regime in eradicating *H. pylori*. Eight hundred and forty-two *H. pylori* treatment-naïve patients were enrolled in the study and received bismuth-containing quadruple therapy: vonoprazan 20mg, bismuth potassium citrate 220mg, amoxicillin 1000mg twice daily, and clarithromycin 500mg twice daily (VBAC) or tetracycline 500mg (VBAT) four times daily.

And equally distributed to 10-day group or 14-day group. 624 subjects were included in the VBAC group, and 218 subjects were included in the VBAT group. Adverse effects and compliance of the subjects were recorded and ^{13}C-urea breath tests were performed six weeks after treatment.

Results: The intention-to-treat (ITT) eradication rates were 87.4% (373/427) and 86.7% (360/415) for the 10-day and 14-day group, respectively (p = 0.011). Per-protocol (PP) eradication rates were 92.8% (362/390) and 93.1% (350/376), respectively (p = 0.005). The VBAC regimen and the VBAT regimen were analyzed separately, and there was no significant difference in the eradication rates of 10-day and 14-day group. (VBAC: 10-day 91.4% vs 14-day 91.4%, VBAT: 10-day 97.0% vs 14-day 97.9% in PP analysis, and VBAC: 10-day 86.3% vs 14-day 85.4%, VBAT: 10-day 90.2% vs 14-day 90.6% in ITT analysis.)

Meanwhile, the incidence of adverse effects was lower in patients who received 10 days of treatment than in those who received 14 days of treatment (21.8% vs 32.7%). And there were no significant intergroup differences in compliance to treatment or discontinuation of therapy due to severe adverse effects.

Conclusion: The non-inferiority of 10-day to 14-day duration was demonstrated on vonoprazan-based bismuth-containing quadruple treatment. Compared to the 14-day bismuth-containing quadruple regimens, 10-day regimens had similar compliance and lower incidence of adverse effects. Therefore, 10-day vonoprazan-based bismuth-containing quadruple therapy may represent a new treatment option for *H. pylori*-positive patients and it has the potential to become a the preferred option for low-cost treatment.

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Disclosure: Nothing to disclose.

PP0352

PROTEIN-LIGAND DOCKING AND IN VITRO SCREENING AS A TOOL TO IDENTIFY LEAD HIT DRUGS TARGETING THE KEY SURVIVAL PURINE NUCLEOSIDE PHOSPHORYLASE (PNP) ENZYME OF *HELICOBACTER PYLORI*

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Introduction: Resistance to many of the antibiotics used to treat Helicobacter pylori (HP) infection is on the rise. Indeed, the WHO has included *H. pylori* on their priority list of antibiotic-resistant bacteria to guide research and development into novel antimicrobials. To this end, computer aided drug design was deployed against the purine nucleoside phosphorylase enzyme (PNP), a key survival enzyme of HP. Protein-ligand docking of 550k+ compounds was carried out against the enzyme and the lead candidate antimicrobials testing against clinical isolates of the bacterium.

Aims & Methods: Our study aims were:

i. To perform *in silico* protein-ligand docking to identify compounds with potential inhibitory activity against HP via potential PNP enzyme inhibition,

ii. And to test the in vitro antimicrobial and cytotoxicity activity of the compounds on clinical isolates of HP and the gastric epithelial cell line AGS.

Methods: The binding site of the PNP enzyme was analysed using computational tools and a library of compounds was virtually screened via protein ligand docking, carried out on the Irish Centre for High End Computing's supercomputer "Kay", to identify several lead-hits to carry forward to *in vitro* screening. Lead-hits were tested for antimicrobial efficacy against reference strains (J99 and ATCC60190) and clinical isolates of HP using a broth microdilution approach. Clarithromycin was used as a positive control. Selectivity was established using a viability assay with a stomach epithelial cell line AGS.

Results: 7 lead-hits were selected from protein-ligand docking and tested *in vitro*. All compounds showed antimicrobial activity against the reference strains and both clarithromycin-sensitive and clarithromycin-resistant clinical isolates of HP (MIC_{50} 4.34– 73 µg/mL). 2 compounds showed significant selectivity against human cells, having no activity on the viability of human gastric cells.

Conclusion: Protein-ligand docking provided a cost-efficient method to identify, selective antimicrobial agents for *H. pylori* resulting in the identification of several lead targets that may be further developed to increase selectivity and potency.

Disclosure: Nothing to disclose.

PP0353

INFLUENCE OF HELICOBACTER PYLORI INFECTION ON THE OPTICAL DIAGNOSIS OF GASTRIC ATROPHY IN CLINICAL PRACTICE IN A EUROPEAN COUNTRY WITH A LOW INCIDENCE OF GASTRIC CANCER

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Introduction: Hp infection produces chronic gastric inflammation which could eventually lead to atrophic changes. However, endoscopic recognition of atrophy could be challenging in inflamed gastric mucosa.

Aims & Methods: To evaluate the influence of Helicobacter pylori (Hp) infection on the diagnostic accuracy of endoscopic gastric atrophy (GA) in clinical practice.

Routine gastroscopies were performed prospectively by eight endoscopists in three hospitals in Spain. We used high-definition endoscopes and SFI virtual chromoendoscopy (Sonoscape®). Endoscopic diagnosis of GA was made using the Kimura-Takemoto (KT) classification. Biopsies and histological diagnosis were performed according to the updated Sydney consensus.

Results: We included 318 gastroscopies. The mean age was 57 (SD±15) years old and 193 (60%) were women. Histological atrophy was reported in 94 (30%) patients and 17 (5.5%) had high-risk GA (OLGA III-IV). Fifty-four (17%) patients were Hp(+) on the histology (±urease test). Hp status by non-invasive methods before the gastroscopy was unknown in 207 (65%) cases and this group included 46/54 (85%) of all positive cases. Sensitivity in the antrum was 49% [Hp(+) 23% vs Hp(-) 58%, p=0.03] and in the body 73% [Hp(+) 27% vs Hp(-) 88%, p<0.01].

Specificity in the antrum was 76% [Hp(+) 75% vs Hp(-) 76%, p=0.9] and in the body 84% [Hp(+) 81% vs Hp(-) 84%, p=0.7]. Diagnostic accuracy in the antrum was 71% [Hp(+) 60% vs Hp(-) 73%, p=0.08] and in the body 82% [Hp(+) 67% vs Hp(-) 85%, p<0.01].

Conclusion: Endoscopic diagnosis of GA had a high diagnostic yield mainly in the body and Hp-negative patients. Hp eradication before a routine gastroscopy should be advised to improve the optical diagnosis of gastric atrophy.

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Disclosure: Nothing to disclose.

PP0354

GHRELIN AND LEPTIN FOR NON-INVASIVE DIAGNOSIS OF ADVANCED ATROPHIC GASTRITIS AND INTESTINAL METAPLASIA

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Introduction: Gastric cancer is a relevant cause of cancer-related death, often diagnosed at late stages. Intestinal-type gastric cancer develops through a preneoplastic cascade via atrophic gastritis and intestinal metaplasia.

Patients with advanced gastric atrophy and intestinal metaplasia are at increased risk of developing gastric cancer and need endoscopic surveillance.

However, screening endoscopy is not cost-effective in low-to-medium prevalence regions. A non-invasive screening test for detecting advanced gastric atrophy is desired. GastroPanel®, a serologic panel of markers related to gastric physiology (Pepsinogen I, Pepsinogen II, Gastrin17, Helicobacter pylori antibodies), has limited sensitivity for detection of advanced atrophic gastritis.

The digestive hormones Ghrelin and Leptin are produced in a significant fraction by gastric epithelial cells, but their role for detecting advanced gastric atrophy and intestinal metaplasia is unclear.

Aims & Methods: This study investigates the additional benefit of determining serum levels of Ghrelin and Leptin together with GastroPanel® for non-invasive detection of advanced gastric lesions.

Serum levels of Pepsinogen I, Pepsinogen II, Gastrin17, H. pylori antibodies, Ghrelin and Leptin were measured in a cohort of n=351 individuals with endoscopic and histologic characterization of the stomach and standardized grading of gastritis (operative link for gastritis assessment / operative link on intestinal metaplasia assessment, OLGA/OLGIM).

Receiver operating characteristic (ROC) curves were built to calculate the area under the curve (AUC) and threshold optimization was applied to calculated the diagnostic performance of each individual blood parameter for OLGA/OLGIM stages 3/4.

The dataset was randomly split into a training and testing set and a logistic regression model with 10-fold cross-validation was developed for OLGA/OLGIM stages 3/4 and serum levels of Pepsinogen I, Pepsinogen II, Gastrin17, H. pylori antibodies, Ghrelin and Leptin. The model was applied to the testing set, ROC curves were built to compute the AUC and diagnostic performance was calculated.

Results: The prevalence of OLGA/OLGIM stages 3/4 in the cohort was 13.8% (95% CI 0.11 – 0.17 %, n=72.

For individual serum markers, the diagnostic power for OLGA/OLGIM 3/4 was AUC = 0.625 (PGI), AUC = 0.523 (PGII), AUC = 0.611 (Gastrin17), AUC = 0.524 (H. pylori antibodies), AUC = 0.645 (Ghrelin), AUC 0.528 (Leptin).

Combining serum levels of Pepsinogen I, Pepsinogen II, Gastrin17 and H. pylori titers (GastroPanel®) in a logistic regression model reaches an AUC = 0.676, accuracy = 0.833 (95% CI 0.747 – 0.890), sensitivity = 0.882, specificity = 0.333, PPV = 0.932, NPV = 0.214.

Adding serum levels of Ghrelin and Leptin to the model did not increase diagnostic power (AUC = 0.620, accuracy 0.827 (95% CI 0.744 – 0.893), sensitivity = 0.890, specificity = 0.200, PPV = 0.918, NPV = 0.154).

Conclusion: The diagnostic value for detecting advanced gastric atrophy and intestinal metaplasia via serum Pepsinogen I, Pepsinogen II, Gastrin17 and H. pylori antibodies is limited. This is not improved by the addition of serum Ghrelin and Leptin.
Disclosure: Nothing to disclose.

PP0355

INCIDENCE OF HELICOBACTER PYLORI INFECTION IN GASTRIC CANCER PATIENTS IN ALBANIA: ASSOCIATION WITH HISTOPATHOLOGICAL FORMS AND CLINICAL CHARACTERISTICS - A SINGLE-CENTER STUDY

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Introduction: Helicobacter Pylori (H. Pylori) is present in about half of the world's population and it is the leading cause of infection-related cancers, including gastric adenocarcinoma and mucosa-associated lymphoid tissue lymphoma. Various studies have shown that H. Pylori is highly prevalent in Albania.
Aims & Methods: The aim of this study is to evaluate presence of H. Pylori infection in patients with gastric cancer with the purpose of providing insights for clinical management and treatment decisions. This was a single-center prospective study, conducted at University Clinic of Gastrohepatology at the University Hospital Center Mother Teresa in Tirana, Albania from 2021 to 2022. The study included patients presented at our endoscopy unit that were diagnosed with gastric neoplasm, without any history of familial or hereditary cancer. Demographic, clinical, radiological and laboratory data were collected for each patient. Based on tumor histology they were divided in two groups: gastric adenocarcinoma and lymphoma. We studied the presence of Helicobacter Pylori infection in patients with gastric cancer and its association with the histological, clinical and laboratory characteristics of these patients. The data were analyzed using SPSS statistical package version 23.0.
Results: A total of 50 patients 32 (64%) male and 18 (36%) female with a mean age of 64.5 ± 11.8 years [38-85] were included in this study. 92% had gastric adenocarcinoma while only 8 % had gastric lymphoma. Helicobacter pylori was found present in 82% of the studied patients. Among the histopathological forms, the presence of H. pylori was predominantly observed in 100% (4 patients) of lymphomas and 80 % (37 patients) of adenocarcinomas (93.8% of patients with moderately differentiated adenocarcinoma). No significant association was observed between the presence of H. pylori infection and histopathological diagnosis ($p = 0.33$) or staging ($p = 0.358$). However, the presence of H. pylori infection was significantly associated with a higher incidence of distal cancer compared to proximal cancer (60% vs 12%; $p = 0.002$. Furthermore, the average levels of CEA were significantly higher in patients with adenocarcinoma compared to lymphoma ($p = 0.035$).
Conclusion: Our study demonstrated that Helicobacter pylori infection is highly prevalent among patients with gastric cancer, with a higher incidence observed in patients with distal cancer compared to proximal cancer. However, no significant association was observed between the presence of H. pylori infection and histopathological diagnosis or staging. CEA levels were found to be significantly higher in patients with adenocarcinoma compared to lymphoma, which may indicate its potential utility as a diagnostic marker. These findings may have implications for the management and diagnosis of patients with gastric cancer.
Disclosure: Nothing to disclose.

Poster presentations
Small intestinal

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Small intestinal

PP0356

OSMOLALITY IN ORAL SUPPLEMENTS DRIVES ILEOSTOMY OUTPUT: DEFINING THE GOLDILOCKS ZONE

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Introduction: Patients with an ileostomy often have impaired quality of life, sodium depletion, secondary hyperaldosteronism, and other organ-specific pathologies. The osmolality of oral supplements influences ileostomy output and sodium loss.

Aims & Methods: We hypothesized the existence of an osmolality range where fluid absorption and secondary natriuresis are optimal. This was a single-center, quasi-randomized crossover intervention study, including patients with an ileostomy and no home parenteral support.

After an 8-hour fasting period, each patient ingested 500 mL of between 3 and 18 different oral supplements and a standardized meal during separate intervention periods, followed by a 6-hour collection of ileostomy and urine outputs. The primary outcome was 6-hour ileostomy output.

Results: A total of 14 adult patients with an ileostomy (median age 64.5 years (range 22 - 77)) were included. The association between osmolalities in the entire range of 5-1352 mOsm/kg and ileostomy output forecasted an S-curve. In a mixed-effect model with the patients as a random effect, we observed a linear association between the osmolality of oral supplements in the range of 290-600 mOsm/kg and ileostomy output, which increased with 57g/6 hours (95% CI 21 – 94) when the oral supplement osmolality increased 100 mOsm/kg ($p<0.005$).

Conclusion: Osmolality in oral supplements correlated with ileostomy output in patients with an ileostomy. Our results indicate that patients with an ileostomy may benefit from increasing their ingestion of oral supplements with osmolalities between 100 and 290 mOsm /kg. We suggest this range is called the Goldilocks zone, indicating optimal fluid absorption.

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PP0357

MORPHOLOGICAL, MOLECULAR AND MOTILITY CHANGES IN HUMAN SMALL INTESTINE AFTER LOOP ILEOSTOMY

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Introduction: Loop ileostomy has been reported to reduce the risk of leakage and reoperation in patients undergoing sphincter-preserving surgery. The structural and functional changes in the loop ileostomy may contribute to the development of ileus, such as decreased motility of smooth muscle and villous atrophy.

Aims & Methods: This study is to investigate the morphological, functional, and molecular changes of the distal limb after ileostomy and subsequent takedown.

Human ileum samples were obtained from patients who underwent diversion ileostomy after rectal cancer surgery and subsequently had ileostomy takedown. Samples were collected from the tips of the proximal and distal limbs. The whole layer of ileum was prepared for HE staining and the muscle layer which the mucosal layer was removed was prepared for motility measurement. The muscle strips (5x2 mm) were mounted to an isometric force transducer (Biopac Systems, Inc., Goleta, CA, USA) and suspended in 10 ml organ bath containing aerated (97% O_2 and 3% CO_2) and pre-warmed (36.5 ± 0.5°C) KRB solution.

Amplitude (mN) and area under the curve (AUC) of contractions were measured and analyzed. To compare myogenic contraction and relaxation between the proximal and distal limbs of ileostomy, we administrated acetylcholine (ACh), potassium chloride (KCl) and sodium nitroprusside (SNP) in human ileal strips. Quantitative real-time polymerase chain reaction (qPCR) was performed for quantitative analysis of the expression of VAChT and NOS, cholinergic and nitrergic neuronal markers, and UCHL1 and MYH11, neuronal and smooth muscle cell marker, respectively.

Results: The height of the villi and the thickness of the mucosa, submucosa and muscle layer of the distal limb decreased significantly compared to those of the proximal limb. In the contractile responses to ACh and KCl, the amplitude and AUC of contractions in the distal limb were smaller than in the proximal limb in a dose-dependent manner. The relaxation response to the SNP in the distal limb was reduced compared to the proximal limb. Expressions of VAChT which is related with cholinergic neurotransmission, UCHL1 and MYH11 were not different in both proximal and distal limbs. However, expression of NOS1 which is related with nitrergic neurotransmission was increased significantly in the distal limb compared to the proximal limb. In addition, number of interstitial cells (ICC and PDGFRa$^+$ cell) in muscle layer was not different in both proximal and distal limbs.

Conclusion: These results demonstrate that the distal limb which was not in use for a certain period of time after fecal diversion was morphologically atrophied and its motility was also impaired. Both myogenic contractile and relaxation responses were reduced in the distal limb of ileostomy although nitrergic neurons increased in the distal limb to compensate for the reduced relaxation response. These findings suggest that stimulating the distal limb can induce relaxation and may be a way to prevent ileus, which can occur after ileostomy takedown.

Disclosure: Nothing to disclose.

PP0358

POTENTIAL BENEFICIAL EFFECT OF GRAPE SEED EXTRACT ON RADIATION-INDUCED GUT PERMEABILITY DAMAGE AND OXIDATIVE STRESS

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Introduction: Potential therapeutic effects of natural compounds, such as grape polyphenols, have been suggested in the prevention and treatment of mucositis induced by radiotherapy or bacterial infections. Lipopolysaccharide (LPS) significantly increases the paracellular permeability of gut epithelium downregulating the expression of tight junctions. In this study, the protective effect of proanthocyanidin-rich grape seed extract (GSE) was investigated on epithelial barrier damage and ROS production induced by LPS and ionizing radiations in an in vitro model.

Aims & Methods: GSE chemical analysis was performed by high-performance liquid chromatography (HPLC-DAD) and nuclear magnetic resonance (NMR).

Human intestinal epithelial cell line Caco-2, previously treated with LPS [10 µg/m] (pathogenic strain of Escherichia Coli 0111:B4) [1], GSE [6,25 mg/ml] and LPS + GSE, were irradiated with 10 Gy subdivided in 5 daily fractions using TrueBeam™ radiotherapy system by Varian Medical System. Epithelial barrier integrity was investigated measuring the paracellular flux of fluorescein isothiocyanate-dextran (FD-4) [1] and ROS production was assessed by adding 2′,7′-dichlorodihydrofluorescein diacetate (H2-DCF-DA) [3] using a multiplate reader (Tecan). Each experiment was performed twice in triplicates with independent controls among the three conditions.

Results: HPLC-DAD and NMR revealed a 70% content of total procyanidins in both the extract obtained from the virgin hydroalcoholic mixture and quantify 24 metabolites classified as amino acids, organic acids, classified as amino acids, organic acids, carbohydrates and miscellaneous molecules. Among them, it is interesting the presence of ascorbate, procyanidin B1 and polymeric procyanidins.

Our *in vitro* experiments showed a significant increased permeability was observed in LPS-treated cells over time compared to control (5.215 vs 0.3418; p<0.05), which is prevented by co-treatment with GSE (5.215 vs 0.3407; p<0.05).

Irradiation significantly increased intestinal permeability over time and in a dose dependent manner compared to control both in Caco2 cells without LPS treatment (at day 5 with maximal dose of 10 Gy: 3.64 vs 0.441; p<0.05) and in LPS-treated cells (25.5 vs 2.42; p<0.05). GSE treatment significantly reduced this damage in both conditions (25.5 vs 2.04; p<0.05 and 38.87 vs 2.675; p<0.05 respectively).

Moreover, LPS significantly increased ROS production in Caco2 cells (12,9 vs 104; p<0.0001) and GSE treatment significantly prevented this damage (104 vs 11.3; p<0.0001).

Irradiation increased ROS production in LPS-treated cells (3056 vs 362; p<0.0001) and also in this case GSE treatment was able to reduce ROS production due to irradiation (502 vs 357; p<0.0001). this beneficial effect was observed also in LPS treated cells and then exposed to irradiation (3056 vs 681; p<0.0001).

Conclusion: In an *in vitro* model, GSE is able to prevent the intestinal epithelium permeability damage and ROS production induced by LPS and by ionizing radiations suggesting a potential therapeutic effect.

Further studies are needed to better understand the mechanism underlying radiation-induced mucositis and the antioxidant effect of GSE in its prevention and management.

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PP0359

THE RELATIONSHIP BETWEEN DYSBIOSIS AND ATOPY AMONG CHILDREN WITH RECURRENT ABDOMINAL PAIN

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Introduction: Pediatric patients with recurrent functional abdominal pain (RAP) may associate small intestinal bacterial overgrowth (SIBO). Also, children with known atopy may present RAP more frequently.

Aims & Methods: The objective of this research was to establish a potential conection between intestinal dysbiosis and alimentary or respiratory allergic diseases in children diagnosed with functional RAP. The authors conducted a randomized placebo controled prospective study. All consecutive pediatric patients diagnosed with RAP between January 2022 and January 2023 were enrroled in this study. All children undergone complet work up protocol to rule out organic causes for RAP. Glucose hydrogen breath test (GHBT) was performed to asses the presence of SIBO in every case. Also, all subjects were tested for allergies by assessing specific serum IgE level or by performing skin prick tests. The control lot included sex and aged matched healthy children that undergone GHBT. The study lots were statistically compared according to the distribution of SIBO and the presence of atopy.

Results: 258 patients with RAP were enrolled (148 females and 110 males). GHBT was positive in 136 patients (52,71%). From 230 control subjects, only 15 (6,52%) tested positive for SIBO (p=0.001 compared to RAP group). All controls were negative for atopy assessment. 78% of children with SIBO and RAP tested positive to allergy assessment compared to only 23% of patients without SIBO and presence of RAP (p=0.001). The odds ratio for developing an allergy in children with SIBO was 4.42 (95% CI, 1.85-14.24; p = 0.001).

Conclusion: There is a statistic correlation between alergic disorders (cow's milk protein allergy, atopic dermatitis, allergic rhinitis) and SIBO in children with RAP. Therefore, in pediatric patients with RAP and atopy, SIBO should be investigated and treated accordingly to alleviate symptoms.

Disclosure: There is no conflict of interest.

PP0360

ANTI-INFLAMMATORY EFFECTS OF *SACCHAROMYCES BOULARDII* CNCM I-745 IN A MOUSE MODEL OF PROXIMAL SMALL INTESTINE GLUTEN-RELATED DISEASE

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Introduction: *Saccharomyces boulardii* CNCM I-745 probiotic properties have been demonstrated for decades. The exact mechanisms behind these beneficial effects are widely documented, notably anti-inflammatory properties and preservation of the intestinal barrier integrity. However most of the current knowledge was obtained from studies focusing on infectious or inflammatory colonic diseases and very little is known regarding the effects of this yeast on small intestine pathologies.

In previous work, we showed that after oral gavage of p31-43 gliadin peptide, a fragment of gluten-derived peptides that neither binds to HLA class II molecules nor induces T cell activation, is responsible for toxic effects and strong inflammatory responses in the proximal small intestine (Gomes Castro et al., 2019, Ruera C et al, 2020). In this mouse model, intragastric administration of p31-43 elicits mucosal damage in small intestinal together with the production of inflammatory mediators, inflammasome activation, and cell death.

Aims & Methods: Aim: To study the effects of *S. boulardii* pre-treatment on the inflammatory response in the proximal small intestine in a mouse model of sterile inflammation induced by p31-43.

Materials and methods: Seven week-old C57BL/6 mice were housed under specific pathogen-free conditions and allowed access to autoclaved food and water *ad libitum*. A three-weeks pretreating phase by gavage with *S. boulardii* CNCM I-745 (3g/kg/day) or vehicle (Phosphate-buffered saline, PBS), was performed. Then, a single dose of 20µg of p31-43 gliadin peptide (LGQQQPFPPQQPY, at > 95% purity) per mouse or PBS, was delivered by intragastric administration. Mice were euthanized 4 or 16 hours after challenge and proximal small intestine was sampled to perform different histological analysis: villus high/crypt depth (V/C) ratio, intraepithelial lymphocytes (IELs) counting, cell death by TUNEL staining. Assessment of the activation of caspase-1, a central mediator of inflammasome pathway, was performed by Western Blot on small intestinal samples. Statistics were performed using Anova Test.

Results: The evaluation of the histological changes at the proximal small intestine showed that administration of *S. boulardii* was able to prevent the damage induced by p31-43 for both 4h ($p< 0.01$) and 16h (<0.0003) after p31-43 treatment. This treatment also prevented mucosal IELs recruitment.

The assessment of cell death by TUNEL staining on sections of the small intestine showed that *S. boulardii* was effective to block the induction of cell death caused by p31-43 ($p< 0.005$).

Pretreatment with *S boulardii* before the p31-43 challenge reduced inflammasome activation by maintaining caspase-1 to basal levels ($p<0.01$).

Conclusion: Three-week phase of preconditioning with *S. boulardii* before the p31-43 treatment prevented intestinal macroscopic damage, the increase in IELs numbers, cell death and inflammasome activation. These findings show the beneficial effects of *S. boulardii* CNCM I-745 in proximal small intestine inflammatory conditions and may be of interest in celiac disease patients.

Disclosure: Nothing to declare

PP0361

THE CCR9/CCL25 AXIS IS SPECIFIC TO THE ILEUM AND IS CORRELATED WITH STRICTURING DISEASE

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Introduction: Crohn's Disease (CD) is a chronic disease in which inflammation is sustained by continuous influx of inflammatory leukocytes into gut mucosa and may affect all segments of the gastrointestinal tract. Immune cell trafficking is regulated via chemokine gradients and adhesion molecules such as integrins. Here we explored the expression profile of gut-specific integrin and chemokine axes in different regions of the gut to identify possible targets for treating CD patients with different disease location or phenotype.

Aims & Methods: This study used transcriptomic data from gut tissue biopsies of the large and small intestine of 611 CD and 315 UC patients enrolled in a multicentred longitudinal Study of a Prospective Adult Research Cohort with IBD (SPARC IBD) obtained from the IBD Plexus program of the Crohn's and Colitis Foundation. We mapped the expression of selected chemokine receptors and their ligands as well as gut-specific integrins onto the different segments of the intestine. Expression data were then linked to available clinical disease phenotypes, as well as genotype information.

Results: In both CD and UC patients, ITGA4 and ITGB7, the targets for Vedolizumab, and their endothelial ligand MADCAM1 were ubiquitously present in all regions of the gut. GPR15 and its ligand C10orf99 were predominantly expressed in colonic biopsies.

On the contrary, expression of CCR9 and its ligand CCL25 were specific to the terminal ileum with only minimal transcriptional activity in the colon. Expression of CCL25 was significantly increased in patients with penetrating and/or stricturing CD, a disease feature associated with ileal CD that has high impact for patients and is currently an unmet for IBD patients. Further, we identified an expression quantitative trait loci (eQTL) upstream of the CCL25 promoter linked to small bowel expression of CCL25.

Conclusion: Our data highlight the potential for targeting the CCR9/CCL25 axis as a treatment for small bowel Crohn's Disease which may have been incompletely targeted to date by small molecule inhibitors.

Disclosure: All authors were employees of AstraZeneca during the conduct of the study and hold AstraZeneca stocks or stock options.

PP0362

PROTON-PUMP INHIBITOR USE AND RISK OF BLOODSTREAM INFECTION SECONDARY TO BACTERIAL TRANSLOCATION

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Introduction: Pathogens can translocate from the gut lumen to the systemic circulation while gut microbiota play an important role in maintaining an immunologically balanced inflammatory response and protecting against colonisation by invasive pathogens. Studies showed that among people with liver cirrhosis, proton-pump inhibitor (PPI) users had a higher risk of spontaneous bacterial peritonitis (SBP).

It has been hypothesised that PPI use can facilitate small intestinal bacterial overgrowth and related intestinal dysbiosis that lead to dysregulated bacterial translocation and subsequent SBP. However, the link between PPI use and systemic infectious complications secondary to bacterial translocation in non-cirrhotic patients is unclear.

Aims & Methods: This study aimed to investigate whether patients receiving PPI therapy have a higher risk for bloodstream infections (BSI) without an identifiable infectious focus, as an alternative indicator of BSI secondary to bacterial translocations. We conducted a hospital-based case–control study which enrolled all patients aged 20 years and older who developed BSI confirmed by two sets of positive blood culture and had inpatient care in Ichinomiya-Nishi Hospital in 2019. Patients' data were collected from medical records, and bacterial translocation type (BT-type) BSI group were defined as those who had BSI without an identifiable focus of infection, whereas the others were classified control group. PPI use at BSI onset was considered the primary exposure of interest.

To control for factors that were potentially associated with both PPI use and BSI, we retrieved data on the several factors and examined the potential confounders by using the Mantel–Haenszel stratified analyses. Logistic regression yielded adjusted odds ratios (OR) and 95% confidence intervals (CI) for BT-type BSI among PPI users and non-users. To address the possibility of outcome misclassification, we also conducted sensitivity analyses.

Results: We analysed data from 309 patients, including 66 cases (BT-type BSI group) and 243 controls. 152 patients (49%) were receiving continuous PPI therapy at BSI onset. The mean age was 78 years in both cases and controls. Patients on PPI therapy had a 2.4-fold higher risk of developing BT-type BSI compared to non-PPI-users after controlling for age, sex, the Charlson Comorbidity Index, liver cirrhosis, active gut disease, and onset location (OR: 2.41, 95% CI: 1.29–4.51). After adjustment, an association of PPI use with BT-type BSI (p=0.006) was observed. The results of the sensitivity analyses were consistent with the primary analysis.

Conclusion: PPI use is associated with higher risk of BSI without an identifiable infectious focus and therefore, PPI use may increase the risk of septic morbidity secondary to bacterial translocation.

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Disclosure: Nothing to disclose.

PP0363

PREVALENCE AND CLINICAL CHARACTERISTICS OF PATIENTS WITH STRONGYLOIDES STERCORALIS INFECTIONAMONG FARM AND DOGHOUSE WORKERS

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Introduction: Cases of autochthonous *Strongyloides stercoralis* infection have been reported rarely in Northern Italy. There are no reports from Southern Italy. Since *S. stercoralis* may harbor in dogs and other farm animals, we aimed to investigate the prevalence of such infestation in farm workers in Southern Italy.

Aims & Methods: Capillary blood samples were drawn from farm and doghouse workers in the county area of Bari (South Italy). Screening test was a commercial ELISA test (Strongyloides ratti by Bordier Affinity Products SA). Serology-positive patients were offered Ivermectin therapy, single dose of 200 ug/Kg.

Patients underwent, at baseline and 4 months after therapy, clinical examination; severity of abdominal pain, diarrhea, skin rash, urticaria, asthma symptoms were estimates by a 10-point VAS scale. Stool consistency was classified according to the Bristol scale. Full blood count was also performed both at baseline and follow up. Data were expressed as median with interquartile range (IQR). Wilcoxon signed rank test was used for statistical analysis.

Results: Among 120 workers, 6 patients were serology- positive, with a prevalence of 5%. Two of them worked in doghouses. Abdominal pain was the most frequent symptom (3 patients, 50% cases), which resolved after therapy in all patients with VAS from 1 (IQR 0-5.8) to 0 (IQR 0-0), p=0.25. No variation in stool consistency was recorded (p=1).

Two patients complained of urticaria, which totally resolved in one subject and improved in the other one. Asthma was referred bytwo patients, with full clearancein one of them. We observed a non statistically significant trend of eosinophil count reduction, from 190/mm^3 (IQR 140-240) to 180/mm^3 (IQR 150-220), p=0.14.

Conclusion: In our area, the prevalence of the parasitosis is low. Therapy may be helpful to reduce the severity of some symptoms such as abdominal pain, asthma and urticaria. A marginal effect on eosinophils has been observed.

Disclosure: Nothing to disclose.

PP0364

SYMPTOMS AND MEDICAL HISTORY DO NOT PREDICT HYDROGEN AND METHANE BREATH TEST OUTCOMES

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Introduction: Recent societal guidelines suggest there is no role for hydrogen and methane breath testing (HMBT) to exclude small intestinal bacterial overgrowth (SIBO) in patients with diarrhoea predominant irritable bowel syndrome (IBS) and to treat symptoms with rifaximin empirically[1,2]. However, a positive result for SIBO with lactulose HMBT has been shown to predict more favourable outcomes to rifaximin in patients with diarrhoea predominant IBS[3].

We wanted to investigate if symptoms and medical history can predict lactulose HMBT outcome hence justifying treatment of SIBO without a formal diagnosis.

Aims & Methods: A large questionnaire-based study was conducted in over 1000 patients of which 731 completed lactulose HMBT. The 26-item questionnaire included questions about medical history, symptoms, and pattern of symptoms, and we used this to identify any positive predictors for SIBO on HMBT. A positive lactulose HMBT was determined by a rise of ≥20 ppm in breath hydrogen from baseline within 90 minutes[3].

Breath samples were analysed using gas chromatography. Associations and predictors were calculated using chi square tests and logistic regression, respectively.

Results: Bloating (93.6%), abdominal pain (87.3%), and diarrhoea (80.3%) were the most common symptoms reported by those with a positive result for SIBO, but their duration, frequency and onset were no different to patients with a negative result (P > 0.05). There were no positive predictors for SIBO on lactulose HMBT based on symptoms, medications or medical history except for chronic low ferritin (P = 0.025).

Conclusion: This large questionnaire study has demonstrated that symptoms and medical history cannot predict HMBT outcomes for SIBO. Therefore, treatment of SIBO without a diagnosis confirmed on HMBT may lead to unnecessary antibiotic use and costs.

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Disclosure: Nothing to disclose.

PP0365

"PER ELISA": IS IT THE TIME TO LEAVE IMMUNFLUORESCENCE IN FAVOR OF THE-ANTI-TRANSGLUTAMINASE/DEAMIDATED ANTI-GLIADIN PETIDES DIAGNOSTIC COMBINATION IN COELIAC DISEASE OF ADULTS?

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Introduction: The serology, in terms of both positive anti-endomysial antibodies (EMA) and anti-tissue transglutaminases (a-tTG), plays a crucial role for coeliac disease (CD) diagnosis. More recently, deamidated anti-gliadin peptides (DGP) were added to the diagnostic work-up of CD in view of their accuracy. Strictly, EMA is an immunofluorescence-based tool, more expensive and operator-dependent than a-tTG and DGP (both based by ELISA).

Aims & Methods: To test the diagnostic accuracy of the a-tTG/DGP compared to the classical EMA/a-tTG combination for CD diagnosis.

From November 2020 to October 2022, we performed an observational prospective study including all consecutive adult patients with suspected CD. All subjects were tested for EMA (positive/negative), a-tTG (positive>7 U/mL) and DGP-IgA (positive>5.5 U/mL).

CD diagnosis was made in presence of Marsh ≥2 at histilogy, and positive EMA. A ROC curve was constructed to establish the best specificity cut-off of a-tTG and DGP levels, which would predict the presence of Marsh ≥2 and Marsh 3 at histology.

Furthermore, the diagnostic accuracy of the a-tTG/DG in comparison with EMA/a-tTG combination was performed. Also, a basic cost-analysis for the application of the two types of serological combination was effectuated.

Results: The study included 275 CD patients. Histology showed Marsh 1 in 9.9%, Marsh 2 in 4.5%, Marsh 3 in 85.6.%. The best cut-off value of a-tTG for predicting Marsh ≥2 was 42 U/mL (sensitivity 70%; specificity 100%; PPV 100%; NPV 24.1%) while it was 68.4 U/mL for atrophy (sensitivity 69%, specificity 100%; PPV 100%; NPV 31%). The best cut-off value of DGP for predicting Marsh ≥2 was 56 U/mL (sensitivity 59%, specificity 100%; PPV 100%; NPV 23%), being 78 U/mL for atrophy (sensitivity 68%; specificity 100%; PPV 100%; NPV 32.1%).

When considering the diagnostic accuracy of the serological combination, a-tTG/EMA showed: sensitivity 97%; specificity 100%, PPV 100%; NPV 97%; the a-tTG/DGP combination presented: sensitivity 94%, specificity of 100%, PPV 100% and NPV 93% (p=N.S.). About cost-analysis, when including our entire population, the use of the a-tTG/DGP combination determined a saving of about 3790E respect to a-tTG/EMA association.

Conclusion: The serological ELISA diagnostic combination of a-aTG/DGP is accurate for the diagnosis of CD and could reduce the costs and the operator-dependency of the EMA procedure. DGP could substitute EMA in combination with a-tTG for diagnosis of CD.

Disclosure: Nothing to disclose.

PP0366

ANXIETY AND DEPRESSION IN INDIVIDUALS WITH UNTREATED CELIAC DISEASE

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Introduction: Celiac disease is an autoimmune disorder where the intake of gluten (a protein found in wheat, barley, and rye) causes damage to the small intestine and impairs nutrient absorption. Studies have shown that individuals with celiac disease have reduced quality of life and higher levels of anxiety and depression. However, this has not been studied in the general population, among individuals with newly discovered, untreated celiac disease.

Aims & Methods: The aim of this study was to investigate anxiety, depression, mental health, and subjective well-being in individuals with newly diagnosed and untreated celiac disease, compared with the general population.

This study used data from the fourth Trøndelag health study (HUNT4), conducted between 2017 and 2019 with over 56,000 adult participants from 20 years of age. Previously undiagnosed celiac disease was identified among the participants by analyses of blood samples from all participants and confirmed with endoscopy and duodenal biopsies.

The participants in HUNT4 also answered questionnaires measuring levels of anxiety and depression using the Hospital Anxiety and Depression Scale (HADS), mental distress using the Cohort of Norway Medical Health Index (Conor-MHI), and subjective well-being using a three-part questionnaire. Differences in mental health among individuals with newly diagnosed celiac disease and the remaining HUNT4 participants were compared.

Results: Celiac disease was diagnosed in 454 HUNT4 participants by March 2022. The celiac group had a lower median age (53 vs. 56 years) compared to the remaining HUNT4 population. The celiac group had significantly lower mean scores on the HADS anxiety subscale (4.0 vs. 4.4), depression subscale (2.8 vs. 3.3), and total scale (6.8 vs. 7.7) compared to the reference population.

On the CONOR-MHI scale, the celiac disease group had a lower total mean score (1.4 vs. 1.5) with lower scores in the categories of "secure and calm", "irritable", "happy and optimistic", "sad/depressed", and "lonely" compared to the reference population.

Finally, the celiac disease group had a lower mean score on the question "Do you feel mostly strong and clear, or tired and fatigued?" (3.3 vs. 3.4) and a higher mean score on the question "How is your health now?" (3.0 vs. 2.9) compared to the reference population. No significant difference was observed in the HADS or CONOR-MHI scores by Marsh grades at diagnosis among the celiac disease group.

Conclusion: The study suggests that individuals with undiagnosed celiac disease have lower levels of anxiety, depression, and mental distress compared to the general population, while also reporting slightly better subjective well-being. These findings contradict other studies on psychological health in celiac disease.

Disclosure: Nothing to disclose.

PP0367

THE VIRTUAL CELIAC SYMPTOMS STUDY: SYMPTOM AND GLUTEN-FREE DIET PERCEPTIONS AT BASELINE

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Introduction: Celiac disease (CeD) is a chronic, immune-mediated, systemic disorder characterized by inflammation of the small intestine and antibody formation in response to gluten ingestion. A gluten-free diet (GFD) has major limitations but is the only current treatment for CeD.

Aims & Methods: This US prospective observational study (Virtual Celiac Symptoms Study, NCT05309330) was conducted from July 25, 2022 to March 04, 2023 and aimed to assess experience with a GFD and celiac-related symptoms in patients with CeD.

Eligible participants were aged ≥12 years, had a CeD diagnosis for ≥1 year confirmed via self-reported biopsy and serology (or serology only for participants diagnosed at age <18 years), were on a GFD for ≥6 months and reported CeD-related symptoms in the past 3 months. Participants were recruited with the assistance of the Celiac Disease Foundation via digital advertisements and data were collected using an electronic patient-reported outcomes platform.

Study participants were followed up for 12 weeks and CeD-related symptoms and gluten exposure were assessed daily. Quality of life and healthcare resource utilization were also assessed. This analysis focuses on the adult participants' perception of their disease experience at study initiation.

Results: The baseline questionnaires were completed by 338 adult participants. The median age was 37 years (range 18–71), 88% were female and 99% were White. CeD-related symptoms were reported by 58% of participants in the past week. When questioned about occurrence of CeD symptoms, 23% reported "Chronic/ongoing CeD symptoms even when I don't think I've been exposed to gluten", 37% reported "CeD symptoms only while I am exposed to gluten or within a few days after exposure to gluten" and 36% reported "Chronic/ongoing CeD symptoms, but they are worse when I get exposed to gluten".

The most commonly reported symptoms were bloating (83%), tiredness (81%), abdominal pain (77%) and diarrhea (71%). All participants were following a GFD; 21% reported "never eating gluten accidentally or on purpose" and 71% reported "rarely eating gluten accidentally".

In total, 84% of participants reported that they were likely/extremely likely to experience CeD symptoms after gluten exposure. Symptom intensity was described as moderate or severe by 71% of participants, and 11% reported hospitalization or emergency department care due to CeD in the past year.

Conclusion: Despite high levels of reported adherence to a GFD, many patients still report CeD-related symptoms, especially in response to perceived gluten exposure. Symptoms were often reported as severe and over 10% reported a CeD-related hospitalization or emergency department visit in the past year. This ongoing study highlights the requirement for further understanding of persistent/recurrent symptoms and an unmet need for additional treatments for patients with CeD on a GFD.

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PP0368

EFFICACY OF A DESIGNED KIT FOR THE DIAGNOSIS OF NON-CELIAC GLUTEN SENSITIVITY AND GLUTEN-RELATED SYMPTOMS

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Introduction: Gluten-related disorders include Celiac Disease (CD), Wheat Allergy (WA) and Non-Celiac Gluten Sensitivity (NCGS). NCGS is a syndrome characterized by the onset of intestinal and/or extra-intestinal symptoms after the ingestion of gluten-containing foods. Diagnosis is, firstly, based on the exclusion of CD and WA and on clinical response to a gluten-free diet (GFD). Furthermore, a single- or double-blind placebo-controlled gluten challenge is needed in order to limit placebo/nocebo effects.

However, food challenges are time consuming and require dedicated health-professionals, but, according to Salerno Criteria, they are necessary to make a correct diagnosis of NCGS.

Aims & Methods: Our aim was to evaluate the efficacy of *Test33*, a new test, in NCGS diagnosis and to simplify the diagnostic procedure through its use in daily clinical practice. It is a self-administered commercially-available kit containing undistinguishable gluten and placebo capsules, identifiable through a unique code. The patients downloaded a mobile app, which guided them through the administration of the capsules during the blind challenge.

Furthermore, the app allowed the self-assessment of symptoms by means of 33 10cm visual analogue scales (VAS), 10 for gastrointestinal symptoms and 23 for extraintestinal symptoms. After an initial three-week-long phase on a GFD, responsive patients were randomly assigned to the blind challenge. The challenge consisted of three different phases: gluten (5.6 g/day) or placebo capsules for seven days, followed by a one-week-long washout period (on GFD) and, finally, seven days of crossover period. We made an "Initial NCGS Diagnosis" after the GFD phase and a "Confirmed NCGS Diagnosis" after the challenge, following two different criteria, the second one less stringent. The primary endpoint was the worsening of symptoms (VAS increase ≥ 3 cm) during blind gluten ingestion compared to placebo.

Results: 107 persons (88 females, 38.5 ± 15.6 years of age) agreed to participate. 97 (91%) completed the GFD period, while 88 (82%) completed the entire challenge. After 3 weeks on a GFD, 96.9% of participants reported significantly improved gastrointestinal ($p<0.006$) and extra-intestinal symptoms and higher general well-being ($p<0.00001$), resulting as responsive to GFD. During the blind challenge, general well-being score was significantly lower in the gluten group ($p<0.027$).

Among gastrointestinal symptoms, abdominal pain (3.17 ± 0.32 vs 2.37 ± 0.30), constipation (3.27 ± 0.35 vs 2.38 ± 0.30), meteorism (5.40 ± 0.35 vs 3.68 ± 0.33), bloating (4.43 ± 0.31 vs 2.90 ± 0.30) and fullness (4.14 ± 0.36 vs 3.12 ± 0.33) were all worsened by blinded gluten ingestion (all $p<0.039$), while, regarding extra-intestinal symptoms, 13 out of 22 were significantly worsened after blind gluten ingestion (all $p<0.04$). None of the symptoms (both gastrointestinal and extra-intestinal) worsened during placebo assumption.

The "Initial NCGS diagnosis" was made in 54.6% of the 97 participants who completed the GFD period, while the "Confirmed NCGS Diagnosis" was made only in 8 out of 88 patients (9.1%) who completed gluten challenge, following the more stringent criterion 1.

Conclusion: This self-administered blind gluten challenge supported by a dedicated app diagnosed NCGS among patients reporting symptoms after gluten intake. Therefore, *Test33* may be a useful strategy for the assessment of symptoms (intestinal and extra-intestinal) strictly related to the blind gluten ingestion with less time and staff-consuming.

Its use may simplify NCGS diagnostic procedure in daily clinical practice.

Disclosure: Nothing to disclose.

PP0369

DIAGNOSIS AND FOLLOW-UP OF CELIAC DISEASE – A CONTEMPORARY PATIENT MATERIAL

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Introduction: Celiac disease (CeD) is a common chronic disease with an estimated prevalence of 1% (1). The diagnosis is based on clinical suspicion, serology and duodenal biopsy (2).

The only cure presently for CeD is lifelong dietary restriction; strictly excluding gluten from the diet. The outcome of this intervention has traditionally been expected to be good, but slow and incomplete mucosal healing is today often considered more frequent than previously thought. This lack of mucosal healing is in most cases considered to be caused by poor compliance with the diet.

Aims & Methods: The aim of this study is to investigate the pattern of serology and biopsy at time of diagnosis as well as the effect of follow-up and the outcome for treated CeD one year after diagnosis in a contemporary setting.

We prospectively enrolled patients with suspected CeD. Thus, these patients represent "regular" CeD patients and not referrals to tertiary care. The clinical work-up consisted of clinical chemistry, repeated serology and endoscopy at the first visit. All patients that received the diagnosis

of CeD were referred to one individual consultation with a clinical dietician, and they were invited to a follow-up examination after 12 months. Descriptive analyses were conducted on the collected data and the Marsh grade was used as measurement of mucosal healing.

Results: In total 126 of the 193 included participants were diagnosed with CeD. Among the participants were CeD was excluded; 2 only had IgA-Tissue transglutaminase 2 (TG2) above normal range (<4), 3 only had IgG-Deamidated gliadin peptide above normal range (<20) and 2 had both. Among the 51 participants with Marsh 3C and Serological samples, 1 had a negative TG2 at diagnosis and 5 a negative DGP. For Marsh 3B (n=36) and 3A (n=14) respectively 2 and 3 participants had a TG2 within the upper level of normal while 9 and 2 had DGP within the level of normal. Thus, 6 of 126 patients would be classified as "seronegative CeD" using TG2 as serological test.

Ninety-five (75%) of the participants participated in the one-year control and had comparable data. Seventy-two (76%) of these achieved mucosal healing (Marsh 0 or 1) whereas 89 (94%) had complete healing or improvement of the initial Marsh grade. Serologically 55 (58%) converted to within normal ranges of TG2 and 69 (73%) for DGP.

Only 9 (39%) of the patients who did not achieve complete mucosal healing were followed up for an additional year where 6 achieved complete recovery.

Conclusion: One year after the diagnosis of CeD, the prognosis for mucosal healing is good and better than what has been reported by others. Overall, almost all patients have some degree of healing.

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Disclosure: Nothing to disclose.

PP0370

SERUM CITRULLINE AND ORNITHINE: NON-INVASIVE MARKERS OF THE COELIAC DISEASE?

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Introduction: Coeliac disease (CD) is a chronic, multi-organ, immune-mediated disease associated with gluten intake in genetically susceptible individuals. There is an emerging trend in raising prevalence, which is generally accepted to be about 1% in the world population. To date, there is not generally used and universal noninvasive indicator of activity and functional integrity of the small intestine in patients with CD.

Citrulline, a non-essential amino acid produced almost exclusively in enterocytes, is already known to be a reliable marker of small intestinal function in individuals with severe impaired small intestinal function (e.g. complicated forms of CD with malabsorption syndrome and/or short bowel syndrome). The data about the ornithine (citrulline's intermediate) serum concentrations in CD patients are limited so far.

Aims & Methods: The aim of our study was to investigate if serum concentrations of citrulline and/or ornithine differed among patients with CD compared with healthy controls and could be used as a disease activity indicators in uncomplicated disease. We examined serum citrulline and ornithine levels in a subgroup of patients with proven coeliac disease and healthy controls. A total of 94 patients with CD (29 men, mean age 53 ± 18 years; 65 women, mean age 44 ± 14 years) and 35 healthy controls with serologically excluded CD (10 men, mean age 51 ± 14 years; 25 women, mean age 46 ± 12 years) were included in the study.

The basic clinical and laboratory data (age, weight, disease duration, BMI, body surface area, haemoglobin, leukocytes, MCV) including the serological profile of the CD (anti-tissue transglutaminase IgA in the subgroup of patients together with anti-tissue transglutaminase IgG, anti-endomysial IgA and IgG, anti-deamidated gliadin peptide IgA and IgG and anti-reticulin IgA and IgG in the subgroup of healthy controls) were collected.

Results: Significantly lower concentrations of serum ornithine were found in patients with CD (mean 65 ± 3 µmol/L; median 63 µmol/L, IQR 34 µmol/L, $p < 0.001$). No statistically nor clinically significant differences were found in the citrulline concentrations between the study and control group.

We proved statistically significant stronger correlation between plasma citrulline and ornithine levels in the group of patients with CD versus the group of healthy controls where the correlation was weak (Spearman's coefficient 0.723 vs. 0.313). For other quantitative features no significant correlation was found in the group of patients with coeliac disease and healthy controls.

Conclusion: Serum ornithine (but not citrulline) may be useful for assessing the functional status of the small intestine in uncomplicated coeliac disease. Further studies involving more detailed analysis of dietary and metabolic changes in coeliac patients will be needed to reach definitive conclusions.

Disclosure: Nothing to disclose.

PP0371

THE INTESTINAL MICROBIOME CHARACTERISTICS OF INDIVIDUALS WITH GLUTEN-SENSITIVE CONDITIONS WHO ADHERE TO A GLUTEN-FREE DIET

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Introduction: Intestinal dysbiosis is associated with violating both the quantitative and qualitative intestinal microbiome composition (IM). It accompanies different gastrointestinal disorders, including *non-celiac gluten sensitivity* (NCGS) and celiac disease (CD). A gluten-free diet is the only existing treatment for CD and NGCC. One of the questions of interest is the characteristics of the IM of patients with gluten-related diseases (GRDs) and its relationship with diet therapy.

Aims & Methods: To determine the IM composition of patients with CD and NCGS who adhere to the agliadin diet and compare it to the IM composition of people without GRDs. The study included 25 adults: 14 (56%) with CD and 11 (44%) with NCGS; all were on agliadin diet. The control group (CG) included 24 people without gluten-sensitive pathology or gastrointestinal diseases. We determined the faecal content of the *Bacteroidetes*, *Firmicutes*, and *Actinobacteria* phylae and the rest bacterial desoxyribose nucleic acid DNA ("other" indicator) using the real-time polymerase chain reaction (real-time PCR).

Results: The *Firmicutes* content was 53.47 (IQR 49.98-57.21) % in CD patients ($p<0,05$ with CG), 53.0 (IQR 47.13-71.95) % in NCGS patients ($p>0.1$ with other groups) and 69.89 (IQR 58.58- 74.1) % of CG. *Bacteroidetes* content was 28.4 (IQR 6.58-39.28) % in CD patients, 24.98 (IQR 8.83-31.04) in NCGS patients ($p>0.1$ with CD), and 6.83 (IQR 3.69-9.22) in the CG ($p<0.05$ with GRDs). The *Actinobacteria* content was 4.8 (IQR 3.73 - 7.2) % in CD patients, 5.37 (IQR 3.89-8.56) % in NCGS patients ($p>0.1$ with CD), and 11.36 (IQR 7.07- 15.34) in the CG ($p<0.01$ with GRDs). The *Firmicutes/Bacteroidetes (F/B)* ratio was 1,996 (IQR 1.27-8.15) in CD patients, 2.0 (IQR 1.63-8.25) in NCGS patients ($p>0.1$ with CD), and 9.986 (IQR 6.37-18.80) in CG ($p<0.05$ with GRDs). The content of "other" types of IM was 15.39 (IQR 7.25-23.06) in CD patients, 13.78 (IQR 9.48-16.05) in NCGS patients, and 13.66 (IQR 8.43-17.78) in CG. This indicator had no significant difference ($p> 0.99$) between all three groups.

Conclusion: We found significant IM changes among patients with CD and NCGS, expressed in an increase in the *Bacteroidetes* content with a parallel decrease in the content of *Firmicutes* and *Actinobacteria*. The most significant changes were in *Actinobacteria* content, a less significant - the *Firmicutes*/*Bacteroidetes* ratio. Meanwhile, we did not find a difference in IM composition between CD and NCGS groups. Thus, detected intestinal microbiome changes are most likely to be a consequence of dietary features of such patients, namely the side effect of keeping an agliadin diet.

Disclosure: Nothing to disclose

PP0372

CELIAC DISEASE IN ASSOCIATION WITH IMMUNE CHECKPOINT RECEPTOR INHIBITORS: AWARENESS IS NEEDED

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Introduction: The immune regulatory proteins, such as cytotoxic T lymphocyte antigen (CTLA)-4 as well as programmed death (PD)−1 and its ligand PD-L1 are important immune regulatory proteins collectively referred to as immune checkpoint receptors. These pathways can be used by malignant tumors as a mechanism to avert antitumoral immune responses.

Immune checkpoint inhibitors (ICIs) target these immune checkpoint receptors. ICIs have demonstrated impressive clinical activity and are now approved for the treatment of diverse malignant neoplasms.

However, inhibition of these regulatory receptors leads to loss of tolerance and a wide spectrum of inflammatory toxicities known as immune-related adverse events (ir-AEs). Colitis or enterocolitis are the most frequent GI irAEs, affecting 15%–20% of patients who undergo endoscopic evaluation.

When severe, irAEs can necessitate ICI therapy interruption, discontinuation, and treatment escalation with powerful immunosuppressive agents. Isolated ICI-associated duodenitis has been reported after treatment with different immunotherapies.

Interestingly, de novo celiac disease (CeD) specific antibodies (serum tTG antibodies) with

histological features consistent with CeD in the setting of treatment with ICIs have been reported.

Aims & Methods: A literature search in Pubmed and Scopus to identify original reports in which CeD was documented histologically in patients treated with ICIs. Clinical, endoscopic and histopathological and immunological background were reviewed.

Results: Eleven papers were identified, all case reports or case series. A total of 26 pts were described. Twelve patients had a serologic and histological diagnosis of CeD.

CeD has been rarely observed during treatment with ICIs and is morphologically similar to ICI-CeD

enteropathy. Endoscopically, duodenal congestion, nodularity, or erythema were seen in 67% of patients with ICI-duodenitis, compared with 33% of patients with ICI-CeD. Few patients had concomitant upper and lower GI tract mucosal inflammatory changes.

Correlation with medication history, the finding of typical histologic changes, and re-evaluation of pathologic changes after checkpoint receptor inhibitor therapy will help confirm if an injury is likely to be an irAE.

Patients with ICI-CeD were reported to improve on a gluten free diet (GFD) as the single therapy, while some patients required the addition of immunosuppression with variable improvement in symptoms.

Conclusion: Whether ICI-associated celiac disease (ICI-CeD) reflects new onset gluten sensitivity or unmasking of previously asymptomatic CeD remains to be answered.

There is some evidence that ICI-CeD is biologically similar to ICI-duodenitis, but treatment strategies differ. ICI-CeD often improves with GFD alone, whereas ICI-duodenitis may require systemic immunosuppression.

In patients with atypical digestive symptoms in the context of ICI treatment, there is a necessity of complementary/additional investigation. Celiac disease specific antibodies (tTG-IgA assay) and duodenal biopsy are required. In the case of morphological lesions resembling CeD, serological and genetic testing should be performed for differentiating true CeD from ICI-drug-induced villous atrophy.

It might be useful to check for CeD before scheduled ICI therapy in patients with known high susceptibility to CeD, such as a family history of CeD, dermatitis herpetiformis, or chronic unexplained bowel symptoms.
Disclosure: Nothing to disclose.

PP0373

A ONE-CENTER RETROSPECTIVE STUDY OF CELIAC DISEASE SUSCEPTIBLE POPULATION IN JIANGSU PROVINCE

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Introduction: Celiac disease is a multi-organ autoimmune enteropathy caused by exposure of genetically sensitive individuals to a gluten diet. Despite the high carrying rate of susceptibility genes, celiac disease diagnostic rates in China are merely the "tip of the iceberg."
Serological tests are frequently used to screen for celiac disease and can serve as a reference for precise clinical prevention and treatment.
Aims & Methods: In the population undergoing serological screenings for celiac disease (including anti-tissue transglutaminase and anti-gliadinantibodies) at Jiangsu Province Hospital from January 2017 to November 2022, a total of 1407 patients were retrospectively enrolled.
To identify the contributing causes, the seropositive rates of celiac disease in different population and demographic characteristics were examined.
Results: In the susceptible population, the seroprevalence of anti-tTG was 1.14% (16/1407, 95%*CI* 0.70% -1.84%) indicating that the seroprevalence of celiac disease, with positive TTGA and TTGG rates of 1.12% and 0.09%, respectively.
In 7 individuals with positive serological results, endoscopic examination revealed duodenal inflammation or ulceration, suggesting that the morbidity of celiac disease in this vulnerable population can approach 0.50% (7/1407, 95%*CI* 0.22%-1.07%). The seroprevalence of AGA in susceptible population was 22.67% (319/1407, 95%*CI* 20.52%-24.97%). Multiple celiac disease serological antibodies may be present at once.
The anti-tTG and AGA IgG antibody group showed a substantially different average age between the positive and negative participants, with the positive group being 32.9±15.6 years old and the negative group being 43.8±16.9 years old ($P < 0.001$).
Conclusion: The serological positive rate of celiac disease in susceptible population in Jiangsu is 1.14% and the morbidity of celiac disease is 0.50% according to endoscopic results, which is comparable to internationally reported data.
Therefore, for a definitive diagnosis of celiac disease in a susceptible population, serological testing and endoscopic screening are advised. These tests can serve as a crucial foundation for the early diagnosis, prevention, and treatment of celiac disease.
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PP0374

CORRESPONDENCE AMONG CAPSULE ENDOSCOPY FINDINGS AND MOLECULAR SIGNATURES IN ATROPHIC ENTEROPATHIES

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Introduction: Atrophic enteropathies are characterized by villous atrophy, including transglutaminase-positive and seronegative enteropathies. Diagnosis and stratification of patients with atrophic enteropathies are often challenging[1].
Indeed, especially in seronegative enteropathies, there are no defined markers (molecular, serological, or endoscopic) for accurate differential diagnosis[2,3].
Aims & Methods: The aim of our study is to describe the concordance between small bowel endoscopic markers of atrophic enteropathies and molecular signatures. We retrospectively enrolled patients that underwent capsule endoscopy (CE) for suspected atrophic enteropathy at our Center from June 2015 to July 2022.
Endoscopic findings at CE were evaluated in association with demographic and clinical data, including malnutrition universal screening score (MUST), HLA DQ haplotype, clinical disease severity, atrophy sec. Marsh, duodenal flowcytometry (cyt), TCRγ receptor rearrangement.
Results: Eighty-two patients who underwent CE were analyzed (55 females, mean age 52 years old ± 15.08). Thirteen CE resulted with normal findings; 71 CE presented at least one pathologic finding, specifically atrophy, ulcers and/or erosions and stenosis in 62, 27 and 4 patients respectively; 22 patients showed two or more findings. Patients with >33% of SB atrophy at CE had more severe disease and a higher MUST score (p 0.0006 and p 0.0005, respectively).
When only non-CD enteropathies were taken into account, atrophy extension at CE was associated only with a higher MUST score (p 0.049). Seventeen out of 29 patients that showed no atrophy at duodenal histology, showed instead signs of distal atrophy at CE. The diagnostic accuracy for atrophy at histology of both aberrant IELs and γδ IELs was poor (respectively AUC 0.56 95% CI 0.45-0.66, p 0.26 and AUC 0.56 95% CI 0.44-0.65, p 0.37).
Conclusion: Our study shows that in atrophic enteropathies, disease extension at CE is correlated to the severity of disease and nutritional status, indicating a potential role of CE in disease characterization, staging and management.
Moreover, CE could be helpful in detecting distal atrophy in a small portion of patients which could be missed with conventional upper gastrointestinal endoscopy. γδ-IELs seem to be a good tool to discriminate CD and non-CD enteropathies.
Considering the retrospective nature of the study and the sample size, further studies are required to confirm these data.

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PP0375

THE IMPACT OF UNNECESSARY GLUTEN-FREE DIET ON GUT MICROBIOTA

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Introduction: The use of a gluten-free diet (GFD) in healthy people has been steadily increasing worldwide based upon the unproven belief that avoiding gluten enhances overall wellness. In contrast, evidence indicates that voluntary GFD has an impact on living costs, psychosocial profile and may cause malnutrition in the long-term[1,2].

Since dietary changes may significantly affect gut microbiota composition[3], we tested whether a 30-day unnecessary GFD in healthy subjects has an impact on diversity and richness of gut microbiota.

Aims & Methods: 116 fecal samples were collected from 30 thoroughly examined healthy subjects (21 females, 9 males; 34±14 years) recruited at St. Anna University Hospital in Ferrara, Italy. All subjects had no demonstrable metabolic, cardiovascular, respiratory, rheumatic and neurological illnesses and were asymptomatic for gastrointestinal symptom (established by Gastrointestinal Symptom Rating Scale, GSRS). Stool samples, collected at day 0, and 3, 7, 30 days from GFD were sequenced via shotgun metagenomic and computationally profiled (bioBAkery 3).

Data were analyzed on MetaPhlAn 4.0 and HUMAnN 3.0 for taxonomic and functional profiling, respectively and relative abundance transformed via arcsin-sqrt.

Only species present at any time point in at least 5 subjects were considered (600 species). Statistical analysis was performed using a linear mixed model and Friedman's ANOVA. P values were combined and corrected for multiple hypothesis testing (q value).

Results: Species alpha-diversity did not significantly change during 30 days of GFD ($p > 0.05$). However, during the GFD, 14 species significantly decreased ($q < 0.05$) in relative abundance. Most of the decreased bacteria belonged to Bifidobacterium genus (e.g. Bifidobacterium longum $p=0.000000003$; $q=0.000001$) or those involved in complex carbohydrate metabolism.

Conclusion: In healthy subjects, a 30-day GFD did not significantly affect gut eubiosis. However, consistent changes in the relative abundance of gut microbiota species showed a reduction of Bifidobacterium genus thus potentially affecting intestinal and immunological homeostasis and health status[4].

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PP0376

EVALUATION OF IL-15 AND RELATED BIOMARKERS IN CELIAC DISEASE PATIENTS ON GLUTEN-FREE DIET

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Introduction: Celiac disease (CeD) is an immune-mediated disease with excess morbidity and mortality. CeD is associated with inflamed intestinal mucosa, which may be mediated IL-15. There are currently no established non-invasive biomarkers to monitor disease activity following treatment of CeD.

Aims & Methods: Thus, we aimed to characterize disease biomarkers of CeD, primarily IL-15 levels, in the gut and in the serum of non-responsive CeD (NRCD), Treated responsive CeD (TrCD), and non-CeD controls to evaluate the relationship between cytokine levels and CeD disease status. Based on the existing archives of our Olmsted County Celiac Registry, we identified 29 NRCD, 30 TrCD, and 24 non CeD controls. NRCD was defined as patients with a diagnosis of CeD presenting with continued celiac symptoms and partial or total villous atrophy after 1 or more years of following a strict gluten-free diet (GFD). In contrast, TrCD was defined as patients with a diagnosis of CeD who were presenting with no celiac symptoms and normal duodenal histology after 1 year or more of a strict GFD. Control samples were matched by age, gender, and confirmed as negative celiac serology. We assessed duodenal biopsy and serum IL-15 protein expression levels in patients with NRCD, TrCD, and controls using a quantitative ligand binding assay with electrochemiluminescent detection. Furthermore, we conducted the proteomic profiling by utilizing targeted proteomics panels to assess the changes in serum and duodenal biopsy tissues samples of patients with NRCD, TrCD, or non-CeD controls.

Results: The measured levels of IL-15 in serum and duodenal biopsy samples are summarized according to disease status in Table 1. No apparent separation in median IL-15 levels (serum and gut tissue) was observed across the three groups (non-CeD controls, TrCD and NRCD). It was also difficult to draw a correlation between serum and gut tissue IL-15 levels. In

contrast to the TrCD and control groups, high variability in IL-15 levels was seen with the NRCD group, potentially due to differences in histology and/or other clinical manifestations by the subjects within the group. Interestingly, the highest IL-15 level (serum or tissue) was noted in NRCD patients with total villous atrophy. However, small n (2 out of 29) precludes definitive association.

	Non-responsive Celiac disease	Responsive Celiac disease	Seronegative controls
Age[mean +/- SD]	50.5 ± 15.5	40.9 ± 16.6	45.4 ± 15.7
Gender (female) [percent of total]	86%	73%	71%
Duration of gluten-free diet, years [mean +/- se]	5.5 ± 6.3	6.1 ± 7.2	N/A
IL-15 levels in serum samples (pg/mL)[median (interquantile range)]	7.4 (6.3-8.9)	6.9 (5.7-7.9)	6.7 (5.5-8.0)
IL-15 levels in duodenal biopsy tissue samples (pg/mg) [median (interquantile range)]	0.71 (0.58-0.96)	0.60 (0.48-0.86)	0.77 (0.60-0.9)

NRCD: nonresponsive celiac disease; RCD: responsive celiac disease; CeD, celiac disease; Samples number analyzed in NRCD (n=29/29 and n=28/29), RCD (n=30/30 and n=30/30) and non-CeD (n=24/24 and 20/24) respectively for duodenal biopsies and serum samples.

Table 1. Demographics and IL-15 protein levels in samples from patients with NRCD, RCD, and non-CeD controls.

Conclusion: Data generated from this retrospective study did not show clear difference in the mean IL-15 (serum or tissue) levels between the responsive and non-responsive CeD groups. However, for the limited number of NRCD samples with total villous atrophy, the IL-15 levels were substantially higher (either in serum or tissue) compared to partial or near normal. Testing of more samples representing the different villous atrophy status is warranted to confirm these results.

Disclosure: Study was conducted as part of a Teva funded research collaboration between the Mayo Clinic, which provided the gut biopsies and serum samples, and Teva, Pharmaceuticals Industries, Ltd., which developed and performed the assays and analyses.

PP0377

GLIADIN-RAPAMYCIN NANOPARTICLES INDUCE IMMUNE TOLERANCE TO MOUSE MODELS OF CELIAC DISEASE

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Introduction: Celiac disease is one common but refractory autoimmune intestine disease. The etiology is well-known for the gluten-sensitive enteropathy. Except dietary restriction, there is limited therapeutic methods in clinics. Nanoparticles have been demonstrated to achieve antigen-specific immune tolerance in autoimmune diseases. We improved the antigen presentation mode by nano-encapsulation of antigen.

At the same time, we give nanoparticles the ability of targeted to the liver, and investigated the safety and efficacy of nanoparticles in a mouse model of celiac disease.

Aims & Methods: C57BL/6 mice were used as the model of celiac disease and Polymeric lipid hybrid nanoparticles (PLNs) were prepared by precipitation self-assembly method using PLGA, DSPE-PEG, gliadin and rapamycin as materials. We used transmission electron microscopy, laser particle size analyzer to observe the apparent characteristics of PLNs. The antigen and drug encapsulation rate were detected, and drug release characteristics were investigated in vitro. The tissue distribution of the prepared nanoparticles was detected by loading the composite nanoparticles with IR780 fluorescent substance.

At the same time, we investigated the immune tolerance effect of PLNs in a mouse model of celiac disease through delayed hypersensitivity reaction, weight loss, intestinal injury and other apparent characteristics, inflammatory cytokines in duodenal tissue, and splenic cell proliferation activity.

Results: Animal models of celiac disease using C57BL/6 mice showed the corresponding characteristics of the disease. The three PLNs nano-drugs were stable and sustained release characteristics were obvious. Biodistribution experiments showed that the three PLNs nano-drugs targeted the liver intensively.

Results of in vivo pharmacodynamics test showed that the three PLNs nano-drugs could reduce plantar swelling hypersensitivity, weight loss, intestinal injury and inflammatory cytokines caused by Gliadin specific stimulation, and $PLN^{Gliadin+Rapa}$ had the most significant effect.

Conclusion: The nanoparticles-based drug delibery system loaded with Gliadin-Rapa has the stable structure and outstanding sustained-release effect, which can effectively inhibit the Gluten-specific allergic reactions in the C57BL/6 model, and is a potential candidate for the treatment of celiac disease.

Disclosure: Nothing to disclose.

PP0378

CROSSTALK BETWEEN MICRORNAS AND OXIDATIVE STRESS IN COELIAC DISEASE: A PILOT STUDY

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Introduction: Many studies, mostly conducted on pediatric patients, suggested that oxidative stress as well as several micro-RNAs (miRNAs) may play an important role in coeliac disease (CeD) pathogenesis. However, the interplay between oxidative stress and miRNAs regulatory functions in CeD remains to be clarified.

Aims & Methods: This pilot study was conducted to evaluate the role of miRNAs and oxidative stress in adult CeD patients and to analyze their potential interactions.

A total of 51 subjects were retrospectively included in the study: n=12 CeD patients at the time of diagnostic upper GI endoscopy (CeD-dia); n=18 CeD patients after at least one year on a gluten-free diet (CeD-fu); n=5 patients with complicated CeD (CeD-compl); n=10 control patients undergoing upper GI endoscopy for other diseases (CP); n=6 healthy controls (HC). In these subjects, a blood sample and duodenal biopsies were collected.

Based on a literature search, several miRNAs involved in the pathogenesis of CeD and with a known relationship with oxidative stress (miR-155, miR-200, miR-125, miR-192, miR-21, miR-451, miR-146 and miR-1226) were quantified with qRT-PCR in plasma.

Oxidative stress was evaluated through the measurement of the levels of 8-OHdG adduct in the DNA extracted from the duodenal tissue and from peripheral blood using High Performance Liquid Chromatography with Electrochemical Detection (HPLC-EC).

Results: Among the evaluated miRNAs, miR-451, miR-146 and miR-155 were differentially expressed between groups. In particular, compared to HC, CeD-dia and CeD-fu groups have significantly lower levels of miR-451 (p=0.01 and p=0.006, respectively). The expression of miR-146 in CeD-dia was significantly higher compared to CeD-fu patients (p=0.03), while HC demonstrated lower levels compared to both CeD-dia and CeD-fu (p=0.03 and p=0.01, respectively).

A trend toward lower levels of miR-155 was shown in HC compared to CeD-dia (p=0.05) and CeD-fu (p=0.06). The blood level of 8-OHdG were significantly higher in CeD-dia and CeD-fu patients compared to CP (p=0.05 and p=0.001, respectively). No correlations were demonstrated between tissue 8-OHdG levels and miRNAs.

By contrast, blood 8-OHdG levels were positively correlated with miR-155 in CeD-compl (r=0.9, p=0.04) and with miR-200 in CeD-fu (r=0.68, p=0.02), while negatively correlated with miR-1226 in CeD-fu (r=-0.62, p=0.04).

Conclusion: miRNAs and the oxidative stress have a role in the pathogenesis of CeD. In this pilot study, we showed that a crosstalk between these two may exist, in particular during follow-up and in complicated CeD.

Whether oxidative stress is able to up- or downregulate some miRNAs or, conversely, whether miRNAs expression is capable to modulate the response to oxidative stress in CeD patients should be evaluated in future larger studies.

Disclosure: Nothing to disclose.

PP0379

ADJUDGING THE PREDICTOR CHARACTERISTICS OF A FIRST DEGREE RELATIVE TO DEVELOP CELIAC DISEASE USING A RISK PREDICTION MODEL: INSIGHT FROM A LARGE PROSPECTIVE STUDY FROM INDIA

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Introduction: Risk prediction model for the first-degree relatives (FDRs) of having a potential to develop celiac disease (CeD) is desirable considering that this population is high risk segment. We used a statistical method to develop risk prediction and evaluated the method performance under a wide range of predictor characteristics.

Aims & Methods: Data from 537 CeD cases classified as per ESPGHAN 2012 criteria, and their 1507 FDRs were assessed over a period for 24 months. A total of 222 FDRs were observed positive on baseline screening with serum tTG-IgA. Serology negative FDRs were kept on follow up over a period of 24 months to seek the newly developed FDRs into CeD cases (NDCeD). HLA DQ2/DQ8 genotyping, Interleukin-18 (IL-18) gene polymorphisms and plasma citrulline analysis was also performed in all subjects. Prediction models were made using all predictors and risk prediction scores were calculated using binary logistic regression analysis and ROC analysis was performed to calculate the diagnostic performance of the best fit models and evaluation of model performance criteria was performed.

Results: Diagnostic performance of serum tTG-IgA was significantly better than plasma citrulline in biopsy proven NDCD (DeLong's Test p=0.038). However, multivariate analysis of diagnostic performance of best fit model from 63 combinations showed citrulline was best predictor (OR=0.92, p=0.04). In the second part of the study, analysis was performed in between symptomatic FDRs (n=690) and oligosymptomatic/silent FDRs (n=64). For the identification of potential CeD over a period of 24 months, risk prediction model based on the combination of tTG-IgA (OR=1.01, p=0.017) and IL-18 polymorphisms (OR=18.37, p=0.005) depicts best prediction.

Conclusion: HLA DQ2/DQ8 showed poor predictor characteristics. Model based on citrulline in immediate diagnosis of the silent and potential CeD was a good model but poor predictor of developing CeD. However, the risk prediction model utilising IL-18 polymorphisms and tTG-IgA had a better performance for the identification of the development of potential CeD.

Disclosure: Nothing to disclose.

PP0380

RESILIENCE, DEPRESSION AND QUALITY OF LIFE IN ADULT COELIAC PATIENTS ON A GLUTEN-FREE DIET: A PROSPECTIVE ITALIAN MULTICENTER SURVEY

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Introduction: Coeliac disease (CeD) has been linked to decreased quality of life (QOL) and psychological morbidity, either due to the disease course itself, or to the effort required to maintain strict adherence to a gluten-free diet (GFD) over the long-term. High levels of resilience, the ability to recover from adversity, have been associated with better QOL in patients affected by chronic diseases. However, data on resilience in coeliac patients are lacking.

Aims & Methods: We aimed to assess the resilience in patients with CeD on a GFD, and how this is associated with sociodemographic factors, clinical factors, quality of life, and psychological disorders such as anxiety and depression. Methods: Adult CeD patients on a GFD and under regular follow-up at four Italian centres were prospectively proposed participation to a survey between February-2022 to April-2023. Clinical and demographic data were collected. The Connor-Davidson Resilience Scale (CD-RISC), the Celiac Disease-specific Quality of Life Scale (CD-QOL), the State-Trait Anxiety Inventory scale (STAI-Y) and the Beck Depression Inventory scale (BDI) were used to evaluate degree of resilience, QOL anxiety and depression, respectively. A multivariate analysis, including all variables related to resilience to univariate analysis, was conducted using the backward elimination model to identify factors independently associated with the degree of resilience.

Results: We included in this study 305 patients (221 F, mean age at CeD diagnosis 36.6±16.3 years; mean age at enrolment 47.9±15.4 years) on a GFD for a mean of 11.3± 10.4 years. 298/305 (97.7%) patients had a high level of resilience (CD-RISC ≥35). QOL scores were good overall (median 84, IQR 73-91). Anxiety scores were suboptimal (STAI-Y1 median 39, IQR 32-49; TAI-Y2 median 40, IQR 33-49). Depression scores were low overall (BDI median 7, IQR 2-14). At the univariate analysis, resilience was statistically associated to gender (p=0.02), age at enrolment (p=0.01), civil

status (p=0.1), quality of life (p<0.001), anxiety (p<0.001) and depression (p<0.001). Backward elimination multivariate regression analysis showed that trait- anxiety (STAI-Y2, p<0.01) and depression (BDI, p=0.02) were the only independent predictors of lower levels of resilience (CD-RISC).

Conclusion: Patients with CD have high levels of resilience overall. Higher treat-anxiety and depression scores predicted lower levels of resilience. Targeted interventions in this subgroup of patients may be helpful for their management and follow-up.

Disclosure: Nothing to disclose.

PP0381

NO-BIOPSY DIAGNOSIS OF COELIAC DISEASE IN ADULTS: IMPLEMENTATION AND PATIENT PERCEPTIONS

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Introduction: The revised Finnish guidelines for coeliac disease in 2018 enabled for the first time to establish a no-biopsy diagnosis in adults with serum transglutaminase antibodies >10x upper limit of normal and positive endomysial antibodies. We investigated the implementation of the new guidelines and significance of the diagnostic process on the treatment success and patients´ experiences.

Aims & Methods: Altogether 194 adult members of the Finnish Coeliac Society diagnosed after 2018 answered to a comprehensive study questionnaire concerning socio-demographic and health-related characteristics and quality of life and various coeliac disease-related issues. The results were compared between patients diagnosed with and without duodenal biopsy.

Results: Sixty-nine (36%) patients were diagnosed without a biopsy. They were younger (median age 44 vs. 52 years, p=0.029), diagnosed less often in hospital settings (11% vs. 35%, p=0.001), suffered less often from oesophageal symptoms (17% vs. 30%, p=0.047) and osteoporosis (1% vs. 10%, p=0.035) and experienced the diagnostic process more often easier (49% vs. 30%, p=0.032) than those diagnosed by biopsy (n=125). The no-biopsy group had also been informed on their diagnosis more often by other healthcare professional than a physician (14% vs. 4%, p=0.046) and reported more persistent symptoms (36% vs. 21%, p=0.026) and stress due to the gluten-free diet (68% vs. 47%, p=0.042). The groups did not differ in gender, socio-economic characteristics, general health, quality of life, other than oesophageal symptoms, diagnostic delay, presence of follow-up or experiences of a gluten-free diet or dietary adherence. After adjusting the groups with age, the difference in osteoporosis was no longer significant.

Conclusion: Up to one-third of adult coeliac disease patients were diagnosed without gastrointestinal endoscopy, which may provide less burdensome diagnostic process and significant healthcare savings. However, increased risk for persistent symptoms and dietary stress in these patients remind that adequate guidance at diagnosis regardless of the diagnostic process and healthcare unit should be provided.

Disclosure: Nothing to disclose.

PP0382

FLOW CYTOMETRY FOR THE ASSESSMENT OF ABERRANT INTRAEPITHELIAL LYMPHOCYTES IN NON-RESPONSIVE COELIAC DISEASE AND NON-COELIAC ENTEROPATHIES

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Introduction: Patients with coeliac disease (CD) and unsatisfactory clinical response to a gluten-free diet (GFD) are identified as having non-responsive coeliac disease (NRCD), and may require investigations to exclude possible complications of CD. Refractory coeliac disease (RCD) is the most common complication of CD and can be divided into RCD type 1 and type 2 based on intraepithelial lymphocyte (IEL) immunophenotyping. Methods for the assessment of IEL phenotype in RCD include traditional immunohistochemistry (IHC), PCR-based clonality analysis of TCR-ɣ gene rearrangement and flow cytometry (FC). However, the role of monitoring IEL immunophenotype with FC in patients with NRCD and known RCD is poorly defined. Moreover, very little is known about the utility of FC for evaluating IEL phenotype in patients with non-coeliac enteropathies (NCEs), for which differential diagnosis with RCD is challenging.

Aims & Methods: We aimed to investigate the reproducibility and significance of monitoring IEL immunophenotype with FC in patients with RCD, NRCD, and NCEs under regular follow-up at a referral centre. Patients who underwent FC for IEL immunophenotyping between January-2012 and February-2023 were divided into two groups: group 1) patients with known RCD or patients with NRCD in whom complications of CD were suspected; group 2) patients with NCEs lacking clinical and histological response. Data was retrospectively collected on clinical features, IEL immunophenotyping with FC, IHC, analysis of ɣ-TCR clonality, and on mortality and progression to lymphoma. An aberrant IEL phenotype was defined as >20% CD103+,CD3-,CD8-,CD3ε+ at FC. Reproducibility of FC results and concordance of FC with IHC and ɣ-TCR clonality analysis were evaluated. Overall survival and lymphoma-free survival were compared among coeliac patients based on IEL phenotype at FC.

Results: 52 patients (18 RCD, 21 NRCD, 13 NCEs; 38 F, mean age at FC testing 55±13 years) underwent 100 total FC IEL phenotype determinations and an aberrant IEL phenotype was found at FC in 9/52 (7RCD, 2NRCD). 22 patients had at least two FC determinations during follow-up. Interestingly, immunophenotype (both aberrant and normal) remained unchanged in all these 22 patients (Cohen's κ=1.00). Concordance of FC with IHC was fair (Cohen's κ=0.40) but only minimal with ɣ-TCR clonality (Cohen's κ=0.22). Over a median follow-up of 33 months (IQR 3-59) after FC, 6/52 (11%) progressed to lymphoma and 13/52 (25%) died. Mortality was markedly increased in coeliac patients with aberrant IELs compared to those with a normal immunophenotype (89% vs 7% mortality, HR 5.5, 95% CI 1.8-17.3, p<0.01). None of the 13 patients with NCEs showed an aberrant IEL phenotype at FC, although 3/13 developed lymphoma and 4/13 died (three lymphoma, one pulmonary adenocarcinoma).

Conclusion: FC is an accurate and reproducible tool for evaluating IEL phenotype in patients with RCD and NRCD and provides valuable prognostic information. Further study is needed on the diagnostic and prognostic role of FC in NCEs.

Disclosure: Nothing to disclose.

PP0383 WITHDRAWN

PP0384

THE PREVALENCE OF COELIAC DISEASE IN RANDOM ASYMPTOMATIC INDIVIDUALS USING A POINT-OF-CARE TEST

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Introduction: Coeliac disease is an autoimmune disease that affects the small bowel in genetically predisposed people precipitated by the ingestion of gluten. Worldwide prevalence has been estimated at around 1%.

Aims & Methods: To screen for coeliac disease using a point of care (POC) testing kit in a random cohort of asymptomatic people in the Maltese Islands, where no prevalence study data is available.

A random sample of people aged 18-75 years were invited to participate and were tested using the professional Biocard™ Celiac Test. This is a rapid immune chromatographic lateral flow test for the qualitative detection of anti-tissue transglutaminase IgA antibodies (TTG IgA) from a fingertip blood sample.

All the results were read by the same gastroenterologist within 10minutes. This test also measures total IgA measuring the presence of IgA antibodies in the sample which reduces the risk of false negatives due to IgA deficiency. Patients with a positive test were offered serological blood tests to check the level of TTG IgA and antiendomysial antibodies (EMA) and an oesophagogastroduodenoscopy (OGD) with duodenal bulb and 2nd part of the duodenum biopsies.

Results: 1251 people were tested using the point of care test (52.6% Female, Mean Age 41.2; SD +/-11.4).

9 patients (0.7%) had a low IgA level, 4 patients underwent serological testing for IgA and a TTG IgG and confirmed the low IgA and a negative TTG IgG result. The rest refused the tests.

9 patients (0.7% of the screened cohort) (77.8% female, p=0.13) had a positive POC test. From these, 1 patient refused further serological tests or an OGD. 87.5% (7/8 patients) were confirmed to have coeliac disease and these all had a TTG IgA level >100Iu/mL or more than 10 times the upper limit of normal (Normal range0.1-9.0 IU/mL) and also a strongly positive EMA of 3+. 1 patient had an OGD with normal biopsies as well as a TTG IgA level ≤30iu/mL or less than three times the upper limit of normal. The EMA level was weakly positive (1+). Marsh classification for the confirmed cases showed 55.6% Marsh 3b, 44.4% with Marsh 3c.

Conclusion: The prevalence of coeliac disease in adults in the Maltese Islands using a point of care test is 0.7%. On further testing with confirmatory duodenal biopsies, 0.56% (7/1250 patients) of patients were confirmed to have CD on duodenal biopsies. This confirms that duodenal biopsies are still required in patients whose TTG IgA levels are <10 the upper limit of normal.

Furthermore, the clinical question arises of how patients with positive coeliac serology which is <10 the upper limit of normal, positive genetic studies and normal duodenal biopsies be followed up.

Disclosure: Dr Sciberras received funding from Dr. Schär.

PP0385

OTHER SPECIAL DIETS IN ADDITION TO GLUTEN-FREE DIET ARE COMMON IN ADOLESCENTS AND YOUNG ADULTS WITH CELIAC DISEASE, BUT DO NOT ASSOCIATE WITH OVERALL WELLBEING OR TREATMENT SUCCESS

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Introduction: Various special diets have become increasingly common. These may have particular effect on the well-being and coping of patients with celiac disease (CeD) who already have a major dietary restriction in a form of gluten-free diet (GFD).

At present, however, the prevalence and significance of other special diets in patients with CeD remain obscure. We studied these issues in a large cohort of adolescents and young adults.

Aims & Methods: Altogether 211 16-30-year-old members of Finnish Celiac Society with CeD replied to a web survey comprising questions about demographic data, education and employment, health-related issues, daily diet and treatment of CeD. All variables were compared between CeD patients with and without other special diet in addition to GFD.

Results: Median age of the responders was 25 (quartiles 19, 29) years, 83% were females, 52% students, 41% working and 6% unemployed or on parental leave.

Altogether 33% reported other special diets besides GFD, the most common of these being vegetarian or vegan diet (9%), major/multiple food allergies (4%) and low-FODMAP (3%) or other (4%) diet for irritable bowel syndrome. CeD patients with other diet reported more often non-binary gender (4% vs 0%, p=0.042) than those with GFD only, whereas there was no significant difference in age, body mass index, student or employment status, physical activity, use of alcohol and tobacco products, or age at CeD diagnosis.

Altogether 11% reported difficulties to combine GFD and other special diet, but there was no significant differences between patients with and without the other diet in GFD adherence (100% vs. 97%, p=0.481), prevalence of persisting symptoms (20% vs 27%, p=0.377), health concerns (17% vs. 11%, p=0.481) or overall well-being.

Conclusion: One-third of adolescents and young adults with CeD reported other special diets in addition to GFD, but these did not associate with overall well-being or treatment success.

Disclosure: Nothing to disclose.

PP0386

FACTORS ASSOCIATED WITH REDUCED QUALITY OF LIFE IN COELIAC DISEASE PATIENTS AT DIAGNOSIS AND IMPROVEMENT ON A GLUTEN-FREE DIET

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Introduction: Coeliac disease-associated symptoms recover usually on a gluten-free diet (GFD) while its effect on the quality of life is not as straightforward. Some patients experience the diet burdensome and socially resctritive, which predispose them to negative experiences. Deciphering factors associated with reduced quality of life at coeliac disease diagnosis and significant improvement on GFD would be important for optimal treatment outcomes. We studied these issues in a prospective patient cohort.

Aims & Methods: Medical data on 178 adult coeliac disease patients were gathered at diagnosis and after one year on a strict GFD via structured interviews including Psychological General Well-Being (PGWB) and Gastrointestial Symptom Rating Scale questionnaires. Data were supplemented with available medical records.

Decreased quality of life was defined as PGWB total score below the 25th percentile and significant improvement as a change in PGWB total score above the 75th percentile of the whole cohort. Logistic regression model was used to discover the factors associated with reduced quality of life and significant improvement on GFD.

Results: Decreased quality of life at diagnosis was associated with female sex (odds ratio 2.83, 95% confidence interval 1.15-6.97), severe gastrointestinal symptoms (4.02 [1.84-8.77]), presence of psychiatric comorbidities (17.7 [1.99-156]) and clinically vs. screen-detected presentation (2.54 [1.17-5.50]). Same factors increased risk for decreased quality of life on a GFD. Significant improvement in the quality of life was associated with reduced quality of life (5.98, [2.67-13.4]) and severe gastrointestinal symptoms (4.92 [2.24-10.8]) at diagnosis, autoimmune comorbidities (2.65 [1.12-6.31]), and clinically vs. screen-detected presentation (4.54 [1.98-10.5]).

Conclusion: Female sex, psychiatric comorbidities and severe gastrointestinal symptoms were associated with reduced quality of life both at coeliac disease diagnosis and on GFD. These patients may need additional support in health care, and good response to GFD should be documented. On the other hand, especially patients with severe symptoms and decreased quality of life at diagnosis as well as those with autoimmune comorbidities seemed to benefit from GFD.

Disclosure: Nothing to disclose.

PP0387

THE VIRTUAL CELIAC SYMPTOMS STUDY: REPORTED SYMPTOMS OVER 12 WEEKS IN ADULTS

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Introduction: Celiac disease (CeD) is a chronic, immune-mediated, systemic disorder characterized by inflammation of the small intestine, antibody formation and villous damage in response to gluten ingestion. The only current management/treatment option for CeD is a gluten-free diet (GFD), which has major limitations, not least that patients following a GFD may still experience symptoms.

The US Food and Drug Administration guidance 'Celiac disease: developing drugs for adjunctive treatment to a GFD' indicates that symptom monitoring should be a co-primary endpoint with histology for the assessment of disease improvement in clinical trials.

Aims & Methods: This US prospective observational study (Virtual Celiac Symptoms Study, NCT05309330) aimed to assess experience with a GFD and celiac-related symptoms in patients with CeD. Eligible participants were aged ≥12 years, had a CeD diagnosis for ≥1 year confirmed via self-reported biopsy (biopsy or serology for participants aged <18 years), were on a GFD for ≥6 months and reported CeD-related symptoms in the past 3 months. Participants were recruited with the assistance of the Celiac Disease Foundation via digital advertisements and data were collected using an electronic patient-reported outcomes platform. Study participants were followed up for 12 weeks and CeD-related symptoms and gluten exposure were assessed daily. Quality of life and healthcare resource utilization were also assessed. This analysis focuses on the gastrointestinal (GI) symptoms of diarrhea, abdominal pain, bloating, nausea and vomiting experienced by adults during the study.

Symptom	Participants with GI symptom(s) over the 12-week follow-up period, n (%)	Proportion of days with symptom occurrence over the 12-week follow-up period, %[a]
Bloating	333 (98.5)	60.5
Abdominal pain	335 (99.1)	52.9
Diarrhea	321 (95.0)	32.0
Nausea	319 (94.4)	30.2
Vomiting	142 (42.0)	6.0

[a]Among participants who experienced each symptom.
GI, gastrointestinal.

Table 1. GI symptom occurrence among adult participants (N = 338)

Results: The study was conducted from July 25, 2022 to March 4, 2023. Adults comprised 338 of the 480 participants (88% female; 99% White) with a median age of 37 years (range 18–71).

At baseline, 58% of adult participants reported CeD-related symptoms in the past week. All adult participants reported following a GFD; 21% reported "*never eating gluten accidentally or on purpose*" and 71% reported "*rarely eating gluten accidentally*".

The remaining 8% reported "*rarely eating gluten on purpose*". During the 12-week study, all of the adults reported at least one GI symptom, with each GI symptom (with the exception of vomiting), occurring at least once in over 90% of adults (abdominal pain 99%, bloating 99%, diarrhea 95%,

nausea 94% and vomiting 42%). Frequency of GI symptoms was high. For adults who experienced abdominal pain or bloating, these symptoms occurred on >50% of the follow-up days. For adults who experienced diarrhea and nausea, these symptoms occurred on >30% of days (Table 1).

Conclusion: Despite participants adhering to a GFD, symptom frequency in this adult population with CeD was high. GI symptoms such as diarrhea, nausea, bloating and abdominal pain may be appropriate endpoints for inclusion in clinical trials of potential CeD therapies. This study further highlights the unmet need for additional treatments for patients with CeD on a GFD.

Disclosure: **LMM** and **DAL** are employees of Takeda Development Center Americas, Inc. and receive stock or stock options. **JRM, SSe** and **SSu** are employees of Analysis Group, Inc., which received research support from Takeda Development Center Americas, Inc. **MG** is an employee of the Celiac Disease Foundation, which received financial support from Takeda Development Center Americas, Inc. **EL** and **DA** serve as consultants for Takeda Pharmaceuticals.

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PP0388

RESURFACE OF ANTI-GLIADIN ANTIBODIES IN CELIAC DISEASE? A PROGNOSTIC TOOL FOR ASSESSING MUCOSAL RECOVERY IN CELIAC DISEASE

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Introduction: Celiac disease (CD) is a complex multi-systemic autoimmune disease. The present study aims to determine the rate of mucosal recovery and predictors of persistent mucosal damage after GFD. There is still little evidence on the best method for assessing gluten-free diet (GFD) adherence and mucosal recovery during treatment.

Aims & Methods: The retrospective study included only adult patients (age≥18 years old), with biopsy-proven CD evaluated at a tertiary referral centre between 2016-2021.We performed a logistic regression analysis to identify factors associated with partial mucosal recovery (MR) after GFD. We included in the multivariate analysis parameters available at the time of CD diagnosis.

Results: A total of 102 patients were enrolled, two thirds were females, median age of 39 yrs. The initial biopsy analysis showed different stages of villous atrophy (VA) in 79 (77.4%) cases, while 23(22.5%) cases showed mild enteropathy (Marsh 1,2). After at least 12 months of GFD, 26 (25.5%) patients had persistent VA despite good or excellent adherence to GFD. Younger patients (< 35yrs), who showed severe mucosal damage (Marsh 3c lesions) and who had increased anti-gliadin antibody (AGA) levels were at risk for failure to obtain mucosal recovery (MR). The multivariate Cox regression analysis demonstrated that complete mucosal atrophy (p = 0.007) and high AGA antibody levels (p = 0.001) were independent risk factors for a lack of mucosal improvement after at least 12 months of GFD. Interestingly, genotype, tTG-IgA antibody levels, or duration of GFD levels did not influence the occurrence of MR.

Conclusion: Although AGA seropositivity has lost much of their diagnostic significance in recent years due to the introduction of the more sensitive and specific antibody tests, our study reported that patients aged < 35yrs, who showed severe mucosal damage (Marsh 3c lesions) and who had increased AGA antibody levels at diagnosis were at risk for failure to obtain MR. The elevated AGA levels at diagnosis could be used as a prognostic tool for assessing MR.

Disclosure: nothing to disclose.

PP0389 WITHDRAWN

PP0390

UTILITY OF FLOW CYTOMETRY IN THE PREDICTION OF OUTCOME OF REFRACTORY COELIAC DISEASE TYPE II (RCD II)

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Introduction: RCD is defined by persistent or recurrent malabsorptive symptoms and villous atrophy despite adherence to a gluten free diet (GFD) for at least 6-12 months. RCD can be classified as type I (normal intraepithelial lymphocyte phenotype) or type II (abnormal or aberrant IEL phenotype, i.e. IELs that have lost surface expression of CD3 and CD8 but retained cytoplasmic CD3 expression.

RCD II can be diagnosed by immunohistochemistry (reduced CD8 staining), molecular analysis (TCR gene rearrangement studies) or flow cytometry.

Flow cytometry provides a rapid, quantitative assessment of the degree of aberrancy (% of abnormal IELs/total number IELs) in patients with non-healing CD and may help predict the risk of future development of EATL.

Aims & Methods: The aim of this study was to evaluate the utility of flow-cytometry for the prediction of EATL and mortality in patients with RCDII in a tertiary referral centre.

The results of all flow cytometry assays performed on duodenal biopsies since commencement of the service were reviewed in addition to patient outcomes. RCD II was defined as a % aberrancy of IELs of >20%.

Results: 55 assays were performed on 38 patients. RCD II was identified in 10 patients (6 females), all of whom had evidence of clonality on TCR gene rearrangement studies. 3/10 had normal staining for CD^3/CD^8 and would have been misdiagnosed on immunohistochemistry alone.

Median age of RCD II diagnosis was 63 years, and median time to RCD II development from CD diagnosis was 9 years. Mean and median follow up was 6 years.

The mean and median % aberrancy of IELs were 73% and 79%.

The mean and median % aberrancy of those who died (n=5, 4EATL, 1 neuro-coeliac) were 75% and 80% respectively, and of those who survived were 68% and 66%, respectively.

All patients were treated with budesonide which improved clinical and histological findings but serial flow studies where available failed to demonstrate a reduction in the degree of aberrancy. 5 patients received ASCT for RCD II alone.

On follow up, 1 patient had complete loss of clonality in spite of persistent aberrancy (43%) 11 yrs post ASCT. A further patient demonstrated a drop in aberrancy from 52% to 21% within 4 months of ASCT but experienced a steady rise again to 47%, 55%, and 72% at 1, 2 and 8 years post ASCT with the eventual development of EATL at 9 years post ASCT.

Conclusion: Flow cytometry is an efficient and reliable method to asses for RCDII. Mortality risk appears to correlate with the degree of aberrancy. Serial measurements demonstrating a steady rise in the percentage of aberrant IELs may signal impending EATL.
Disclosure: Nothing to disclose.

PP0391

POOR CORRELATION BETWEEN ANTI-TTG IGG AND MUCOSAL RECOVERY IN THE IGA-DEFICIENT COELIAC

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Introduction: Selective IgA deficiency occurs in 0.3% of the population but is observed in 3% of people with coeliac disease (CD). Measurement of anti-TTG IgG provides an alternative screening test to anti-TTG IgA in such a cohort. However there is a paucity of data regarding the correlation between the decline in the anti-TTG IgG levels and mucosal healing following initiation of a gluten-free diet in IgA-deficient coeliac disease.
Aims & Methods: We set out to:
1. Assess the rate of decline of anti-TTG IgG following gluten elimination in patients with IgA deficient coeliac disease and
2. Assess the correlation between anti-TTG IgG and mucosal healing following gluten elimination. IgA-deficient patients were identified retrospectively from the coeliac database. Clinical, laboratory and histologic data were retrieved from the electronic patient record (EPR) and patient symptoms were recorded from the contemporaneous clinical notes.
Results: 19 patients with IgA-deficient CD were identified. Eight patients (42%) were male and 11 (58%) female. Median (IQR) age at diagnosis was 25 years (15, 39). Symptoms reported included bloating (34%), abdominal pain (21%), diarrhoea (21%) and fatigue (21%). Five patients (26%) had at least one other autoimmune condition. Three patients (15.7%) had normal tTG igG on first testing, having been diagnosed on the basis of duodenal biopsy at another centre. Of those who reported adherence to gluten free diet after diagnosis, 40%, 25% and 25% of IgA deficient coeliacs normalized their IgG anti-TTG levels at 1, 3 and 5 years respectively. Of those patients whose duodenal histology normalised after elimination of dietary gluten, only 21.4% had concurrent normalisation of anti-TTG IgG.
Conclusion: The decline in IgG anti-TTG following gluten elimination does not correlate with mucosal healing. IgA-deficient coeliacs can be reassured that a persistently positive IgG anti- TTG does not signify ongoing gluten ingestion and physicians can be reassured by histologic recovery in such patients irrespective of the anti-TTG titre.
Disclosure: Nothing to disclose.

PP0392

IMPACT OF GLUTEN-FREE DIET ON PSYCHOLOGICAL ISSUES ASSOCIATED WITH CELIAC DISEASE

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Introduction: Celiac disease (CD) has been associated with reduced quality of life and psychological disorders, among which the most common are anxiety and depression [1, 2]. Several reports have focused on the difficulties of living with CD, particularly regarding its impact on physical, social and emotional factors in adults.
Aims & Methods: The cross-sectional study evaluated the changes in the anxiety and depression of 48 patients with CD. The control group was consisted of 20 people without gastrointestinal diseases. Several validated questionnaires were administered to measure psychological symptoms (the Medical Outcomes Study Questionnaire Short Form 36 Health Survey (MOS SF-36), Hospital Anxiety and Depression Scale (HADS) and State-Trait Anxiety Inventory (STAI)) and adherence to a gluten-free diet (GFD). Based on the results GFD the patients divided into two groups. The first group patients have not been adhered to a GFD and the second group patients have been strictly following a GFD.
Results: To decrease of the level physical and mental components of the quality of life was determined in patients with CD in comparison with the control group (36.1 and 40.0, respectively; $p < 0.01$). The most of the patients with CD (72.8%) had anxiety reactions.
According to HADS anxiety has reached clinically significant level in 43.7% patients with CD. STAI score state anxiety and trait anxiety have been elevated in patients with CD ($p < 0.01$). Its haven't been significant differences in the frequency and severity of anxiety in patients with CD without and with GFD. Symptoms of depression have been more frequently in patients with CD with GFD, however it's have not been reached a clinically significant level.
Conclusion: The features of emotional disturbances in patients with CD include the prevalence of the frequency of anxiety over the depression. The results showed no correlation between anxiety and adherence to GFD. The severity of depression increased in patients with GFD. This finding is consistent with Barratt et al.'s finding that difficulty with GPA compliance is a major factor in reduced quality of life [3].
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Disclosure: Nothing to disclose.

PP0393

INCIDENCE OF VITAMIN A DEFICIENCY IN PATIENTS WITH GASTROINTESTINAL CONSEQUENCES OF CANCER TREATMENT

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Introduction: Limited knowledge regarding vitamin A deficiency in cancer patients is available. Vitamin A is a fat-soluble vitamin crucial for cell development, immune competency, metabolism and vision.

Absorption of vitamin A in the proximal parts of the small intestine follows its hydrolyzation by pancreatic and intestinal enzymes and emulsification by bile acids. Xerophthalmia and incipient night blindness can serve as clinical reminder of vitamin A deficiency and can be a reversable phenomenon.

The aim of our study was to establish the incidence of vitamin A deficiency in patients suffering from bile acid malabsorption (BAM) and/or syndrome of intestinal bacterial overgrowth (SIBO) and/or exocrine pancreatic insufficiency (EPI) as a consequence of cancer treatment.

Aims & Methods: This was a retrospective evaluation of data in individuals reviewed within twelve months period (January 2022 - December 2022) in a specialized gastroenterology clinic in a tertiary centre. Patients who had undergone any anti-cancer treatment (chemotherapy and/or radiotherapy/and or surgery) and have been suffering from gastrointestinal (GI) symptoms are referred to this clinic.

The electronic patient records system was searched. Demographic data, incidence of BAM (assessed with SeHCAT scan: retention on day 7 <20%) and/or SIBO (evaluated by glucose breath test – positivity in production of hydrogen and/or methane) and/or EPI (based on investigation of faecal elastase: <200ug/g) and serum vitamin A levels (normal ranges: 1.07-3.55 µmol/L) were assessed.

In one patient who could not have the above investigations due to severity of symptoms, therapeutic trial resulting in clear response to medication (Rifaximin / pancreatic enzymes) was used for the diagnosis of SIBO or EPI. The study was approved by CCR committee (reference number: SE 1267

Results: A total of 453 consecutive patients were seen. Out of 453 patients, 23% (101/453) were diagnosed with BAM, 4% (17/453) with BAM and SIBO, 3% (14/453) with BAM and EPI, 3% (15/453) were diagnosed with SIBO, 3% (12/453) with EPI and 2% (10/453) with SIBO and EPI. Out of 169 patients (169/453; 37%) who suffered from BAM and/or SIBO and/or EPI, five patients (3%; 5/169) were diagnosed with serum vitamin A deficiency.

Three of them (2%; 3/169) received oral supplementation (those were diagnosed with BAM+EPI, SIBO+EPI and isolated EPI) and two (1%; 2/169) required intramuscular supplementation due to a significantly impaired vision, mainly night blindness and a very low serum vitamin A level (0.11 µmol/L; 0.25 µmol/L).

The first patient (diagnosed with SIBO in combination with EPI) received three doses of vitamin A 100.000 IU and another ten doses of 50.000 IU intramuscularly.

The second patient (diagnosed with BAM) received a single dose of vitamin A 100.000 IU and four doses of 50.000 IU intramuscularly.

In the first patient who had a more prolonged history of nutritional deficiency as well as possible additional as yet undiagnosed cause for the retinal dysfunction, vision improved but the patient continued to have reduced visual function. In the other patient the vision returned to normal. The most recent serum vitamin A levels have been 1.73 µmol/L and 1.76 µmol/L.

Conclusion: Incidence of vitamin A deficiency in a cohort of patients who underwent treatment for cancer and developed GI consequences was 3%, however it can be severe, with significant clinical consequences. Timely recognized severe vitamin A deficiency can be reversible if an appropriate parenteral supplementation is administered.

Disclosure: No conflict of interest

PP0394

INCIDENTAL SMALL BOWEL LYMPHANGIECTASIA ARE ASSOCIATED WITH LOWER SERUM PROTEIN, ALBUMIN AND TRIGLYCERIDES

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Introduction: Lymphangiectasia and lymphangiectic cysts result from dilated intestinal lacteals due to disordered drainage. This can result in leakage of lymph into the lumen with resultant hypoproteinaemia, hypogammaglobulinaemia, hypoalbuminaemia and a lymphopenia (1,2). This is most clinically apparent in those with widespread severe change, such as congenitally anomalous drainage or secondary causes including, infections, lymphoma/malignancy, inflammation or radiotherapy (1,3,4). This can result in malabsorption or widespread failure of lymphatic drainage.

It is unclear whether subtle incidental lymphangiectasia without clinical malabsorption are significant. Subtle, incidentally noted changes including scattered pinpoint white spots, prominent villi with white tips and small focal macules or nodules (5) are an increasingly common finding. With increased use of high-definition capsule technology, more subtle changes are increasingly recognised. Older studies show these are common, with follow up and fat absorption studies concluding that incidentally noted dilated lacteals, without clinical malabsorption likely did not require follow up (5–7).

Aims & Methods: We aim to assess whether the incidental, and "clinically insignificant", lymphangiectasia seen on capsule endoscopy are associated with changes in protein, albumin, cholesterol, triglyceride, calcium or lymphocyte levels. The hypothesis being that more subtle lymphatic anomaly will result in a more subtle biochemical picture.

Values are stated as means (+/- SD) with P values calculated using two tailed t-test or Chi square, <0.05 taken as significant.

Results: 21 patients with lymphangiectasia noted to be the only, or main, finding on capsule endoscopy were retrospectively reviewed. 21 age and gender matched controls (61.9% male, aged 52 (+/-15) years) with normal capsule and colonoscopies were extracted for comparison. Comorbidities and blood results were recorded for each.

Two patients with clinically significant widespread lymphatic changes secondary to systemic disease (disseminated mycobacterial infection and end stage cirrhosis both with lymphatic obstruction) were excluded. The remaining patients had either incidental scattered white tipped villi, discrete nodules/polyps of dilated white villi, or discrete chylous cysts (or a combination of these).

	Lymphangiectasia (n=19)	Control (n=21)	p value
Age (years +/- SD)	52 (+/-16)	52 (+/-15.1)	0.984
Male (%)	57.1	61.9	0.935
Past medical history	4 none (or IBS), 3 inactive IBD, 3 malignancy, 3 asthma, 3 hypertension, 2 diabetes, 2 IHD, 1 structural cardiac disease, 1 CKD, 1 HIV, 1 thyroid dysfunction.	7 none (or IBS), 2 inactive IBD, 1 malignancy, 3 hypertension, 2 diabetes, 1 IHD, 1 CKD, 2 COPD, 1 sarcoidosis, 1 Meniere's, 1 hypogammaglobulinaemia, 1 TIA, immunodeficiency, 1 thyroid dysfunction.	
Total protein (g/L)	66.9	72.2	**0.00967**
Albumin (g/L)	44.3	46.5	**0.032**
Adj. Calcium (mmol/L)	2.23	2.28	0.0627
Cholesterol (mmol/L)	4.5	4.87	0.401
Triglycerides (mmol/L)	1.38	1.99	**0.038**
Lymphocytes (x10-9)	2.23	2.01	0.365

Table 1: Lymphangiectasia and controls.

Conclusion: This study would suggest that those with lymphangiectasia have lower protein, albumin, calcium, cholesterol, and triglyceride levels (protein, albumin and triglycerides reaching statistical significance). There is a paucity of recent research in this field and the historical assumption that incidentally noted lymphangiectasia are meaningless may not be entirely accurate. Correlation does not equal causation as these markers are dependent on a huge number of factors. This is a small patient group, and a larger study would be required to further explore this. Selectively blocking small bowel lymphatics may represent a potential therapeutic target and further research in this field could have a range of clinical implications.

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Disclosure: Nothing to disclose.

PP0395

LOW DOSE LIRAGLUTIDE WITH PRAGMATIC DOSE ESCALATION ACHIEVES REMISSION IN MORE THAN HALF OF 27 PATIENTS WITH SEQUESTRANT-REFRACTORY BILE ACID DIARRHOEA: A CASE SERIES

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Introduction: Bile acid diarrhoea is a common cause of chronic watery diarrhoea. Recent randomised studies have demonstrated the effect of the sequestrant colesevelam and the glucagon-like peptide-1 analogue, liraglutide (1, 2).

The colesevelam dose was titrated to effect, while liraglutide was increased to the maximum dose of 1.8 mg daily. No therapeutic guidelines have incorporated these findings, and the optimal dosing is not settled.

Aims & Methods: We aimed to describe the effect of second-line treatment with liraglutide with pragmatic dose-escalation on remission of bile acid diarrhoea refractory to sequestrant therapy.

From the 1st of April 2022 to the 3rd of March 2023, patients with bile acid diarrhoea either diagnosed by SeHCAT retention of less than 15% or by a history of small bowel resection were included from our outpatient clinic. The patients were either intolerant to or had treatment failure of sequestrants (colestyramine and/or colesevelam) and fulfilled the Hjortswang diarrhoea criteria (3 or more stools or 1 or more watery stool per day).

Diary-recorded bowel habits were evaluated by the mean daily total number and the daily mean number of watery stools (Bristol stool chart type 6 and 7). A dose of 0.6 mg/day liraglutide was initiated at baseline.

Patients were evaluated every two to three weeks; patients without remission and no significant adverse events had the dose increased in increments of 0.6 mg/day liraglutide, possibly to a maximum dose of 1.8 mg/day liraglutide. Remission was defined as a daily mean of < 1 watery bowel movement and < 3 total bowel movements.

The total number of bowel movements and the number of watery bowel movements were log-normally distributed. Geometric means of the baseline were compared with values at the final treatment dose using paired t-test. Clopper-pearson's confidence interval was used for the binary remission data.

Results: A total of 27 patients were included, of whom 19 (70%) were female and the mean weight at baseline was 93 kilograms (range 58-183).

Twenty-one (78%) were diagnosed by SeHCAT testing (median retention value 4%, range 0-11%), while six (22%) were diagnosed by a history of bowel resection, four of whom were due to Crohn's disease. Three patients had a history with cholecystectomy and six patients had a concurrent diagnosis of microscopic colitis.

In total 15 (56%) of the 27 patients achieved remission. Five patients had 0.6 mg/day liraglutide as the final dose, with four achieving remission; seven of nine achieved remission at 1.2 mg, and 4 of 13 patients on the maximum dose of 1.8 mg. Two patients not in remission on 1.8 mg liraglutide/day obtained remission with the addition of colestyramin 4 g once daily.

The geometric mean total bowel movements at baseline of 6.5 (95% CI, 5.1-8.3) was reduced to 2.8 (95% CI, 2.2-3.5) at the end of follow up ($p < 0.0001$). The geometric mean number of watery bowel movements at baseline of 5.1 (95% CI, 3.7-7.0) was reduced at end of follow up to 0.8 (95% CI, 0.6-1.1, $p < 0.0001$).

Conclusion: Second-line liraglutide with pragmatic dose-escalation achieved remission in 15 of 27 patients with bile acid diarrhoea intolerant or with insufficient treatment response to conventional sequestrants. Of the 15 in remission, 11 did not need maximum liraglutide dosing. Proper

diagnosis of bile acid diarrhoea is needed to enable second-line therapy.

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Disclosure: Nothing to disclose.

PP0396

SPECIFIC GUT MICROBIOTA SIGNATURES ARE ASSOCIATED WITH SYMPTOMATIC LACTOSE MALABSORPTION

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Introduction: Lactose intolerance is defined as an impaired lactose absorption associated with symptoms including diarrhea, abdominal pain and bloating. It is caused by a genetically determined reduced expression of the enzyme lactase in the small intestine; although, several studies underline that symptoms do not depend exclusively on genetics. Among different possible causes, few information exists on microbiota signatures.

Aims & Methods: In this study, we aimed to investigate specific gut microbiota features associated with lactose intolerance and respective gastrointestinal (GI) symptoms.

Adult patients presenting GI symptoms compatible with lactose intolerance were enrolled and underwent a) a validated questionnaire for self-assessment of gastrointestinal symptoms; b) lactose breath test to confirm lactose malabsorption; c) lactulose/mannitol breath test to assess intestinal permeability and intestinal transit; d) 16S rRNA gut microbiota profiling.

Healthy controls without GI symptoms or diseases were enrolled.

Patients with inflammatory bowel disease, recent infectious enteritis, active neoplasia, pregnant women, with recent history of medications were excluded.

Results: According to the results of the tests, patients were divided into three groups: 28 patients with lactose intolerance (group 1), 7 patients with GI symptoms and negative lactose breath test (group 2), 29 healthy controls (group 3).

GI symptoms assessed by questionnaire were prevalent in patients with lactose malabsorption in comparison to patients without lactose malabsorption and in comparison to healthy controls (average GSRS group 1 14.6, group 2 9.8, group 3 2.6). Increased intestinal permeability (group 1 88.8% vs group 2 100% vs group 3 6.6%) and altered intestinal transit (group 1 50%, group 2 50%, group 3 27%) were observed in patients with GI symptoms, independently from lactose malabsorption.

Gut microbiota profiling showed an increased biodiversity between patients with lactose intolerance (group 1) and healthy controls (group 3), both in terms of alpha-diversity ($p<0.05$ according to Shannon and Simpson index) and beta-diversity ($p=0.001$). According to taxonomic analysis, Proteobacteria and Bacteroidetes phyla were significantly higher in patients with lactose intolerance in comparison to healthy controls ($p<0.05$). At the species level, significant markers of dysbiosis in lactose intolerant individuals appear to be represented by Dialister, Staphylococcus, Streptococcus, Enterobacteriacae, Bacteroides ($p<0.05$).

Conclusion: Specific gut microbiota signatures are associated with lactose intolerance, suggesting a role as a prebiotic for lactose, targeting differential microbial elements. Increased intestinal permeability and altered intestinal transit are common features of patients presenting GI symptoms, independently from lactose malabsorption. For this reason, further microbiota characterization is required to elucidate mechanisms leading to symptoms development and treatment.

Disclosure: Nothing to disclose.

PP0397

SMALL-BOWEL CANCER SURVEILLANCE WITH CAPSULE ENDOSCOPY IN LYNCH SYNDROME – A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: The role of capsule endoscopy (CE) for the surveillance of small-bowel (SB) cancer in asymptomatic Lynch syndrome (LS) patients has been questioned in recent years, with contradicting results. The overall lifetime risk of SB cancer in this population is around 4-5%, with an age-dependent pattern [1]. Besides, recent data highlight that, depending on the affected *path_MMR* gene, the frequencies of tumors other than colorectal cancer vary and that affected patients develop subsequent cancers later in life. The aim of this meta-analysis is to evaluate the diagnostic yield (DY) of CE as a screening tool in asymptomatic LS patients.

Aims & Methods: A systematic literature search was conducted in Pubmed, Embase and Web of Science to identify all studies evaluating SB cancer surveillance with CE in asymptomatic LS patients.

The primary outcome was the evaluation of the DY of CE in consecutive screening rounds, for both CE-identified pathology and histologically-confirmed pathology (*i.e.*, adenoma or adenocarcinoma). Pooled estimates of DY were calculated from random effects models.

Results: Five studies including 583 patients were identified for data extraction and statistical analysis [2-6] [Table].

The estimated pooled DY for CE-identified pathology was 8% in the first screening round (95% confidence interval [CI] 4-12%) and 6% in the second (95% CI 2-10%). Limiting the analysis to histologically-confirmed pathology, the pooled DY of the second-round screening dropped to 0% (95% CI 0-6%). The time interval between screening rounds was approximately 2 years.

Adenomas were detected in 8 patients (4 males) with a median age of 47.5 years (interquartile range [IQR] 19), while adenocarcinomas were diagnosed in 8 patients (5 males) with a median age of 62.5 years (IQR 17.25). *MLH1* was the most involved *path_MMR* pathogenic variant (9 out of 16 patients), followed by *MSH2* and *MSH6* (5 and 2 patients, respectively). No adenocarcinomas were detected in *MSH6* carriers, as only adenomas were found in 2 patients, with a considerably higher median age than *MSH2* and *MLH1* adenoma carriers (70.5 years versus 43.5 and 45). No predominance was observed according to the anatomical location (duodenum, n=6; jejunum, n=6; ileum, n=4).

Conclusion: The detection of adenocarcinoma appeared to have a 15-year delay compared to adenomas, supporting a rather slow adenoma to carcinoma transition.

A surveillance strategy starting from the age of 50, with a time interval between procedures lengthened to at least 5 years (instead of 2) could likely be more effective in reducing the burden of advanced disease, both in terms of cost-effectiveness and efficacy. Prospective data may reveal whether a potential SB surveillance might benefit from gene-associated differences in cancer risk, similar to the recent de-escalation of CRC screening recommendations in *MSH6* and *PMS2* carriers [7].

In conclusion, although the DY of CE is high in detecting SB lesions in LS, the low number of positive examinations eventually resulted in an even lower number of true-positive patients, with a pooled yield proximate to 0%.

The results of this study confirm that SB cancer surveillance with CE with a 2-year interval in asymptomatic LS individuals is not an effective screening strategy.

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Disclosure: Nothing to disclose.

Study characteristics					First-round screening				Second-round screening		
Reference, year	Type of study	MINORS score (0-14)	No. of included patients	Age (mean)	No. of performed CE procedures	No. of CE with positive detection (% rate)	N. of patients with histologically-confirmed findings (% rate)	Time interval (years)	N. of performed CE procedures	No. of CE with positive detection (% rate)	N. of patients with histologically-confirmed findings (% rate)
Saurin, 2010	Prospective, multicenter	12	35	47	35	3 (8.6 %)	3 (8.6 %)	3.3	7	0 (0 %)	0 (0 %)
Haanstra, 2015	Prospective, multicenter	10	200	50.4	200	23 (11.5 %)	2 (1 %)	2.2	-	-	-
Haanstra, 2017	Prospective, multicenter	10	155	51.6	-	-	-	2.2	155	15 (9.7 %)	0 (0 %)
Perrod, 2020	Retrospective, single center	9	135	52.7 (median)	135	6 (4.4 %)	6 (4.4 %)	2	87	4 (4.6 %)	4 (4.6 %)
DeJesse, 2021	Retrospective, single center	10	58	56 (median)	58	5 (8.6 %)	0 (0 %)	NA	-	-	-

PP0397 Table.

PP0398

LONG-TERM OUTCOMES OF PATIENTS WITH PRIMARY INTESTINAL FOLLICULAR LYMPHOMA MANAGED WITH WATCH-AND-WAIT STRATEGY

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Introduction: Follicular lymphoma primarily or secondarily occurs in the gastrointestinal tract[1]. The disease entity of intestinal follicular lymphoma was established in the last two decades and is now formally considered a distinct subcategory of follicular lymphomas in the classification of tumors of hematopoietic and lymphoid tissues published by the World Health Organization (WHO)[2].

Multiple white, polypoid lesions in the duodenum, which are incidentally found during esophagogastroduodenoscopy, are the typical endoscopic features of intestinal follicular lymphoma. Among the patients with follicular lymphoma with intestinal involvement, 66.7–100% have multiple follicular lymphoma lesions in the jejunum and/or ileum.

Because of the widespread involvement of the small intestine, radiotherapy is not feasible even in cases of localized stage intestinal follicular lymphoma. Although treatment strategies have not yet been standardized, the watch-and-wait approach is often preferred in clinical settings. However, because of the rarity of this disease, the long-term outcomes of patients who are managed with this approach have not been sufficiently investigated.

Therefore, in the current study, we analyzed the outcomes of 73 patients with primary intestinal follicular lymphoma who were diagnosed before 2016 and managed using the watch-and-wait approach.

Aims & Methods: Patients with primary intestinal follicular lymphoma who were diagnosed before 2016 and managed with the watch-and-wait approach in 20 institutions were enrolled. We retrospectively investigated the overall, disease-specific, and event-free survival rates as well as the rate of spontaneous regression.

Results: Among the 248 patients with follicular lymphoma with gastrointestinal involvement, 124 had localized disease (stage I or II_1). We analyzed the data of 73 patients who were managed using the watch-and-wait approach. During the mean follow-up period of 8.3 years, the follicular lymphoma had spontaneously resolved in 16.4% of the patients. The 5-year and 10-year overall survival rates were 92.9% and 87.1%, respectively. With disease progression (n = 7), initiation of therapy (n = 7), and histologic transformation to aggressive lymphoma (n = 0) defined as events, the 5-year and 10-year event-free survival rates were 91.1% and 86.9%, respectively. No patient died of progressive lymphoma. Thus, both 5-year and 10-year disease-specific survival rates were 100%.

Conclusion: An indolent long-term clinical course was confirmed in the patients with primary intestinal follicular lymphoma. The watch-and-wait strategy is a reasonable approach for the initial management of these patients.

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Disclosure: Nothing to disclose.

PP0399

EVALUATION FOR DISEASE SURVEILLANCE OF PRIMARY SMALL-BOWEL FOLLICULAR LYMPHOMA IN CAPSULE ENDOSCOPY IMAGES BASED ON A DEEP CONVOLUTIONAL NEURAL NETWORK: A PILOT STUDY

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Introduction: Primary small-bowel follicular lymphoma (FL) often presents as multiple white granular elevations involving from the duodenum to the deep small-bowel. Capsule endoscopy (CE) is useful in evaluating the disease surveillance for primary small-bowel FL, but objective evaluation is difficult in some cases.

Aims & Methods: We aimed to evaluate the usefulness of the deep convolutional neural network (CNN) system using CE images for assessing the disease surveillance of primary small-bowel FL. We enrolled 26 consecutive patients with primary small-bowel FL (all with multiple white granular elevations in the small-bowel at the initial CE) diagnosed between January 2011 and January 2021 who underwent CE before and after watch-and-wait or chemotherapy management. The disease surveillance was evaluated by two physicians and the developed CNN system. To construct the CNN system, it was trained with CE still images using deep learning. Evaluation of the disease surveillance by the CNN system was assessed using the percentage of FL-detected images among all CE images, from the duodenum to the terminal ileum.

Results: Eighteen cases (69%) were managed with a watch-and-wait policy, and 8 cases (31%) were treated by chemotherapy. Among the 18 cases managed with a watch-and-wait policy, the physicians evaluated the lesions as almost the same in 14 cases (78%) and as aggravation in 4 cases (22%). The evaluation of lesions by the CNN system showed almost the same in 13 cases (72%), aggravation in 4 cases (22%), and improvement in 1 case (6%). Among the 8 cases treated by chemotherapy, the physicians evaluated the lesions as improvement in 7 cases (88%) and as almost the same in 1 case (12%). The evaluation of lesions by the CNN system showed improvement in 5 cases (63%), almost the same in 2 cases (25%), and aggravation in 1 case (12%). In 23 of 26 cases (88%), both the physicians and the CNN system had similar results in evaluating the disease surveillance. In 3 of 26 cases (12%), there was a discrepancy between the evaluating by the physicians and the CNN system. This discrepancy of evaluation was attributed to poor small-bowel cleansing level.

Conclusion: Evaluation for the disease surveillance of primary small-bowel FL managed with a watch-and-wait policy or chemotherapy using CE images by the developed CNN system was considered useful under the condition of excellent small-bowel cleansing level.

Disclosure: Nothing to disclose.

PP0400

SURVIVAL TRENDS IN PATIENTS WITH SMALL INTESTINAL NEUROENDOCRINE TUMOURS - A COHORT STUDY IN CENTRAL NORWAY

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Introduction: Background and objectives: Small intestinal neuroendocrine tumours (SI-NETs) are slow growing but have often metastasized at the time of diagnosis. Most patients are operated either with the intention of curation or to prolonged survival. Improved surgical resection, more comprehensive oncological treatment as well as earlier diagnoses may improve survival, but only few studies have examined survival trends. In this study we aimed to examine the trend in overall survival in patients diagnosed with SI-NETs.

Aims & Methods: Patients with a histological and / or imaging-based diagnosis of SI-NET in Central Norway from 2005 to 2021 were identified. Patient, disease and treatment characteristics including histological grade (G), European Neuroendocrine Tumour Society (ENETS) stage, surgical and oncological treatment types and survival were retrospectively recorded.

The cohort was divided in those diagnosed in period one (June 2005-November 2012) and period two (November 2012-December 2021), with 121 patients in each sub-cohort.

Overall survival was analyzed using the Kaplan Meier method and a Cox multivariate analysis was performed to identify factors independently associated with survival.

Results: The 242 patients had a median age 70 (17-91) years at diagnosis or surgery and 55.8% were males. The majority of patients underwent surgery (n=205, 84.7%) which was considered curative in 137 (66.8%) patients. Median estimated overall survival was 10.1 years (95% CI 8.5-11.7) and the median overall survival for localized, regional and distant disease stage was 10.6 years (95% CI 7.9-13.2), 11.0 years (95% CI 8.8-13.2) and 7.1 years (3.4-10.8), p=0.005, respectively.

Patients diagnosed in period one had a median survival of 9.0 years (95% CI 6.4-11.7), while median survival for period two was significantly longer and was not reached, p = 0.014. Five year survival for period one was vs. period two was 63.5% and 83.5%. The Kaplan-Meier curves for period one and two separated the first year after diagnosis and the difference persisted.

For resected patients the median survival was 9.6 years (95% CI 8.4-10.9) in period one, whereas median survival was not reached for period two, p = 0.008. The ENETs disease stage did not differ between period one and two, but a higher proportion had carcinoid heart disease in period one (7.4% vs. 1.7%, p=0.031).

A higher proportion of patients who underwent SI-NET resection were considered tumour free after surgery in period two than in period one (74.3% vs 59.6%, p=0.027). There was also a higher proportion of patients with resection of multiple primary SI-NETs in period two (37.6% vs. 24.0%, p=0.049), which was explained by a higher proportion of multifocal tumours being resected during elective surgery (42.9% vs. 21.1%, p 0.005). There was also a higher number of retrieved lymph nodes in period two (p=0.014).

Similar proportions of patients received somatostatin analogues, PRRT or transarterial embolization of liver metastases in period one vs. period two. In a Cox proportional hazard regression model age at diagnosis, ENETS stage, tumour resection and diagnosis before November 2012 were independently associated with overall survival, whereas sex and tumour grade were not.

Conclusion: Survival of patients with SI-NET improved over the study period and this seemed related to lower mortality the first year after diagnosis. Disease stage or oncological treatment did not change, but several factors associated with surgical quality improved during the study period.

Disclosure: Nothing to disclose.

PP0401

CLINICOPATHOLOGICAL CHARACTERISTICS AND PROGNOSIS OF PRIMARY SMALL-BOWEL CANCER: AN ANALYSIS OF THE JSCCR DATABASE FROM MULTICENTER IN JAPAN

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Introduction: Primary small-bowel cancer (PSBC), including duodenum, jejunum and ileum, is a relatively uncommon disease. However, the number of cases has been increasing in recent years. Furthermore, since more than half of all PSBCs occurred in the duodenum, cancers of the jejunum and ileum were particularly rare tumors. Few reports have focused on the jejunum and ileum.

Aims & Methods: We analyzed the clinicopathological features and prognosis of PSBC from a large multicenter study conducted in Japan. A total of 2,388 primary small-bowel lesions were collected between January 2008 and December 2017 from 44 institutions affiliated with the Japanese Society for Cancer of the Colon and Rectum (JSCCR) in Japan. We excluded 2,032 lesions for the following reasons: site of duodenum, unavailability of patient's or tumor essential information, histology not consistent with PSBC (such as malignant lymphoma, gastrointestinal stromal tumor, metastasis of PSBC, hamartoma, adenoma, or others), and patients with background diseases such as (Crohn disease, familial adenomatous polyposis, and Peutz-Jeghers syndrome). Because it was more difficult to clearly diagnose Lynch syndrome than other diseases, we did not exclud it in this study. We analyzed the clinicopathological features and the prognosis of PSBC. Clinicopathological features and TNM classification were evaluated according to the Japanese Classification of Colorectal, Appendiceal, and Anal Carcinoma eighth edition (JCCAC).

Results: 354 patients with 358 PSBC were enrolled. The average age of enrolled patients was 64.4 years, with 218 males (61.6%). The average tumor size was 49.9 mm, and the rate of PSBC's site in the jejunum was 66.2%, while in the ileum was 30.4%. Of the 354 enrolled, 19 patients (5.4%) were diagnosed with Lynch syndrome, and 272 (76.8%) had symptoms at the initial diagnosis. Single-balloon endoscopy, double-balloon endoscopy and capsule endoscopy were used for diagnosis in 43 patients (12%), 166 (47%) and 43 (12%), respectively. Surgical resection was the most performed to the 291 patients (82.2%) for treatment and in those 115 patients (32.5%) underwent chemotherapy after surgical resection. In this study, the rate of each stage (0, I, II, III, IV) was 5.3%, 2.5%, 27.0%, 25.8% and 36.2%, respectively. The average follow-up period was 31.0 ± 30.8 months. Among the 217 patients with PSBC in stages 0 to III, there were 51 recurrences. The recurrence rate of each stage was stage 0: 5.3% (1/19), stage I: 11.1% (1/9), stage II: 18.6% (18/97) and stage III: 33.7% (31/92), respectively. The most common site of metastasis at first diagnosis (stage IV) was the peritoneum (55.8%). The 5-year overall survival rate in each stage was 92.3%, 60.0%, 75.9%, 61.4% and 25.5%, while the 5-year disease-specific survival (DSS) rate in each stage was 100%, 75.0%, 84.1%, 59.3% and 25.6%, respectively. The site of PSBC in the jejunum had a sig-

nificantly lower 5-year DSS rate than that in the ileum (50.8% vs 66.7%, p=0.0418). The patients with symptoms at initial diagnosis had a significantly lower 5-year DSS rate than patients without symptoms (51.2% vs 70.5%, p=0.0416).

Conclusion: We have identified the characteristics and prognosis of PSBC in a large number of patients. 76.8% of patients with PSBC already had symptoms at the initial diagnosis and were often detected at the advanced stage. To improve the prognosis of PSBC, identifying with high-risk patients such as Lynch syndrome and screening should be examined, and the PSBC should be detected and treated in the early stages before symptoms appear.

Disclosure: Nothing to disclose.

PP0402

INCIDENCE AND SURVIVAL IN PATIENTS WITH ENTEROPATHY ASSOCIATED T-CELL LYMPHOMA: NATIONWIDE REGISTRY STUDIES FROM ENGLAND AND DENMARK

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Introduction: Enteropathy Associated T Cell Lymphoma (EATL) is a rare and highly aggressive T-cell non-Hodgkin's lymphoma (NHL)[1] that is strongly associated with refractory coeliac disease (RCD), particularly type 2 RCD [2], and possibly inflammatory bowel disease (IBD). The incidence and prevalence of both coeliac disease[3] and IBD[4] have been rising around the world for several decades, including in both England and Denmark. Some of the potential drivers of EATL are the antigen-driven proliferation of intra-villous T-cells from coeliac disease and chronic inflammation in IBD, so it is important to understand if changes in these diseases are altering clinical presentations of EATL and its survival.

Aims & Methods: Our aim was to describe the contemporary incidence and survival of EATL from two European countries on a national scale, given the rising incidence and prevalence of coeliac disease and use of immunosuppression in inflammatory bowel disease, to give further insights into epidemiology of this rare and often fatal malignancy.

People with EATL were identified from national cancer registries from 2013-2019 in England and 2004-2020 in Denmark. Within each country we used direct standardisation to estimate incidence, Poisson regression to compare incidence between groups and Cox regression to assess overall survival.

Results: 172 and 39 patients were identified in England (E) and Denmark (DK) respectively with a mean age at diagnosis of 66 and 68 years. Approximately half of all cases had coeliac disease (E 52%, DK 41%), and ~7% (E 6%, DK 8%) had inflammatory bowel disease (Table). The overall age-standardised incidence rate was (E) 0.48 (95% CI 0.41-0.56) and (DK) 0.44 (95% CI 0.30-0.58) per million population per year. In both countries incidence was higher in older age groups. The 5-year overall survival was 10% (95% CI: 6%-18%) in England and 20% (95% CI: 9%-33%) in Denmark. Those with coeliac disease fared better than those without: (adjusted Hazard Ratio E 0.65 (95% CI 0.45-0.93), DK 0.57 (95% CI 0.26-1.27)).

Category	England (n=172)	Denmark (n=39)
Mean Age (95% CI)	66 (44, 89)	68 (65, 72)
Male (%)	108 (63%)	18 (46%)
Ethnicity, white (%)	160 (93%)	Not available
Stem cell transplant (%)	30 (17%)	Not available
Chemotherapy (%)	89 (52%)	Not available
Coeliac disease (%)	89 (52%)	16 (41%)
Inflammatory bowel disease (%)	11 (6%)	3 (8%)
Small bowel resection (%)	112 (65%)	7 (18%)
Died (%)	144 (84%)	33 (85%)

Table: Characteristics of people with EATL in England (2013-2019) and Denmark (2004-2020).

Conclusion: This analysis of two nationwide cancer registries is the largest population-based study to date to provide contemporary and comprehensive epidemiologic estimates of all ICD-O-3 coded EATL. It shows that a higher incidence is associated with older age, male sex (in England) and that half of cases also have coeliac disease. Our finding of the high proportion of people with inflammatory bowel disease compared to the background prevalence in both countries requires further investigation, as reasons for this are unclear, but it could be related to chronic inflammation or immunosuppression. Overall survival is poor and gets worse in older age groups but is better in those with coeliac disease, following surgical resection and those able to tolerate intensive therapies.

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Disclosure: Nothing to disclose.

PP0403

CLINICAL SIGNIFICANCE OF EGFR, ERBB2-4 AND PHOSPHORYLATED EGFR IN SMALL BOWEL ADENOCARCINOMA

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Introduction: Small bowel cancers are rare, accounting for less than 5% of gastrointestinal cancers, but their incidence is increasing. Small bowel adenocarcinoma (SBA) accounts for one-third of small bowel cancers. Due to a lack of optimal screening program for the diagnosis of SBA and the non-specificity of symptoms, SBA tends to be diagnosed at a later stage compared with colorectal cancer. Roughly one-third ofSBA patients are initially diagnosed with distant metastases.In clinical practice, regimens used for SBA parallel those commonly administered in the adjuvant setting for colorectal cancer, owing to its anatomic proximity.

However, the genomic profiling of SBA has been shown to be distinct from colorectal cancer through comprehensive analysis of genomic alterations. Therefore, we need to establish a chemotherapy specific for SBA based on its molecular pathological characteristics.

Aims & Methods: Our first aim was to explore the localization of EGFR family members in human SBA tissue and draw comparisons and determine the relationship between their expression and clinicopathological factors. Our second aim was to explore the possibility of anti-EGFR antibody therapy by examining the correlation between the expression of EGFR family members and KRAS and BRAF mutations in SBA.
Results: EGFR family members were widely expressed in SBA, including EGFR (34%), ErbB2(28%), ErbB3 (52%), ErbB4 (14%), and phosphorylated EGFR (22%). Both EGFR and phosphorylated EGFR immunoreactivities correlated with lymph node metastasis, distal metastasis, and advancing stage. In particular, there was significant EGFR expression in stageIV whereas pEGFR expression was observed exclusively in stage IV. ErbB2 expression was not associated with any single clinicopathological factor. ErbB3 and ERbB4 immunoreactivities correlated with lymph node metastasis. Both EGFR and phosphorylated EGFR immunoreactivities correlated significantly with worse cancer specific survival in SBA according to univariate analysis. EGFR immunoreactivities correlated significantly with worse cancer specific survival in SBA according to multivariate analysis. The most common genomic alterations found in SBA tumors were TP53 (56.7%), followed by KRAS (33.3%), APC(16.7%), PIK3CA (16.7%), BRAF (6.7%), EGFR (3.3%), ERBB2 (3.3%), and ERBB4 (3.3%).Deficient MMR tumors were observed in 12% of patients. No association was found between any member of the EGFR family expression and MMR status. There was also no significant association between expression of any member of the EGFR family and any single gene mutation. KRAS wild type was observed in 5 out of 7 stage IV SBA cases examined, and EGFR expression was positive in all 5 cases.
Conclusion: All members of the EGFR family were expressed in SBA. Among them, EGFR expression associated with worse prognosis. Our findings suggest the potential use of EGFR inhibitors in the treatment of SBA patients in the clinical setting, particularly patients with SBA expressing the KRAS wild type which are not amenable to surgical resection.
Disclosure: Nothing to disclose.

PP0404

CLINICOPATHOLOGICAL SIGNIFICANCE OF CLAUDIN-18 EXPRESSION IN SMALL BOWEL ADENOCARCINOMA

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Introduction: Small bowel adenocarcinoma (SBA) are rare, but their incidence is increasing. Early diagnosis of SBA remains elusive, so that about one-third of patients are initially diagnosed with distant metastases. In clinical practice, regimens used for SBA parallel those commonly administered in the adjuvant setting for colorectal cancer, owing to its anatomic proximity. However, genomic profiling of SBA has been shown to be distinct from colorectal cancer through comprehensive analysis of genomic alterations. Therefore, it is vital to establish a distinct chemotherapy regimen for SBA based on its molecular pathological characteristics. Claudin-18 plays a key role in constructing tight junctions and altered claudin-18 expression has been documented in various human malignancies. On the basis of this, both monoclonal antibodies and claudin-18.2-specific chimeric antigen receptor engineered T-cells have been recently developed and employed in several clinical trials, showing promising results in the treatment of advanced gastroesophageal and pancreatobiliary tract cancers. However, little is known about the clinicopathological significance of claudin-18 expression in SBA.
Aims & Methods: To explore the localization of claudin-18 in human SBA tissue and draw comparisons and determine the relationship between their expression and clinicopathological factors, and genomic alterations. We examined 50 surgical resections from patients with primary SBA for immunohistochemical analyses of claudin-18, CK7, CK20, CD10, CDX2, MUC2, MUC5AC, and MUC6 expression. DNA mismatch repair (MMR) status was defined by immunostaining for all MMR proteins; MLH1, MSH2, MLH6, and PMS2. Both MUC 2 and CD10 are markers of intestinal type tumors, whereas MUC5AC and MUC6 are markers of gastric type tumors. Tissue samples showing both gastric and intestinal phenotypes were classified as gastrointestinal type tumors, whereas those showing neither gastric nor intestinal phenotype expression were classified as null type tumors. In addition, genomic profiling was performed on 31 patients using targeted next-generation sequencing.
Results: Claudin-18 expression was observed in 46% of SBA patients. Claudin-18 expression was positively associated with cytokeratin 7 (P=0.003) and MUC5AC (P=0.020) expression, whereas it was negatively associated with MUC2 (P=0.010), CD10 (P=0.014), and CDX2 (P=0.003) expression. Tumor mucin phenotypes included gastric type (n=9), intestinal type (n=20), gastrointestinal type (n=17) and null type (n=4). Claudin-18 was more frequently expressed in gastric type (100%) than in intestinal type (30%) phenotypes (P=0.001). *GNAS* mutations (N=4) were found in only claudin-18 positive SBA patients, although the difference was not significant. Claudin-18 expression did not correlate with patient age at diagnosis, patient gender, site, histological type, depth of invasion, lymph node metastasis, distal metastasis, TNM stage, and MMR status. However, claudin-18 expression correlated with worse progression free survival.
Conclusion: Claudin-18 expression is associated with gastric immunophenotype and with worse progression free survival. These findings suggest that claudin-18 may be a potential therapeutic target in certain SBA cases.
Disclosure: Nothing to disclose.

PP0405

EXPRESSION OF WNT/B-CATENIN PATHWAY MOLECULES IN SMALL BOWEL ADENOCARCINOMA

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Introduction: The low incidence of APC gene mutations (less than 30%) in small bowel adenocarcinoma (SBA) suggests that the adenoma-carcinoma-sequence is not the main carcinogenic mechanism. However, the presence or absence of activation of the Wnt/β-catenin signaling pathway, which is important in the adenoma-carcinoma-sequence, has not been sufficiently investigated in SBA. Therefore, we examined gene mutations involved in the Wnt/β-catenin pathway and their downstream target gene products in SBA.
Aims & Methods: We examined 30 surgical resections from patients with primary SBA. SBA genomic alterations were analyzed by targeted next-generation sequencing (NGS). DNA mismatch repair (MMR) status was determined by immunostaining for all MMR proteins; MLH1, MSH2, MLH6, and PMS2. In addition, immunostaining for cyclin D1, c-myc, and β-catenin was performed to compare the results of NGS. Nuclear/cytoplasmic or loss of membranous β-catenin staining in cancer cells was defined as aberrant β-catenin immunostaining.
Results: The main genomic alterations found in SBA tumors were TP53 (56.7%), followed by KRAS (33.3%), APC (16.7%), PIK3CA (16.7%), CTNNB1 (10%), BRAF (6.7%), and CDKN2A (6.7%). Deficient MMR tumors were observed in 20% of patients. APC mutations were significantly higher in

deficient MMR tumors than in proficient MMR tumors (P=0.041). On the other hands, CTNNB1 mutations were not found in deficient MMR tumors. No cases exhibited both the APC and the CTNNB1 mutations. Aberrant β-catenin immunostaining in cancer cells was observed in 12 out of 30 cases (40%). All three CTNNB1 mutation cases were associated with aberrant β-catenin staining, whereas only 1 of 5 APC mutation cases had aberrant β-catenin staining. The remaining 8 cases with aberrant β-catenin staining had neither APC nor CTNNB1 mutations. Cyclin D1, a representative target protein of the Wnt/β-catenin pathway, was positive in cancer cells in 18 (60%) of the cases. C-myc was positive in cancer cells in 6 (20%) cases. Of the 5 cases with APC mutations, cyclin D1 was positive in two cases and c-myc was positive in one case. Three cases were negative for both cyclinD1 and c-myc, but were associated with MMR deficiency and TP53 mutations. Of the three cases with CTNNB1 mutations, cylclin D1 was positive in two cases and c-myc was positive in one case. All three cases had proficient MMR. Two of the three cases did not have TP53 nor KRAS mutations.

Conclusion: The Wnt pathway-associated gene mutations in SBA were APC and CTNNB1, with one or the other found in 26.7% of cases examined. This frequency is much lower than in colorectal cancer, consistent with previous reports.

In addition, 3 out of 5 cases with APC mutations showed normal membranous staining for β-catenin, cyclin D1-negative, and c-myc-negative, suggesting that the Wnt pathway is less activated in these three cases. In addition, these three cases had TP53 mutations and were MMR deficient. This suggests the possibility that APC mutations do not necessarily contribute directly to the carcinogenesis of SBA.

On the other hand, the staining abnormality of β-catenin, a key component of the Wnt/β-catenin signaling pathway, suggests that this pathway is activated in half of SBA cases. These results indicate that the Wnt/β-catenin pathway may be activated or deregulated by mechanisms other than APC and CTNNB1 mutations in SBA.

Disclosure: Nothing to disclose.

PP0406

MALIGNANT SMALL BOWEL NEOPLASMS – THE TWENTY-YEAR EVOLUTIVE EXPERIENCE IN A TERTIARY CENTER

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Introduction: Malignant small bowel neoplasms (MSBN) are rare entities, whose knowledge is even more limited due to their histological diversity and difficulty in their investigation. Studies show that the incidence of MSBN has been growing in recent decades; thus, interest in these neoplasms has increased in parallel with their rising incidence.

Aims & Methods: The aim of this study was to describe the demographic and clinical characteristics of patients with malignant neoplasms of duodenum, jejunum, and ileum, but also the evolution in the diagnosis of these neoplasms over 20 years.

Retrospective study of patients with MSBN diagnosed between 2001 and 2020 in a tertiary hospital was performed. Demographic and clinical data were collected. Statistical analysis was performed with SPSS vs 29.0 (significance level of 5%).

Results: A total of 135 patients were evaluated. Fifty-seven percent of patients (n=77) were male; the mean age at diagnosis was 64.2 years [diagnosis between 27-91 years]. The mean age at diagnosis showed no statistically significant relationship with the histological subtype (p=0.644).

Most neoplasms were found in the jejunum/ileum (65.9%, n=89). The most frequently diagnosed neoplasms were adenocarcinomas (31.1%, n=42), followed by neuroendocrine tumors (28.10%, n=38), gastrointestinal stromal tumors (GIST) (17.8%, n=24) and metastases from other carcinomas (12.6%, n=17); lymphomas accounted for 5.9% of cases (n=8) and other primary malignancies accounted for 4.4% of cases (n=6).

The majority of patients (80,7%, n= 109) were symptomatic at time of diagnosis - 29.6% (n=40) had abdominal occlusion at diagnosis; 19.3% (n=26) of patients had hemorrhage as the initial clinical presentation, and 7.4% (n=10) of patients had intestinal perforation. It's also worth mentioning that almost half of the patients (43.7%, n=59) had anemia at diagnosis.

A regular CT was the exam that documented the neoplasm in 40.7% of cases (n=55); an upper digestive endoscopy identified the neoplasm in 22.2% of patients (n=30) and a video capsule endoscopy was necessary for diagnosis in 8.1% of cases (n=11); however, 22.2% of patients (n=30) still required surgery for making the diagnosis; the remaining patients (6.7%, n=9) were diagnosed using other complementary diagnostic methods (CDM).

It should be noted that most diagnoses were made between 2011 and 2020 (65.9%, n=89). Between 2011 and 2020, the most frequently diagnosed MSBN were neuroendocrine tumors (37.1%, n=33), whereas between 2001 and 2010, the most common diagnosed tumors were adenocarcinomas (37.0%, n=17). The diagnosis of each histological neoplasm type differed significantly statistically over the years (p=0.016).

More than half of the patients with adenocarcinoma of the small intestine died from this cause (54.8%, n=23), but only 7.9% (n=3) of the neuroendocrine tumors of the small intestine were the cause of death.

Conclusion: Although these are rare tumors, the sample of MSBN from this tertiary center over these 20 years has still been substantial. Most patients were symptomatic at diagnosis - with severe complications (occlusion, hemorrhage, perforation) in 55.4% of the cases, despite advances in CDM over the years.

In this study, 65.9% of MNDJI were diagnosed in the last 10 years of the follow-up, which validates the growing incidence of small bowel neoplasms described in the literature. Noteworthy, the diagnosis of each histological neoplasm type differed significantly statistically over the years (p=0.016), with neuroendocrine tumors being the most diagnosed in recent years.

Disclosure: Nothing to disclose.

PP0407

IDENTIFYING IMMUNOTHERAPY CANDIDATES AMONG PATIENTS WITH SMALL BOWEL ADENOCARCINOMA BASED ON CLINICOPATHOLOGICAL SIGNIFICANCE OF PROGRAMMED CELL DEATH-LIGAND EXPRESSION

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Introduction: Small bowel adenocarcinoma (SBA) has been shown to have different genomic profiles from gastric or colorectal cancer using comprehensive genomic analysis. Therefore, it is essential to establish chemotherapy based on the characteristics of SBA. Programmed cell death-ligand 1 (PD-L1) expression in SBA is not yet fully understood. In addition, programmed cell death-ligand 2 (PD-L2) has not received as much attention and its role in modulating tumor immunity is unclear. Anti-PD-L1/PD-1 therapy uses tumor-infiltrating lymphocytes (TILs); therefore, the status of TILs in the tumor microenvironment (TME) may influence its efficacy. The ratio of FoxP3+ T cells to CD8+ T cells has been reported to be useful in predicting the prognosis of digestive system cancers.

Aims & Methods: We investigated the clinicopathological significance of PD-L1 and PD-L2 expression in association with the infiltration of FoxP3+ T cells and CD8+ T cells into the TME to identify PD-L/PD-1 immunotherapy candidates in patients with SBA.

We performed immunohistochemistry for PD-L1, PD-L2, CD8, FoxP3 using formalin-fixed, paraffin-embedded tissue from 50 patients diagnosed with primary SBA. The immunoreactivities of PD-L1 and PD-L2 were determined separately through tumor cells and tumor-infiltrating immune cells (such as lymphocytes and macrophages) throughout the tumor center and invasive margins, and finally evaluated using the combined positive score (CPS). We assessed CD8+ T cells and FoxP3+ T cells in 10 randomly selected microscopic areas of the intratumoral stroma and tumors surrounding the stroma. Subsequently, we calculated and summed the ratio of FoxP3 to CD8+ T cell counts in 10 HPF. Immune-related cell densities were graded as low (≤ median cell counts/mm2 tumor area) or high (> median cell counts/mm2 tumor area).

Results: PD-L1 expression in tumor cells (T-PD-L1) was 34% and in tumor-infiltrating immune cells (I-PD-L1) was 54%. T-PD-L2 was 34% and I-PD-L2 was 42% of cases. PD-L1 CPS ≥ 10 and PD-L2 CPS ≥ 10 were observed in 50% and 56% of cases, respectively. T-PD-L1, I-PD-L1, and PD-L1 CPS ≥ 10 were all associated with deeper depth of invasion (P=0.001, P=0.024, P=0.002). I-PD-L2 expression and PD-L2 CPS ≥ 10 were significantly more common in differentiated types (P=0.015, P=0.030). I-PD-L1 and I-PD-L2 were significantly associated with better CSS (P=0.037, P=0.015). CD8-low was significantly associated with lymph node metastases (P=0.047), distant metastases (P=0.024), peritoneal dissemination (P=0.034), and TNM stage (P=0.047). The CD8-high group had a better prognosis than the CD8-low group (P=0.018). FoxP3-high was not associated with any clinicopathological factor or prognosis. We found that patients with PD-L2 CPS ≥ 10 had worse prognosis in the FoxP3/CD8-low group, although the difference was not significant (P=0.088).

Conclusion: It was suggested that the clinicopathological significance of PD-L1 and PD-L2 expression differs depending on the TME status. The PD-L/PD-1 pathway may contribute to poor prognosis in patients with a low tumor FoxP3/CD8 ratio. PD-L2 may be a better prognostic marker than PD-L1, and immune checkpoint inhibitors may improve prognosis in these cases.

Disclosure: Nothing to disclose.

PP0408

THE GLOBAL LEADERSHIP INTO MALNUTRITION CRITERIA REVEALS A HIGH PERCENTAGE OF MALNUTRITION WHICH INFLUENCES OVERALL SURVIVAL IN PATIENTS WITH GASTROENTEROPANCREATIC NEUROENDOCRINE TUMOURS

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Introduction: Patients with neuroendocrine tumours (NETs) located in the gastroenteropancreatic tract (GEP) are at risk of malnutrition. NETs are rare cancers arising from enterochromaffin cells. They differ from other cancers based on morphology, clinical behaviour, treatment and relatively good prognosis even in the metastatic case. Somatostatin analogues (SSA's) are the cornerstone of treatment to control symptoms and tumour growth. Previous studies reported the presence of malnutrition, only based on weight loss or low body mass index (BMI).

The Global Leadership into Malnutrition (GLIM) criteria diagnose malnutrition if there is:

1. Weight loss or,
2. Low BMI or;
3). Presence of sarcopenia, in the presence of a disease.

Malnutrition based on these GLIM criteria has not been assessed in patients with GEP-NETs. The effect of malnutrition on overall survival has not been explored before.

Aims & Methods: The aim of this study is to describe the presence of malnutrition in patients with GEP-NET based on the GLIM criteria and correlate this with overall survival.

A Cross-sectional study was performed, between August 2018 and February 2019 in a single NET expert centre in the United Kingdom. All patients with GEP-NETs, using an SSA were screened for malnutrition using the GLIM criteria. Anthropometric data (weight, height and BMI), and body composition analysis were performed to assess the presence of sarcopenia. Patients were scored to be malnourished meeting 1 GLIM criterium, meeting 2 GLIM criteria or meeting all 3 GLIM criteria. Additional demographic and histopathologic data were collected from patient records. Stable disease was classified if there was documentation of stable disease or no change in treatment within 3 months of malnutrition screening. Overall survival was calculated from the moment of malnutrition screening and the date of death or data cut-off in June 2022. Uni- and multivariate Cox regression analyses were performed to identify malnutrition as a risk factor for overall survival.

Results: A total of 118 patients 47% male with median age 67 year (IQR 56.8 – 75.0) were included. The primary tumour was located in the small bowel in 91 patients (71%) or pancreas in 25 patients (21%). Metastases were present in 91 patients (77%). In 84 patients (71%) there was stable disease.

Malnutrition was present in 88 patients (75%), based on low BMI in 26 (22%) patients, based on weight loss in 35 (30%) patients and based on sarcopenia in 83 (70%) patients. One GLIM criterium was met in 50 patients

(42%), 2 GLIM criteria in 20 patients (17%) and all 3 GLIM criteria in 18 patients (15%). The presence of malnutrition demonstrated a significantly worse overall survival (p-value 0.01). In a multivariate analysis including age (HR 1 95% CI 0.98 – 1.01, p-value 0.43), sex (HR 0.65 95% CI0.27 – 1.59, p-value 0.35), and stable disease versus progressive disease (HR 4.5 95% CI 1.7 – 11.76, p-value 0.002), meeting 2 or 3 GLIM criteria was significantly associated with worse overall survival (HR 2.16 95% CI 1.34 – 3.48, p-value 0.002). Weight loss was the most important risk factor out of the 3 GLIM criteria (HR 3.5 95% CI 1.14 – 10.85, p-value 0.03) for worse overall survival.
Conclusion: A high percentage (75%) of patients with GEP-NETs using an SSA meet the GLIM criteria for malnutrition which influences overall survival. Meeting two or more GLIM criteria, especially if there is weight loss is associated with worse overall survival. Future research should focus on exploring the effect of nutrition support especially in patients with weight loss and its effect on overall survival.
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Disclosure: Nothing to disclose.

PP0409

LONG-TERM OUTCOMES OF PATIENTS WITH OBSCURE GASTROINTESTINAL BLEEDING AFTER NEGATIVE CAPSULE ENDOSCOPY

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Introduction: In the European Society of Gastrointestinal Endoscopy guidelines (updated 2022), obscure gastrointestinal bleeding (OGIB) should be reserved for patients not found to have a source of bleeding by small-bowel evaluation. Herein, OGIB was defined as P0 (no bleeding potential) or P1 (less likely to bleed), based on the P classification using small-bowel capsule endoscopy (CE). We aimed to clarify the long-term outcomes of patients with OGIB.
Aims & Methods: We retrospectively examined 796 consecutive patients with OGIB who underwent CE at the Hiroshima University Hospital between March 2014 and October 2021. Of the eligible patients, 302 were excluded because of small-bowel bleeding (148 patients), incomplete observation of the small-bowel (85 patients), a bleeding source located outside the small-bowel (67 patients), or equipment failure (2 patients). Therefore, a total of 494 patients with OGIB and negative CE findings were included in this study. Of these, 33 could not be followed up for more than 1 year. Thus, a final total of 461 patients were enrolled in this study (257 males, median age: 70 years, median observation period: 654 days, and median hemoglobin value: 8.4 g/dL). These were classified into P0 and P1 groups according to CE findings, and we examined rebleeding rates and predictive factors.
Results: Of the 461 patients, 224 (49%) had P0 and 237 (51%) had P1 findings. There were no significant differences between the two groups in terms of sex, age, observation period, hemoglobin value, and bleeding pattern. Nor were there any significant differences in the use of antiplatelet agents, anticoagulants. In terms of comorbidities, the incidences of liver cirrhosis (15% vs. 33%, $P < 0.001$) and diabetes mellitus (16% vs. 28%, $P = 0.002$) were significantly higher among patients in the P1 group than those among patients in the P0 group. Rebleeding was observed after CE in 57 of the 461 patients (12.4%), specifically, 20 of the 224 patients (8.9%) in the P0 group and 37 of the 237 patients (15.6%) in the P1 group. Two patients in the P0 group and 15 patients in the P1 group were rebleeding from small-bowel. The rate of rebleeding from the small-bowel was significantly lower in the P0 group than that in the P1 group (0.9% vs. 6.6%, $P = 0.002$), as was the cumulative rebleeding rate ($P = 0.005$). According to the multivariate analysis, post-endoscopic treatment of small-bowel lesions (hazard ratio (HR) = 13.028, 95% confidence interval (CI):4.448–38.160, $P < 0.001$) and P1 CE findings (HR = 10.000, 95% CI:2.154-46.438, $P = 0.003$) were independent predictive factors for rebleeding from the small-bowel.
Conclusion: Rebleeding may occur in patients with OGIB. Patients with P1 CE findings or post-endoscopic treatment of small-bowel lesions may experience rebleeding from the small-bowel, suggesting the need for careful follow-up.
Disclosure: Nothing to disclose.

PP0410

PROLONGED VIDEO CAPSULE ENDOSCOPY EXAMINATION DURATION CAN IMPROVE CAPSULE ENDOSCOPY COMPLETENESS

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Introduction: Video capsule endoscopy(VCE) is an useful and safe examination in diagnosis of small bowel disease. VCE is composed of one wide-view front lens, flashlight and 8 hour battery to take small bowel images.. In early models, the relative short battery time lead to a modest completion rate about 83.5% in meta-analysis. The battery time of new generation VCE increased to at least 12 hour and even up to 18 hours in real-world practice which made extended examination possible. The effect of prolonged VCE examination time on VCE performance was less explored.
Aims & Methods: This study is aimed to evaluate the completeness and diagnostic yield in patients receiving prolonged VCE examinations. From year 2016 we started to perform an overnight protocol for VCE examination in our hospital using Olympus endocapsule 10, EC-10; Olympus Corp., Japan). After 10 ml simethicone ingestion, the patient swallowed the capsule endoscope. The doctors checked the capsule endoscopy 2-3 hours after capsule endoscope for confirmation of small bowel entering. The patient kept capsule endoscope recording overnight until the coming morning when patients came back to clinic. For some inpatients with active bleeding, VCE was checked at least after 12 hours at midnight. The VCE recording was stopped earlier if colon arrival is confirmed. All the CE procedures were read by experienced endoscopist. We reviewed consecutive VCE examination records from Jan 2016 to Dec 2020. VCE Completeness was defined as the capsule endoscopy reached the cecum within recording time. We subcategorized the VCE records into within 8 hours, within 12 hours and whole procedure and compared VCE complete rate and diagnostic yield between groups. The Cochran's Q test was used for statistical analysis. P values less than .05 were considered significant.
Results: Total 88 patients aged 20-90 years old received VCE in the study period. Their median age was 69 years old and 46 patients(52.3%) were male. 69 patients(78.4%) were inpatient and 84 patients(95%) were suspected with small bowel bleeding. The small bowel transit time was 342 minutes(91-1134minutes) with total exam time measuring 1031 minutes (452 to 1273 minutes). 58% of patients completed small bowel evaluation

within 8 hours since capsule endoscope ingestion, significantly lower than 79.5% within 12 hours(p<0.001), and 93.2 %(p<0.001) in whole course overnight study. The diagnostic yield was 71.6% within 8 hours, also significantly lower than 81.8% within 12 hours(p<0.001) and 83% in whole course overnight study(<0.001%)(Table). No capsule retention was encountered in this study.

	8 hours	12 hours	Whole course overnight study	Main effect	($P_{8\text{-}12}$, $P_{8\text{-}all}$, $P_{12\text{-}all}$)
Completion rate	58.0%	79.5%	93.2%	<0.001	(<0.001, <0.001, 0.025)
Diagnostic yield	71.6%	81.8%	83.0%	<0.001	(<0.001, <0.001, 1)

Table. Video Capsule Endoscopy Completion Rate and Diagnostic Yield Among Different Study Duration.

Conclusion: 1. Prolonged overnight VCE examination can improve complete rate and diagnostic yield using capsule endoscope whose battery life over 12 hours. 2. Prolonged overnight VCE examination should be considered to be routine practice, especially for inpatients.
Disclosure: Nothing to disclose.

PP0411 WITHDRAWN

PP0412

PROSPECTIVE AND COMPARATIVE OBSERVATIONAL STUDY BETWEEN SINGLE-BALLOON ENTEROSCOPY AND MOTORIZED SPIRAL ENTEROSCOPY

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Introduction: Single-Balloon Enteroscopy (SBE) and Double-Ballon Enteroscopy (DBE) have been the gold standard in device-assisted enteroscopy for the last years. However, since the Motorized Spiral Enteroscopy (MSE) appearance there are scarce comparative studies.
Aims & Methods: Aims: To compare the efficacy and safety performance between SBE and MSE.
Methods: Prospective and comparative observational study conducted on patients undergoing either SBE or MSE in a tertiary hospital from December 2019 to July 2022. Demographic characteristics, procedure indication, small bowel exploration time (SBET), technical success, depth of maximum insertion (DMI), diagnostic yield, interventional yield and adverse events (AE) were collected. Data analysis was performed using IBM SPSS Statistics 28.0. A propensity score matching was performed to remove confounding bias from our observational cohort.
Results: A total of 366 enteroscopies (237 anterograde and 129 retrograde) were performed in 295 patients. Capsule endoscopy findings were the most frequent indication of the procedure (72%). After a propensity score matching performed on the anterograde cohort, a total of 295 procedures were analyzed, 166 anterograde (70 SBE/ 96 MSE) and 129 retrograde (36 SBE/ 93 MSE). For the anterograde route, technical success was 98% for SBE and 94% for EMS (pNS). SBE showed significantly lower DMI than MSE (245 ± 89cm vs 431 ± 207cm; p<0.001).
However, no differences were found in the SBET (37min vs 42min, respectively; pNS). Diagnostic yield (84% vs 75%; pNS) and interventional yield (84% vs 71%; pNS) were similar for both techniques. For the retrograde route, DMI was significantly higher for the MSE group (112.2 ± 61.4cm vs 150 ± 132.8; p=0.04). No differences were observed regarding other parameters. Overall AE rate was similar in both techniques (3.9% vs 8.9%; pNS), as well as SAE rate (1.1% vs 2.1%; pNS).
Conclusion: Both techniques, SBE and MSE are effective and safe for the small bowel evaluation. MSE allows a higher DMI for both anterograde and retrograde route.
Disclosure: Nothing to disclose.

PP0413

IMPACT OF NEW TIMING RECOMMENDATIONS FOR CAPSULE ENTEROSCOPY IN THE SETTING OF OVERT DIGESTIVE BLEEDING

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Introduction: Capsule endoscopy is the first-line examination for digestive bleeding with likely origin in the small bowel, in hemodynamically stable patients. In the 2022 update, ESGE guidelines recommend that, in the context of overt bleeding, capsule enteroscopy should be performed as soon as possible, ideally within the first 48 hours. In the previous guidelines, published in 2015, the recommended window was 14 days.
Aims & Methods: This study aimed to evaluate the improvement in yield offered by the new recommendations regarding the timing of urgent capsule enteroscopy. Patients with suspected overt middle gastrointestinal bleeding between January 2005 and November 2022 were retrospectively analyzed. Diagnostic and therapeutic yield, rebleeding rate, and mortality were compared when capsule enteroscopy was performed within the first 48 hours, within the first 14 days, or between the 3rd and 14th day after admission.
Results: A total of 138 patients were included (58.7% men, median age 66 years), 87 of whom (63.0%) underwent capsule enteroscopy within the first 48 hours after hospital admission. The median follow-up was 55 months (5-180). The diagnostic yield (presence of blood or lesions with bleeding potential) was slightly higher when capsule enteroscopy was performed within the first 48 hours (81.6% versus 76.5%, p=0.349). On the other hand, capsule enteroscopy within the first 48 hours was significantly associated with higher therapeutic yield (endoscopic, radiologic, or surgical treatment) - 54.0% versus 39.2%, p=0.02. The rebleeding rate was significantly lower in patients undergoing enteroscopy within 48 hours after admission (19.5% versus 29.4%, p=0.04). On the other hand, overall mortality at 36 months did not differ between strategies (21.8% and 25.5%, p=0.401).
Conclusion: Performing capsule endoscopy within the first 48 hours, as recommended by recently published guidelines, is associated with favourable short- and long-term clinical outcomes.
Disclosure: Nothing to disclose.

PP0414

ANTITHROMBOTIC THERAPY DEPICTS A DISTINCT SMALL BOWEL BLEEDING CLINICAL PATTERN: A RETROSPECTIVE COHORT STUDY

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Introduction: In patients treated with anticoagulant medication, the number of hospital admissions for gastrointestinal bleeding is up to 1.15 for 100 patients per year, with an increased risk for patients treated with DOACs (1).

Aims & Methods: The study aims to evaluate the diagnostic yield of small bowel capsule endoscopy in patients while on antithrombotic therapy for suspected small bowel bleeding. This is a single center, retrospective, observational study conducted from January 2015 to March 2019. We enrolled consecutive patients with suspected small bowel bleeding or iron deficiency anemia undergoing SBCE after bidirectional negative endoscopy. Positive findings were defined according to the P0-P2 classification reported by Saurin et al (3). Bleeding severity was defined according to the "International Society of Thrombosis and Haemostasis" (ISTH) criteria. We considered in anticoagulant therapy: direct oral anticoagulant (DOAC), vitamin K antagonist (VKA), injective anticoagulant (Low-molecular-weight heparin, unfractionated heparin, fondaparinux). We considered in antiplatelet therapy: aspirin, clopidogrel, ticagrelor. A descriptive analysis of the data was performed, with a calculation of the mean, median, proportions, standard deviation and 95% confidence limits depending on data type.

Results: We analyzed and collected data from 369 patients, 95 while on antithrombotic therapy: 40 with DOACs, 35 with VKAs, and 20 with injective anticoagulants. The mean age was, overall, 66.4 years (SD±14.9), 60.1 years (SD±16.2) in the control group, 72.4 (SD±8.8) in the antiplatelet group, 73.3 years (SD±11.49) in the anticoagulant group and 71.3 years (SD±12.2) in the anticoagulant+antiplatelet group.

Characteristics	Total	Control group	Antiplatelet Group	Anticoagulant group	Antiplatelet + Anticoagulant group	p value
	N=369	N=183	N=91	N=68	N=27	
Age	66.4 [±14.9]	60.1 [±16.2]	72.4 [±8.8]	73.3 [±11.4]	71.3 [±12.2]	<0.001
Gender; Male n (%)	211 (57.2)	96 (52.5)	58 (63.7)	35 (51.5)	22 (81.5)	
Hemoglobin g/dl	8.8 [±2.6]	9.2 [±2.8]	8.8 [±2.4]	7.9 [±2.0]	8.0 [±2.1]	0.003
Trasfusion	209 (56.6)	95 (51.9)	49 (53.8)	49 (72.1)	16 (59.3)	0.038
Diabetes	95 (25.7)	30 (16.4)	40 (44.0)	17 (25.0)	8 (29.6)	<0.001
Hypertension	170 (46.1)	60 (32.8)	61 (67.0)	33 (48.5)	16 (59.3)	<0.001
Overt bleeding	191 (51.8)	104 (56.8)	38 (41.8)	34 (50.0)	15 (55.6)	0.12

In table 1, there are reported patients' demographic and clinical characteristics. In the DOAC group we found a statistically significant higher number of patients presenting with active bleeding and without lesion identification (8 patients 20.0% Vs 11 patients 6.0% in the control group, 3 patients 8.6% in AVK group and 3 patients 15.0% in the injective anticoagulant group). The angioectasia is the most frequent lesion detected in patients with antiplatelet + anticoagulant therapy (7 patients 46.7% VS 21 patients 20.2% in the control group, 8 patients 21.1% in the antiplatelet group and 3 patients 8.8% in the anticoagulant alone group; p=0.027).

Conclusion: Our results show that patients with antithrombotic therapy are, usually, elderly and with more comorbidities than the control group. Furthermore, in this specific group, the hemoglobin level was lower and the need for transfusion was higher. Angioectasia is the most frequent positive findings in patients with both antiplatelet and anticoagulant therapy.

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Disclosure: Nothing to disclose.

PP0415

BLEEDING LOCATION IN THE GASTROINTESTINAL TRACT: INTERIM ANALYSIS FROM THE BLITGIT STUDY

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Introduction: Current guidelines suggest upper and lower GI endoscopy to investigate iron deficiency anaemia (IDA) because of a perceived low risk of small bowel pathology. We aimed to identify the Bleeding Location In The Gastrointestinal Tract (BLITGIT) in patients with IDA.

Aims & Methods: Patients referred to three centres (Sheffield, Hong Kong and Szekesfehervar, Hungary) for the investigation of IDA underwent small bowel (SB) capsule endoscopy (Navicam, AnX Robotica, Plano, US) in the week prior to upper and lower gastrointestinal endoscopy.

All lesions were described using terms selected from a predetermined diagnostic list and according to the perceived likelihood of bleeding (P0: unlikely; P1: suspected; P2: likely. Saurin et al., Endoscopy 2003).

Results:

Gastroscopy pathology (P1/P2)	Small bowel pathology (P1/P2)	Colon pathology (P1/P2)
Oesophagitis- 2 Oesophageal ulcer- 1 Oesophageal varices- 2 Gastric erosions- 9 Gastric ulcer- 5 Gastric polyp with blood - 1 Gastric antral vascular ectasia -2 Portal hypertensive gastropathy - 1 Duodenal ulcer- 3	Angioectasia- 23 Erosion - 18 Ulcers- 16 Polyp with eroded surface- 1 Fresh blood- 3 Portal hypertensive enteropathy- 1	Haemorrhoids- 15 Colorectal cancer- 3 Ulcerative colitis- 2 Diverticulitis-2 NSAID induced Ulcers- 1 Angioectasia- 2 Radiation proctitis- 2

Table-1: Number of patients with P1/P2 pathology identified at gastroscopy, SB capsule and colonoscopy.

92 patients (median age 61 years (IQR 45-72); 54.3% male) had a median haemoglobin of 107.5 g/L (IQR 93.2-121.7), ferritin 8(IQR 8- 18) and iron 3.8(IQR 3.8- 6.4). Completion rates for gastroscopy, colonoscopy and capsule endoscopy were 98.9%, 95.6% and 84.7% respectively. Diagnostic yield of P1/P2 lesions by SB capsule (48.9%) was higher than gastroscopy (27.1%) and colonoscopy (29.3%; p=0.003). On multivariant analysis there was no correlation between age, haemoglobin level, symptoms or medi-

cation on pathology. A few patients had more than one P1/P2 lesions. Three patients had colorectal cancer and two patients had a new diagnosis of ulcerative colitis.

Conclusion: The diagnostic yield in the small bowel is higher as compared to the upper and lower GI tract and examination should be considered routinely.

Disclosure: Nothing to disclose.

PP0416

A PROSPECTIVE RANDOMIZED STUDY COMPARING DOUBLE-BALLOON ENTEROSCOPY AND MOTORIZED SPIRAL ENTEROSCOPY

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Introduction: Enteroscopy is an established method for endoscopic diagnosis and interventions in the small intestine. Currently, there are three procedures available: single-balloon enteroscopy, double-balloon enteroscopy, and motorized spiral enteroscopy. Recent studies have shown that motorized spiral enteroscopy is very effective but also associated with more complications. There are no comparative studies between double-balloon and motorized spiral enteroscopy.

Aims & Methods: This randomized, prospective trial was conducted at two tertiary centers. All consecutive patients with an indication for enteroscopy were asked to participate in the study. Patients were randomly assigned to the motorized spiral or double-balloon arm after being informed. The examination was then performed with the respective procedure.

This study aims to compare the effectiveness of the new motorized spiral enteroscopy with double-balloon enteroscopy. The time to diagnosis or complete enteroscopy and possible complications of both procedures were investigated.

Results: 39 enteroscopies (19 motorized spiral, 20 double-balloon) were performed in 36 patients. In the spiral group, access was achieved orally in 58% of cases. A complete enteroscopy was possible in 26% of cases with a median time of 36 minutes. In 16%, a complete enteroscopy was possible via the oral route. In the double-balloon group, access was achieved orally in 85% of cases. A complete enteroscopy was possible in 10% of cases with a median time of 45 minutes. In 5%, a complete enteroscopy was possible via the oral route. Diagnostic yield was higher in double balloon enteroscopy compared to spiral enteroscopy with positive findings in 75% and 32% respectively. There was one perforation in the motorized spiral group. There were no severe complications in the balloon group.

Conclusion: Motorized spiral enteroscopy seems to be more effective in terms of speed and depth. However, it is also associated with more complications

Disclosure: Nothing to disclose.

PP0417

ROLE OF FIT IN IRON DEFICIENCY ANAEMIA- CAN IT PREDICT SMALL BOWEL PATHOLOGY?

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Introduction: The role of faecal immunochemical testing (FIT) as a biomarker to stratify patients with lower gastrointestinal (GI) symptoms is well established. However, its use in patients with iron deficiency anaemia (IDA) is controversial. The aim of this study was to investigate the role of FIT in predicting small bowel (SB) pathology in patients with IDA.

Aims & Methods: Patients with IDA and a FIT test who had negative bidirectional endoscopy and underwent a Small Bowel Capsule Endoscopy (SBCE) were included. Patients were split into two groups:

Group-1: Positive FIT (> 4 ug Hb/g) and IDA;

Group-2: Negative FIT and IDA.

Patients demographics, past medical history, medication history, haemoglobin and ferritin results, FIT levels and capsule endoscopy findings were recorded.

Results: 58 Group-1 patients (median age 71.5years (IRQ 58.7-76); 46.5% male) had a median haemoglobin of 104 g/L (IQR 97.7- 120.3) ferritin12 (IQR 8- 18) and median FIT 31(IQR 16.7- 158). 28 Group-2 patients (median age 61.5 years (IQR 49-69); males- 60.7%) had a median haemoglobin of 107 g/L (IQR 94- 123) and ferritin 11.5 (IQR 7- 20).

There was a significant difference in median age between the two groups (p=0.008). In 26 (44.8%) patients from Group-1 there was significant pathology identified on SBCE (angioectasia- 18, visible blood- 3, polyp-1, NSAID enteropathy-3, Duodenal ulcer-1 and SB Crohns-1). In 11 (39.2%) patients from Group 2 there was significant pathology identified on SBCE (angioectasia- 6, visible blood- 2, NSAID enteropathy-2, SB Crohns-1 and coeliac-1).

Some patients had more than one lesion on SBCE. The sensitivity and specificity of a positive FIT predicting SB pathology was 70.27% and 34.6 9% respectively. 10 patient in Group-1 and 2 patients in Group-2 admitted to using NSAIDs post-procedure although they had not revealed this during their pre-procedure medication documentation.

Conclusion: In patients with IDA and no clear cause seen at conventional upper and lower endoscopy, small bowel pathology was present in over a third of cases although this was not predicted by the FIT result. Capsule endoscopy should be considered in these cases. Regular NSAID use can cause significant SB pathology. It is important to screen for NSAID use prior to SBCE. Studies with larger numbers are needed to assess correlation between FIT and SB pathology in patients with IDA.

Disclosure: Nothing to disclose.

PP0418

USEFULNESS AND SAFETY OF OCTREOTIDE IN GASTROINTESTINAL BLEEDING FROM ANGIODYSPLASIAS IN THE ELDERLY: A SINGLE-CENTER 12-YEAR EXPERIENCE

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Introduction: Angiodysplasias (AD) are the most common source of gastrointestinal (GI) bleeding of obscure origin in the elderly. In this population, GI AD often leads to red blood cell (RBC) transfusion-dependent anemia, resulting in high rate of hospitalizations and overuse of healthcare resources. Argon plasma coagulation (APC) is the standard treatment option, but it is an invasive procedure, with possible serious complications in the presence of significant comorbidities, and frequently ineffective in preventing recurrence of GI bleeding. Octreotide has been studied in this context, but currently it is not a widely recommended drug.

Aims & Methods: Aim: To evaluate the usefulness and safety of long-acting release-octreotide (LAR-OCT) in the control of bleeding from GI AD in elderly.

Methods: Retrospective study of patients diagnosed with chronic GI bleeding due to AD and treated with intramuscular LAR-OCT between January 2010 and December 2022 in a tertiary hospital was performed. Demographic and clinical data were collected. Exclusion criteria: LAR-OCT suspension before completing 6 months of treatment.

Primary outcome: the presence of a normal Hb value (≥ 12g/dl) in the absence of any blood transfusions at 6 months(m) of therapy.

Secondary outcomes: increase in Hb value, reduction of transfusional requirements and adverse events. Statistical analysis was performed with SPSS vs 25.0 (significance level of 0.05).

Results: Nineteen out of 23 patients completed at least 6m of LAR-OCT therapy. The mean age at diagnosis of AD was 74.2 years (62 to 89 years); 63.2% were female. The mean value of Charlson Comorbidity Index was 6.37 (estimated 10-year survival around 2%). Before starting LAR-OCT, 13 patients (68.4%) were under endovenous iron supplementation and 7 patients (36.8%) had undergone APC; 31.6% required at least 4 RBC units in the last month.

Primary outcome was achieved in 5 (21.7%) patients. There was a statistically significant increase in the Hb values in the first 6m of therapy (p=0.000). Three patients (15.8%) required RBC transfusions in this period, but only one presented with overt GI bleeding.

Only 8 patients achieved 24m of therapy, showing a statistically significant increase from initial to 24-m Hb values (p=0.012).

Twelve (52.2%) patients were under antithrombotic agents; there was a statistically significant difference between initial Hb and 6-m Hb value in this subgroup (p=0.002); between initial and 24-m values, there was an increase in the Hb value but not statistically significant (p=0.068).

Concomitant iron supplementation was performed in 13 and APC in 3 patients.

Adverse events were registered in 2 patients, leading to drug suspension in only 1 (dysrhythmia).

Conclusion: In the setting of "difficult-to-treat" patients with GI bleeding due to AD, octreotide has been proposed as an alternative therapeutic strategy. In this cohort of older patients, with a relatively low estimated 10-year survival due to its comorbidities, LAR-OCT appears to be effective in increasing Hb values while reducing the need of RBC transfusions and, therefore, the number of hospital admissions. This is particularly important in elderly patients, having a potential impact on their quality of life and on the healthcare costs associated with recurrent GI bleeding. Limitations of this study are the retrospective design, the small number of enrolled patients and the inability of analyzing the individual effect of LAR-OCT. Further studies are needed.

Disclosure: Nothing to disclose.

PP0419

MITOCHONDRIA ARE BETTER PROTECTED FROM HYPOXIA-REOXYGENATION INJURY IN CRYPT-LIKE HUMAN INTESTINAL ORGANOIDS COMPARED WITH VILLUS-LIKE ORGANOIDS: A ROLE FOR MITOPHAGY?

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Introduction: Intestinal ischemia-reperfusion injury (IRI) is a life-threatening condition caused by an abrupt obstruction of mesenteric blood flow. Reestablishing blood flow (reperfusion) is necessary to save intestinal tissue but unintentionally exacerbates damage induced by ischemia. Mitochondria are sensitive to IRI; if damaged, they release cytotoxic molecules that can aggravate injury.

Therefore, removal of damaged mitochondria is essential for cellular survival. The selective clearance of mitochondria via autophagy, mitophagy, has been reported to protect against IRI in other organs, but its role in the intestine remains unknown.

Aims & Methods: The main objective of this study was to assess mitochondrial damage and evaluate signs of mitophagy in response to hypoxia-reoxygenation in a human small intestinal organoid (SIO) model and the differences therein between crypt-like (CL) and villus-like (VL) organoids. Both SIOs phenotypes were exposed to hypoxia-reoxygenation, and mitochondrial damage was assessed by live-cell imaging of mitochondrial membrane potential using fluorescent dye tetramethylrhodamine methyl ester (TMRM).

In addition, ultrastructural changes in mitochondria were evaluated by transmission electron microscopy (TEM). Finally, mitochondrial content, autophagy, and mitophagy markers were assessed using quantitative PCR (qPCR) and Western blot.

Results: A drastic decrease in TMRM fluorescence, indicating impaired mitochondrial activity, was mainly observed in VL organoids and not in CL organoids. Mitochondrial ultrastructural changes were observed in both phenotypes, including mitochondrial swelling and disrupted cristae following hypoxia, whereas after 480 minutes reoxygenation, mitochondria exhibited a tubular or small round shape. Mitochondrial content markers were decreased in both organoid phenotypes following hypoxia-reoxygenation. Most importantly, only CL organoids showed a significant increase in autophagy and mitophagy markers.

Conclusion: Mitochondria of VL organoids are more severely damaged by hypoxia-reoxygenation, whereas CL organoids might be protected by inducing mitophagy. The occurrence of mitophagy is currently further validated with live-cell imaging.

Disclosure: Nothing to disclose.

PP0420

FIRST FRENCH INTESTINAL STROKE CENTER FOR THE CARE OF ACUTE MESENTERIC ISCHEMIA: A 7-YEAR PROSPECTIVE COHORT STUDY

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Introduction: The need for multidisciplinary and expert 24/7 emergency care for acute mesenteric ischemia (AMI) has led to the implementation of the first Intestinal Stroke Center (ISC) in France in 2016. This study aimed to report our results at 7 years.

Aims & Methods: A prospective cohort study was conducted in our ISC unit and included all patients admitted for acute and chronic mesenteric ischemia (CMI) or dissections of coeliomesenteric arteries without ischemia. All patients were treated according to our multimodal and multidisciplinary protocol previously published (Corcos et al. Clin Gastroenterol Hepatol 2013). Patients are treated 24/7 by an on-call gastroenterologist coordinating management and care pathways between interventional radiologists, vascular and digestive surgeons, and intensivists. Patients were then followed with a clinical visit and CT angiography at 1, 3, 6, 12, and 24 months.

Results: Between January 1, 2016 and October 1, 2022, we received 3,910 calls concerning 2,525 patients, 84% from the Paris region and 14.5% from other regions of France. This represents an average of 361 patients/year, with an annual increase in calls of 35%, going from 155 calls the first year to 684 calls for the last year. We hospitalized 719 patients (103 patients/year on average), with a median age of 65 years (IQR 54-74), of which 42% were women, and including 493 AMI (69%), 106 CMI (15%) and 116 dissections of coeliomesenteric arteries (16%). Among patients hospitalized for AMI (n=493), 395 (80%) were secondary to arterial occlusion and 87 (20%) to porto-mesenteric venous thrombosis. In the AMI group, the revascularization rate was 72% for arterial AMI (0% for venous forms), and the resection rate was 57%. The 1-year survival was 75% for arterial AMI and 97% for venous forms. In the subgroup of AMI referred to our center within the first seven days (n=373), the bowel resection rate was 39%, and the 1-year survival rate was 79%. In the CMI group (n=106), the revascularization rate was 78%, the bowel resection rate was 1%, and the 1-year survival rate was 92%. In the dissections of coeliomesenteric arteries without ischemia (n=116), the treatment was mainly medical, with a revascularization rate of 3%, with no intestinal resection or death occurring at 1 year.

Conclusion: This large prospective study is the first to report on the activity and results of a specialized ISC for mesenteric ischemia and intestinal vascular diseases. Our results show that creating an ISC with standardized management focused on intestinal viability opened a recruitment channel for these severe patients with survival > 70% and resection rates < 50%, particularly in patients admitted at an early stage. These results encourage the creation of other regional ISCs in France and other countries as a new standard of care in AMI.

Disclosure: MSD Avenir grant.

PP0421

TREATMENT IN A SPECIALIZED INTESTINAL STROKE CENTER IMPROVES SURVIVAL AFTER ACUTE MESENTERIC ISCHEMIA: A STUDY FROM THE FRENCH NATIONAL HEALTH DATA SYSTEM

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Introduction: The need for a multidisciplinary and expert 24/7 emergency care has led to the implementation of the first Intestinal Stroke Center (ISC) in France. The objective of this study was to assess the impact of treatment in this expert center on the survival of patients with AMI.

Aims & Methods: We used the French National Health Data System (SNDS), covering 99% of the French population. All patients with a diagnosis of AMI and treated in the ISC or in 11 selected university hospitals with vascular and digestive surgical teams (unexposed control hospitals: Strasbourg, Lille, Lyon, Clermont, Nantes, Nice, Toulouse, Bordeaux, Marseille) were included over a period of 9 years between January 1, 2009 and December 31, 2018. The follow-up duration was 12 months, or until death.
Survival in the ISC was compared with that of other hospitals using a Cox model with adjustment for age and sex. Survival probabilities in the ISC are presented at 1, 3, and 12 months (M1, 3 and 12) and expressed as Hazard Ratios and their 95% confidence intervals.

Results: A total of 10,126 patients with AMI were identified, including 1,206 patients managed in the ISC, and 8,920 patients managed in control hospitals. Patients managed in the ISC had a lower risk of mortality at M1 (HR = 0.70 [0.70-0.89], p<0.001), at M3 (HR = 0.77 [0.69-0.86], p<0.001) and at M12 (HR = 0.81 [0.73-0.90], p<0.001) compared to non-ISC patients. The probability of survival in the ISC was 76% at M1 [73-78] (vs. 65% [64-66], p<0.001), 71% at M3 [69-74] (vs. 59% [58-60], p<0.001), and 66% at M12 [63-68] (vs. 54% [53-56], p<0.001).

Conclusion: This study is the first to provide comparative results evaluating the benefits of a specialized care for AMI. The results show a significant benefit in terms of survival compared to patients treated in control hospitals (+10% after 12 months). With a median admission of 120 patients / year / center, these epidemiological and prognostic results suggests that regional university hospitals should implement a specialized ISC to improve the prognosis of AMI and reduce disparities in patient care. Based on these findings, treatment of AMI in a specialized ISC was associated with an absolute increase in survival of 10% at 12 months. These results provide essential data to support the implementation of regional ISCs dedicated to the care of AMI in France and in other countries.

Disclosure: MSD Avenir Grant.

PP0422

PREDICTION OF INTESTINAL NECROSIS IN ACUTE MESENTERIC ISCHEMIA: A PROSPECTIVE VALIDATION OF THE SURVI SCORE

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Introduction: Mortality of acute mesenteric ischemia (AMI) is closely correlated with the development and extent of irreversible transmural intestinal necrosis (ITIN). In this context, the surgical assessment of small bowel viability is difficult, subjective (visual) and invasive. In order to better identify high-risk patients justifying an immediate surgical evaluation, the non-invasive Clichy score was developped in 2017 (Nuzzo et al. Am J Gastroenterol 2017). The aim of this study was to evaluate the diagnostic performance of this score.

Aims & Methods: The development cohort included 67 patients with AMI admitted to our center between 2009 and 2015, with a Clichy score including 3 independent factors (organ failure, elevation of plasma lactate > 2 mmol/L, and intestinal dilation on CT scan > 25mm; area under the ROC curve [AUROC] = 0.94 [95% confidence interval: 0.87–1.00]). The present validation study prospectively included patients admitted to our center for AMI between 2016 and 2018. The presence of ITIN was defined histologically as previously published. The diagnostic performance of the score was assessed by AUROC in the total cohort, and in the AMI subgroups of arterial and venous origin.

Results: 52 patients (mean age 65, 37% women) were included. Arterial and venous occlusion induced AMI occurred in 65% and 35% of cases, respectively. ITIN was confirmed in 14 patients (27%). Organ failure, elevation of plasma lactate > 2 mmol/L, and intestinal dilatation > 25 mm was observed in 17 (33%), 15 (29%) and 12 (23%) of patients, respectively. The AUROC for the diagnosis of ITIN by the Clichy socre was 0.90 (95% CI = 0.81 – 0.98). In the presence of 0, 1, 2 and 3 factors, the risk of ITIN was 0%, 14%, 55% and 75%, respectively (Figure).

In subgroup analyses, the AUROC for the diagnosis of ITIN was 0.96 (0.89 – 1.00) in arterial AMI, and 0.77 (0.53 – 0.85) in venous AMI. In arterial AMI, the risk of ITIN was respectively 0%, 13%, 67% and 100% in the presence of 0, 1, 2 and 3 factors. In venous AMI, the risk of ITIN was respectively 0%, 17%, 50% and 50% in the presence of 0, 1, 2 and 3 factors. The negative predictive value (NPV) of a score of 0 was 100% in both types of AMI. The positive predictive value (PPV) of a score of 3 was 100% in arterial AMI, and 50% in venous AMI.

Conclusion: This prospective study is the first which validates a non invasive diagnostic score of ITIN in the setting of AMI. The diagnostic performance of the score was satisfactory, especially in AMI of arterial origin. These results suggest that these factors should prompt laparotomy consideration if present. In the subgroup of venous AMI, further studies seem necessary to identify other risk factors.

Disclosure: MSD Avenir grant.

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Nutrition

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PP0423

CHARACTERISTICS AND DIABETES REMISSION AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY IN DIABETIC PATIENTS STRATIFIED BY BODY MASS INDEX

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Introduction: Since 2006 at our hospital, lifestyle modification, such as diet and exercise, for obese patients has been provided through a team approach with a physician, dietician, nurse, physical therapist and psychologist. From 2016, a surgeon and anesthesiologist were added to the team for metabolic/bariatric surgery (laparoscopic sleeve gastrectomy: LSG).

Aims & Methods: The aim of this study is to clarify the characteristics of obese patients with diabetes mellitus (DM) for whom LSG was effective according to body mass index (BMI). Of 24 diabetic patients who were received LSG between January 2017 and December 2021 with follow-up period of more than 1 year, 4 were with a BMI of < 35, 7 were with a BMI of 35 - 40, and 13 were with a BMI of 40 or more. The mean age was 51, 49 and 45 years. respectively. Complete remission of postoperative DM was defined as HbA1c < 6% without drug therapy, and incomplete remission was defined as a decrease in the amount of drug therapy among the other patients.

Results: Preoperative HbA1c (%) was 8.6, 7.0 and 8.0, and preoperative serum c-peptide (CPR) (ng/ml) was 1.9, 3.1 and 3.1, and preoperative ABCD score was 2.0, 4.4 and 6.0, respectively. There were no differences of preoperative complications, preoperative weight loss rate, postoperative weight loss rate, and postoperative body composition change rate. The postoperative complete DM remission rate (%) was 25, 71 and 69, respectively, and the drug dose was reduced in all patients, even in those with incomplete remission.

Conclusion: Regardless of BMI, complete remission of DM was achieved by performing LSG when CPR was maintained, even in patients with poorly controlled DM. On the other hand, even in patients with decreased CPR, benefits such as postoperative weight loss and drug reduction were observed. LSG should be actively considered in obese patients with DM.

Disclosure: Nothing to disclose.

PP0424

EVALUATION OF THE LONG-TERM EFFECTS OF NIGHT SHIFT WORK IN UNSUCCESSFUL WEIGHT MANAGEMENT AND REDUCING CARDIOVASCULAR RISK

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Introduction: Due to the daily rhythm of insulin level, an increase of the morning fasting blood sugar value was known in prediabetes statements. ECG heart rate variability (HRV) parameters like low-frequency (LF) and high-frequency (HF) also have a circadian pattern. The ratio of LF/HF can show the activity of the autonomic nervous system.

The evaluation of the epidemiological and metabolic aspects of lifestyle (effects of missing meals, high carbohydrate intake, night shift etc.) could help find a more accurate pathophysiological knowledge to improve overweight in therapy-resistant patients and clearing the risk of it.

Aims & Methods: Our aim was to compare the results of the mother-child group described in our reference abstract and the group performing physical work during night shift. Searching long-term effects of regular night shift physical work and staying awake, such as anaerobic exercise. Could more objective effects on weight loss or on cardiovascular risk be identified than mentioned in other night shift studies?

17 mothers (M) and 24 children (Ch) consecutively, and 24 night shift employees (NS) were examined in the morning after their night shift. The epidemiological parameters were evaluated, then the oral loading test with orally intake of 75 g of glucose was performed. We checked the venous blood gas parameters to follow mitochondrial function indirectly. The function of the autonomic nervous system was determined by a 2-minute resting HRV and LF/HF values.

Results: Our groups (mean+SD): age were M=48.8 +/- 5.1 vs. Ch=23.5+/-5.4, vs. NS=45.7+/-10.0. The averages of BMI were M=28.59 vs. Ch=31.65 vs. NS=31.56.

The 0-minute insulin: M=5.4 +/- 3.43 vs. Ch=9.0+/-4.13, vs. NS=10.17+/-5.06 which is significant according to Student's t-test, p(M-Ch)=0.003. p(M-NS)= 0.001. The lifestyle differences were irregularity and skipping of the breakfast in the NS group.

The venous lactate was after 120 minutes of the glucose intake (mean +/- SD) M=1.37 +/-0.52 vs. Ch=1.56 +/-0.43, vs. NS=1.51 +/-0.19. Lactate reference value (Siemens Epoc Reader) <0.75 mmol/l, p (M-Ch)=0.005, vs. p(M-NS)=0.003. The 0-minute lactate values were M=1.03+/-0.44 vs. Ch = 1.02 +/- 0.31, vs. NS = 1.17 +/- 0.48. p>0.05. HRV LF/HF values (mean+/- SD) were M= 1.2+/-0.54, vs. Ch=1.05 +/-0.59 vs. NS=0.74+/-0.23, p(M-NS) =0.025, p(M-Ch)>0.05. The venosus partial pressure of oxygen (average +/- SD) were M=28.2 +/- 7.22 vs. Ch=29.8+/-7.26, vs. NS=26.8+/-6.55. p(M-NS)>0,05.

Conclusion: The higher basal insulin and lactate level and lower venosus partial pressure of oxygen in the NS group could be explained by a relative tissue hypoxia which a factor of anaerobic metabolism and could increase the consumption of glucose in the muscles by GLUT4 transporters and elevating the level of circulating glucose.

The vagus tone helped in the dynamic autonomic regulation and it was responsible for cardiovascular health. Its decreasing correlates with the lower LF/HF ratio, which could be a marker for physical overload of the NS group.

Unsuccessful weight loss could be explained with the proportionally higher insulin level in NS group, which causes a feeling of hunger and helps the fat storage. On the other hand, the lower effectiveness of calorie-restricted diets should be improved with regular meals during night shift.
We presented a possible clinically measurable sign of the pathophysiological features of the adipose tissue hypoxygenisation as in hypoxia inducible factor 1-alpha studies presented.
We were planning a long-term health risk study to demonstrate the effectiveness of these parameters.
References: UEG 2023 Abstract 642 and 1400
Disclosure: Nothing to disclose.

PP0425

IMPACT OF SMOKING HABIT ON THE OUTCOMES OF ENDOSCOPIC SLEEVE GASTROPLASTY

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Introduction: Endoscopic sleeve gastroplasty (ESG) is a safe and effective procedure for class 1 and 2 obese subjects[1]. The effects of smoking habits on weight are well known regarding bariatric surgery[2-6]. However, given that this patient population is inherently weight-concerned, understanding the effects of tobacco use on post-operative weight loss in bariatric endoscopy is essential to guiding clinicians in counselling patients in this field.
Aims & Methods: A prospective dataset collecting data on all ESG procedures performed in an Italian tertiary referral centre was assessed retrospectively. Data on smoking habits (smoker, non-smoker, and previous smoker) were collected. Efficacy and safety between the three smoking categories was evaluated using an ANOVA test.

	Smoker	Non-Smoker	Ex-Smoker
6-months TBWL (%)	18,1 (5,6)	16,9 (6,4)	18,1 (6,4)
6-months EWL (%)	53,8 (20,4)	53,3 (23,6)	54,7 (21,8)
6-months WL (kg)	20,4 (7,2)	17,9 (8,0)	19,7 (7,7)
12-months TBWL (%)	17,0 (9,1)	15,7 (9,1)	16,0 (10,1)
12-months EWL (%)	51,0 (29,8)	49,4 (30,9)	48,3 (30,4)
12-months WL (kg)	19,0 (10,6)	15,5 (10,3)	17,3 (12,1)
24-months TBWL (%)	12,2 (12,5)	13,3 (10,0)	14,9 (8,7)
24-months EWL (%)	32,5 (37,0)	39,6 (29,8)	43,6 (24,4)
24-months WL (kg)	14,4 (14,0)	14,7 (11,9)	16,2 (10,6)

Results: Between May 2017 and October 2021, 290 subjects underwent ESG. Out of the total, smoking habits were available for 275 subjects: 144 non-smokers (NS; 52,4%), 51 smokers (S; 18,5%) and previous smokers (EX-S; 29,1%). No statistically significant differences in BMI was observed between the three groups.
In each group, no major complication were reported in the perioperative period. Adherence to follow-up was 93,1%, 92,4% and 73,5% for non-smokers, 90,2%, 84,3% and 82,4% for smokers, 91,3%, 90,0% and 71,9% for EX-smokers, at 6,12 and 24 months.
Average TBWL, EWL and WL were similar between the three groups at 6,12 and 24 months (see Table). In the non-smoker group, five subjects underwent revision procedures (4 Re-ESG, 1 Surgery) after 24 months, whereas one previous smoker underwent Re-ESG after six months. No revision was reported in the smoker group.
Conclusion: Our analysis, with the strengths of a large cohort and a long-term follow-up, showed that smoking habits do not influence the efficacy and safety of ESG for up to 24 months.
Finally, proper counseling of patients should advise the cessation of the smoking habit.
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Disclosure: Nothing to disclose.

PP0426

WOMEN IN MENOPAUSE ARE NOT SO DISADVANTAGED: OUTCOME OF ENDOSCOPIC SLEEVE GASTROPLASTY BASED ON FERTILITY STATUS

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Introduction: Endoscopic sleeve gastroplasty (ESG) is a safe and effective procedure in class 1 and 2 obese subjects.The effects of menopause on weight are well known. However, given that this patient population is inherently weight-concerned, understanding the effects of ESG on women in menopause is essential to guiding clinicians in counselling this patient population.
Aims & Methods: A prospective dataset collecting data on all ESG procedures performed in a tertiary referral centre was assessed retrospectively. Data on fertility status (menopause and non-menopause women) were collected. A comparison was performed using the Mann-Whitney U test.
Results: Between May 2017 and October 2021, 209 women underwent ESG. Out of the total, fertility status was available for 204 women: 79 menopause (M; 38,7%) and 125 non-menopause women (NM; 61,3%).At baseline, non-menopause women were younger, whereas there were no differences in BMI and weight.
Adherence to follow-up was 92,4%, 87,3% and 80,0% for menopause, 88,8%, 90,4% and 72,9% for non-menopause, at 6,12 and 24 months, respectively.
Six months after the procedure, non-menopause women showed significantly higher TBWL, WL and BAROS score compared to the menopausal group. In contrast, EWL showed no significant difference between the groups.Average TBWL, WL and EWL were not significantly different between the groups at 12 and 24 months (as shown in Table below).
Seven menopausal women needed revision procedures (5 Re-ESG, 1 Surgery), whereas ten non-menopausal women underwent revision (8 Re-ESG, two surgery).

		WL (kg)	EWL (%)	TBWL (%)	BAROS
6-months follow-up	Menopause (n=73)	15,0 (10)	50,8 (24,7)	15,2 (8,6)	3,5 (1,5)
	Non-menopausa (n=111)	17,0 (9,0)	54,9 (34,6)	17,2 (8,6)	4,0 (2,0)
	p	***0,017***	*0,068*	***0,0190***	***0,039***
12-months follow-up	Menopause (n=69)	13,0 (11,0)	47,8 (31,4)	14,1 (13,0)	3,5 (2,3)
	Non-menopausa (n=113)	16,0 (13,5)	52,5 (41,5)	16,3 (13,5)	3,5 (2,8)
	p	*0,162*	*0,318*	*0,223*	*0,506*
24-months follow-up	Menopause (n=40)	13,0 (15,6)	40,5 (39,3)	13,6 (14,8)	2,6 (2,9)
	Non-menopause (n=62)	10,0 (11,8)	35,4 (45,0)	10,4 (13,4)	2,5 (3,4)
	p	*0,4*	*0,716*	*0,519*	*0,776*

Table. Weight loss trajectories of subjects who underwent Endoscopic Sleeve Gastroplasty, based on menopausal status. Data are reported as median (Interquartile range).

Conclusion: Non-menopausal women who undergo ESG show better outcomes in the short term. However, this advantage does not persist in the medium and long term.
Disclosure: Nothing to disclose.

PP0427

IMPACT OF PREGNANCY ON WEIGHT LOSS AFTER ENDOSCOPIC SLEEVE GASTROPLASTY

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Introduction: Obesity, one of the most common co-morbidities in women of reproductive age, contributes to infertility and obesity-related pregnancy complications. On the other hand, pregnancy is a condition in which, physiologically, the pregnant woman undergoes weight gain. Endoscopic Sleeve Gastroplasty (ESG), an organ-sparing bariatric procedure aimed to reduce gastric volume and modify gastric motility with full-thickness endoscopic sutures, may be used for the treatment of obesity in women of childbearing age.
Aims & Methods: A retrospective analysis of a prospective database was conducted to evaluate weight trajectories, the evolution of obesity-related comorbidities, and lifestyle modification in women who became pregnant after ESG.
A comparison was made between childbearing-age women who became pregnant after ESG and non-pregnant women who reached at least the 6-month follow-up after ESG.
Results: Between January 2018 and December 2021, a total of 150 childbearing-age women underwent ESG at a large Italian tertiary medical center. Out of the total, 18 patients (12,0 %) reported a desire for pregnancy associated with unsuccessful attempts in the 12 months preceding ESG.
Eleven patients (mean age 33,4±6,2 years) became pregnant after the procedure, following a mean time interval of 5,5±3,9 months. The mean preconception BMI was 31,9±4,0 kg/m^2 (with a mean reduction of 7,24±4,0 kg/m^2 after ESG). Three patients were affected by hyperinsulinemia (H-INS), while an additional patient had both H-INS and high blood pressure (HBP). Three women reported difficulty in becoming pregnant before the ESG: two were affected by PCOS.
Total body weight loss (TBWL) of at least 5% was achieved before pregnancy in all patients (73% reached a TBWL ≥ 10%).
Six out of eleven (55%) patients had weight gain in the ranges recommended by the Institute of Medicine (IOM) during pregnancy. Among the 18 women with a reported desire for maternity associated with difficult attempts in the previous 12 months, 16,6 % (3/18) managed to start and carry out a pregnancy.
TBWL (%) was 18,08±8,00, 10,35±11,53, and 12,08±8,49, at the beginning of pregnancy, at the delivery, and at the first follow-up (mean interval, 5,18±3,57 months).
No significant differences in WL, TBWL, EWL, BMI, BAROS, and QoL were found between the pregnancy and non-pregnancy groups (99 childbearing-age women) up to 24 months after ESG.
Conclusion: ESG produces adequate weight loss before pregnancy in patients with obesity and is potentially a useful treatment option for women who have difficulty becoming pregnant, such as those with PCOS. Pregnancy after ESG does not adversely affect weight loss outcomes after delivery as lifestyle changes induced by ESG are maintained after pregnancy and allow for a gradual loss of weight gained during pregnancy.
Disclosure: Nothing to disclose.

PP0428

REAL-WORLD DATA REGARDING THE OBESITY PARADOX IN PATIENTS WITH GASTROENTEROPANCREATIC NEUROENDOCRINE NEOPLASMS IN A SINGLE CENTRE IN THE UNITED KINGDOM

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Introduction: The obesity paradox, in patients with cancer, is a hypothesis showing patients with obesity have a prolonged overall survival compared to the ones with a normal weight. This paradox is present in different types of cancer, lung cancer, renal cell cancer, and melanoma. For gastrointestinal cancers, there are conflicting results regarding the obesity paradox. Neuroendocrine neoplasms (NENs) are rare cancers arising anywhere in the body but mainly within the gastroenteropancreatic (GEP) tract. NENs differ from other gastrointestinal cancers as they have a relatively good prognosis even in metastatic disease. NENs are classified into three different grades (G1, G2, G3) based on mitotic count and Ki-67 staining. The grades are correlated with overall survival patients with G1 GEP-NENs have significantly better overall survival compared to patients with G2 or G3 GEP-NENs.
The presence of the obesity paradox in patients with GEP-NENs is only described in one population-based study from the USA. However real-world data exploring the obesity paradox are lacking.
Aims & Methods: Aim: To explore the presence of the obesity paradox in patients with GEP-NENs in a single centre in the United Kingdom.

A cross-sectional study was performed regarding all patients with GEP-NENs and treatment with monthly somatostatin analogues (SSA's) between August 2018 and February 2019. During this period all patients weight, height and BMI were collected. Additional demographic and histopathologic data were extracted from the local hospital database. Stable disease was classed as having no change in oncological treatment within 3 months of weight/height screening. Overall survival (OS) was calculated from the moment of weight/height screening until death or the last follow-up appointment (data cut-off June 2022). Kaplan Meier, log-rank tests and Cox regression analysis were performed.

Results: In total 118 patients, n=55 (47%) males with a median age of 67 years (IQR 56.8 – 75) were included. The primary tumour was in the small intestine in n=91 (77%) and pancreas in n=25 (21%) of patients, and grade 1 in n=74 (71%) or grade 2 in n=30 (29%) of patients. In 91 patients (77%) there was stage IV disease. The median period since diagnosis was 40 months (IQR 14 – 84 months) and median period on SSA 23 months (IQR 5.5 – 59 months). The median BMI is 24.8 (IQR 21.7 – 28.7), 7 patients (6%) are underweight (BMI <18.5), 52 patients (44%) had a normal weight (BMI 18.5 – 24.9), 33 patients (28%) were overweight (BMI 25 – 29.9), 26 patients (22%) were obese (BMI >30). There are significant OS differences between BMI categories p-value 0.002. When correcting for age HR 1 (0.97 – 1.05), sex HR 1.3 (0.49 – 3.66), grading 2.06 (0.74 – 5.72), stable disease versus progressive disease HR 5.4 (1.9 – 14.9), the BMI is still significantly associated with OS with HR 0.31 (0.16 – 0.62), p-value 0.002.

Conclusion: This study shows some evidence for the presence of the obesity paradox in a real-world population of patients with GEP-NENs using an SSA. Patients with a low or normal BMI might benefit from extra attention to their nutritional status and nutritional support. Future research should focus on the pathophysiologic mechanism explaining the obesity paradox.

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Disclosure: Nothing to disclose.

PP0429

INTRAGASTRIC INJECTION OF BOTULINUM TOXIN A COMBINED WITH SUBCUTANEOUS LIRAGLUTIDE IN OVERWEIGHT AND OBESE PATIENTS: A RETROSPECTIVE COHORT STUDY

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Introduction: Around 23% of adults in Europe are obese, with levels reaching one third in certain countries [1]. Due to its minimal invasiveness, intragastric botulinum toxin (BTX-A) injection, has become an alternative option for patients who don't want to undergo bariatric surgery. Nevertheless, there is ongoing debate regarding its clinical effectiveness [2-4]. In 2015, the European Medicines Agency granted permission for the use of daily subcutaneous (sc) liraglutide 3mg as an aid for weight loss in overweight and obese adults. Based on literature, there have been no studies combining gastric BTX-A and liraglutide administration for weight management. Therefore, we decided to conduct a retrospective study using data from our clinic record files to present the results of our experience with this approach so far.

Aims & Methods: Aim of this retrospective, cohort study is to investigate the safety and efficacy of combining intragastric BTX-A with sc liraglutide 3mg for weight management in obese and overweight individuals. A total of 300 units (U) of BTX-A were diluted in 20ml of normal saline 0.9%. Injections containing 0.5ml of the prepared solution were administered into the submucosa of the gastric antrum, body and fundus in a circular direction with 1-3cm intervals, using a standard 6mm sclerotherapy needle of 23 gauge. We incorporated liraglutide and gastric BTX-A with a reduced calorie diet and increased physical activity. The primary outcome of the study was to evaluate the effect of the combined treatment on weight loss (in kilograms, kg) in obese and overweight patients, based on measurements taken during patient follow-up at 3 and 6 months after treatment. The efficacy of the treatment was further assessed based on measurements of body mass index-BMI (kg/m^2) and visceral fat (%) taken at the aforementioned time points.

Results: Between September 2022 and April 2023, a total of 60 patients(81.7% female) received combined treatment and completed the 3 and 6-month follow-up. The baseline mean(± standard deviation) weight and BMI were 94.5±16.9kg and 33.7±4.7kg/m^2, respectively. Following intragastric BTX-A and liraglutide treatment, body weight and BMI decreased significantly: by 8.3±4.3kg and 3±1.6kg/m^2 at 3 months, and by 12±6.2kg and 4.2±2.2kg/m^2 at 6 months(all $P < 0.001$). At 3 months, BMI was reduced by 8.9±4.5% and body weight by 8.8±4%. At the same time-point, 65% of subjects had already lost more than 7% of their baseline body weight. Regarding BMI, 55% and 36.7% of patients experienced a reduction of more than 8% and 10% of their baseline BMI, respectively. The reduction in weight, BMI, and visceral fat did not differ significantly between genders or between overweight and obese patients. However, patients with moderate obesity appeared to benefit more in terms of weight loss(12±5.4 kg) and BMI reduction(4.3±1.9 kg/m^2) compared to overweight patients (6.7±2.9kg, p=0.002) and those with mild obesity(6.9±2.7 kg, p=0.001). After 6 months, visceral fat decreased significantly by 2.3±3.8%(P=0.002). Among all patients, 19% experienced mild side effects, including constipation (9%), headache (4%), diarrhea(3%), and nausea(3%).

Conclusion: This is the first study that combined gastric BTX-A with liraglutide for weight management. Results revealed noteworthy reductions in weight, BMI, and visceral fat, without any severe side-effects. To confirm these findings and establish the efficacy of this approach, randomized clinical trials are required.

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Disclosure: Nothing to disclose.

PP0430

REDO TRANSORAL OUTLET REDUCTION (RE-TORE): TECHNICAL FEASIBILITY AND MEDIUM-TERM OUTCOMES

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Introduction: Weight regain and dumping syndrome (DS) are two relevant long term adverse events after Roux-en-Y Gastric Bypass (RYGB). Both these conditions are related to the dilation of the gastro-jejunal anastomosis. Transoral outlet reduction (TORe) is minimally invasive endoscopic procedure that was introduced to treat these conditions when medical treatment fails. As every endoscopic procedure, TORe is repeatable per definition. In this case series, we evaluate the technical feasibility and short and medium-term outcomes of the redo TORe in patients with weight regain and/or DS recurrence after primary TORe.

Aims & Methods: A retrospective analysis was done on a prospective database including patients that underwent TORe between January 2015 and October 2021; patients who received a re-TORe because of progressive loss of satiety and weight regain (≥50% of weight loss after primary TORe), or recurrence of DS were included in the analysis. DS recurrence was defined as Sigstad's dumping score ≥7. Sigstad's score, early and late Arts Dumping Score (ADS) questionnaires, and percentage of total body weight loss (%TBWL) were assessed at baseline, at 6 and 12 months after re-TORe.

Results: Of 92 patients that underwent TORe, 10 required a re-TORe. Indication to re-TORe was weight regain alone in 3 patients, while the remaining 7 repeated the procedure due to both DS recurrence and weight regain. The median time between the primary TORe and the re-TORe was 28 months (range 14-64 years). The median weight regain was 217% (IQR 400) compared to weight at primary TORe and 31.3 % (IQR 16) compared to weight at RYGB. The median Sigstad's score for patients with recurrent DS was 14 (IQR 4.5), while median early ADS was 5 (IQR 9.5) and late ADS was 8 (IQR 3.5). The redo TORe was technically feasible in all patients. No periprocedural adverse events occurred. Mean percentage of total body weight loss (%TBWL) was 7.7% (IQR 2) at 1 month, 10.1% (IQR 14.2) at 6 months and 10.1% (IQR 18) at 12 months. 6/7 patients undergoing re-TORe because of recurrent DS reached 6- and 12-months follow-up. 3/6 patients had a complete remission of DS maintained at 1 year. Trends of symptoms-based questionnaire for DS are reported in table 1.

Dumping syndrome outcomes after re-TORe

	Baseline	6 months	12 months	P#
Sigstad's Score	14 (4.5)	7 (1-14)	4.5 (1-14)	0.04
EADS	5 (1-10.5)	4 (0-4)	4.5 (0-8)	0.01
LADS	8 (5.5-9)	3 (0-4)	2.5 (0-4)	0.06

Friedman test,
Values are median (Q1-Q3)
EADS= Early Arts Dumping Score questionnaire; LADQ= Late Arts Dumping Score questionnaire.

Conclusion: According to our experience, redo TORe is technically feasible and has good short and medium-term outcomes in terms of weight loss and DS control. As such, repeating the procedure should be considered before referring patients for revision surgery.

Disclosure: Nothing to disclose.

PP0431

IMPACT OF THREE TECHNIQUES OF ENDOSCOPIC GASTROPLASTY ON ANTHROPOMETRIC MEASUREMENTS, BODY COMPOSITION AND QUALITY OF LIFE: PRELIMINARY RESULTS FROM A SINGLE CENTER, RANDOMIZED STUDY

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Introduction: Endoscopic Gastroplasty (EG) is an endoscopic therapy focusing on gastric body emodeling to treat obese patients. Nowadays three different techniques are mainly described in literature: endoscopic sleeve gastroplasty (ESG) with an overstitch endoscopic suturing device, endoluminal vertical gastroplasty (EVG) with a triangulation platform and endoluminal suturing device, and distal primary obesity surgery endoluminal (POSE-2) with an endoscopic plication system.

Aims & Methods: Our study aimed to assess changes in anthropometric measurements (AM), body composition (BC) and quality of life (QoL) of these three EG techniques at 6 months follow-up. This was a single center, randomized study (ClinicalTrials.gov NCT04854317) of patients who underwent EG (through ESG performed by Apollo Overstitch Sx, or EVG performed by Endomina, or gastric plication performed by POSE-2) for the treatment of obesity. Outcomes included the efficacy of the three EG procedures at inducing weight loss, improving body circumferences (arm, waist, hip and calf), BC (fat mass (FM), free fat mass (FFM), body cell mass (BCM)), and QoL.

Results: Between July 2020 and October 2021, 90 obese (body mass index 36.6 ± 3.1 kg/m2) patients (mean age, 46 ± 10 years; females 87.5%; obesity class II as the main obesity class in 58.3% cases; hepatic steatosis as the main comorbidity with a 70% frequency) underwent EG through ESG or EVG or POSE-2. At 6 months, 63/90 (70%) patients attended their follow-up visit. They experienced 16% ± 6% total body weight loss (TBWL) and 39.7% ± 14.9% excess weight loss (EWL). Sixty out of sixty-three (95.2%) patients achieved at least 5% TBWL, and 54/63 (85.7%) achieved at least 25% EWL. All the body circumferences homogeneously decreased ($p<0.001$). Concerning BC, the FM and FM% significantly decreased ($p<0.001$), while the FFM% and BCM% increased ($p<0.01$). The QoL measured by BAROS test improved at 6-month follow-up ($p<0.01$).

Conclusion: EG through ESG, EVG and POSE-2, focusing on gastric body reduction and sparing the fundus and antrum, appears to be effective for the treatment of obese patients inducing weight loss and improving the other AM, BC and QoL.

Disclosure: Consultant of: Apollo Endosurgery, USGI Medical, Endotools.

PP0432

THE ROLE OF THE PHASE ANGLE AS PREDICTING FACTOR OF WEIGHT LOSS IN ENDOSCOPIC GASTROPLASTY: RESULTS FROM A SINGLE CENTER, RANDOMIZED STUDY

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Introduction: Endoscopic Gastroplasty (EG) is an endoscopic therapy focusing on gastric body remodeling to treat obese patients. Nowadays three different techniques are mainly described in literature: endoscopic sleeve gastroplasty (ESG) with an overstitch endoscopic suturing device, endoluminal vertical gastroplasty (EVG) with a triangulation platform and endoluminal suturing device, and distal primary obesity surgery endoluminal (POSE-2) with an endoscopic plication system.

Aims & Methods: Our study aimed to assess changes in weight loss of these three EG techniques at 6 months follow-up, looking at some useful parameters which could predict these changes. This was a single center, randomized study (ClinicalTrials.gov NCT04854317) of patients who underwent EG (through ESG performed by Apollo Overstitch Sx, or EVG performed by Endomina, or gastric plication performed by POSE-2) for the treatment of obesity. Outcomes included the efficacy of the three EG procedures at inducing weight loss, measured by the percentage of Total Body Weight Loss (%TBWL) and Excess Weight Loss (%EWL).

Results: Between July 2020 and October 2021, 90 obese (body mass index 36.6 ± 3.1 kg/m2) patients (mean age, 46 ± 10 years; females 87.5%; obesity class II as the main obesity class in 58.3% cases; hepatic steatosis as the main comorbidity with a 70% frequency) underwent EG through ESG or EVG or POSE2. At 6 months, 63/90 (70%) patients attended their follow-up visit. They experienced 16% ± 6% TBWL and 39.7% ± 14.9% EWL, with no significant difference among the three techniques in both of parameters ($p>0.62$ in TBWL and $p>0.94$ in EWL ANOVA tests). Sixty out of sixty-three (95.2%) patients achieved at least 5% TBWL, and 54/63 (85.7%) achieved at least 25% EWL.

All the body circumferences homogeneously decreased ($p<0.001$). By a linear regression analysis, at 6 months follow-up a significant correlation between the Phase Angle and the %TBWL ($p<0.05$) and %EWL ($p<0.05$) was detected.

Conclusion: Our study confirms that ESG, EVG and POSE-2 are valuable EG procedures to reduce weight in obese patients. The Phase Angle could be considered a useful predictor of weight loss after the EG, at least in the short-term. Detecting valuable predictors of weight loss could be helpful not only in the post-operative, but also and mainly in the pre-operative to tailor a specific intervention for each patient according to the emerging concept of personalized therapy for obesity.

Further studies with more patients and a longer follow-up are needed to confirm our data.

Disclosure: Consultant of: Apollo Endosurgery, USGI Medical, Endotools.

PP0433

ROBOTIC ENDOSCOPIC SLEEVE GASTROPLASTY FOR THE TREATMENT OF OBESITY: AN INTERIM ANALYSIS OF A MULTICENTER PILOT STUDY

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Introduction: Endoscopic sleeve gastroplasty (ESG) is a minimally invasive restrictive bariatric procedure associated with significant weight loss, obesity-related comorbidities improvement, and a favorable safety profile. The suturing devices, available today, are often tricky and operator-dependent. A novel automated endoluminal-sutured gastroplasty system (EndoZip™, Nitinotes Ltd. based in Israel), has been developed to simplify and standardize ESG. The device is positioned in the gastric body under endoscopic vision and is connected to an external vacuum pump that captures the gastric wall segments into the distal end of the device. The activation of a motor system makes a custom-designed needle pass through the tissue and allows stitching, tightening, clipping, and cutting of suture wire. The suturing actions are done automatically in approximately 2 minutes, by just pressing on the operation button.

Aims & Methods: This multicenter, prospective, single-arm study aimed to assess the safety and efficacy of the ESG using EndoZip™ for the treatment of obesity. Patients with a BMI of 30 to 40 kg/m^2 unable to lose weight with non-invasive approaches and deemed suitable for bariatric endoscopic according to the multidisciplinary team were enrolled in 3 centers (Spain, Italy and Israel). The efficacy of the EndoZip™ system was assessed. %TBWL, and % of patients with %TBWL ≥5% were evaluated via ANCOVA model. Safety data and physician's satisfaction with device use, were evaluated via descriptive statistics.

Results: Forty-five patients underwent robotic endoscopy-assisted gastric volume reduction. The mean ±SD age was 44 ±8 years, and BMI was 34.6 ±2.9 kg/m^2, respectively. The majority of the patients were female (89%). the average procedure time was 30 minutes. We used an average of 3.9 sutures; At 12 months, the mean ±SD %TBWL was 13.5 ± 10.4%. We observed >5% TBWL in 79.4% of the patients (Table 1). All endoscopists found the device easy to use. Serious adverse events occurred in 2 patients (bleeding and gastric perforation). The bleeding was stopped with endoscopic clipping, and the gastric perforation required surgical closure. No mortality occurred.

	1 month	2 months	4 months	6 months	12 months
Adj. Mean %TBWL (Lower 95% CL)	**7.4%** (6.6%)	**10.3%** (8.9%)	**13.3%** (11.5%)	**14.5%** (11.7%)	**13.5%** (10.4%)
%TBWL ≥5% (Lower 95% CL)	**78.6%** (63.2%)	**92.7%** (80.1%)	**92.3%** (79.1%)	**85.0%** (70.2%)	**79.4%** (62.1%)

Per Protocol Analysis

Table 1.

Conclusion: EndoZip™ system is an operator-friendly and reproducible procedure with promising efficacy and safety results.

Disclosure: Ivo Boskoski is a consultant for Apollo Endosurgery, Cook Medical, Boston Scientific, and Nitinotes.

PP0434

OVERGROWTH OF AKKERMANSIA MUCINIPHILIA BY SPRING WATER INGESTION PREVENTS OBESITY AND HYPERGLYCEMIA IN A HIGH-FAT DIET-INDUCED MOUSE MODEL

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Introduction: It has been known that type 2 diabetes may be alleviated by mineral water (MW) ingestion. We investigated whether spring water (SW) ingestion, a kind of a mixed MW, influences metabolic parameters via alteration of the gut microbiota in high-fat diet (HFD)-fed mice.

Aims & Methods: We divided total thirty two C57/BL mice into four groups: normal diet with tap water (Control, 8), high fat diet with tap water (HFD, 8), high fat diet with SW (HFD plus SW, 8), and normal diet with SW (SW, 8). During this experiment, we weekly checked body weight (BW) with fasting blood sugar (FBS) and all mice were sacrificed at 17th wk in order to observe the serologic markers, the internal organs and composition of gut microbiota.

Results: The body weight of HFD-fed mice was significantly higher than that of mice fed an HFD plus SW in the early period of the experiment. Fasting blood glucose in the HFD group showed a fluctuating pattern compared to the HFD plus SW group, and the area under the curve value of the oral glucose tolerance test was significantly greater in the HFD group than in the HFD plus SW group. Serologic markers were not significantly different between the HFD and HFD plus SW groups. Histologically, the most severe fatty changes in the liver were observed in the HFD group. The gut levels of Akkermansia muciniphilia were 100-fold higher in HFD plus SW than in HFD mice.

Conclusion: These findings indicate that SW ingestion, and the associated Akkermansia muciniphilia overgrowth in the gut, may improve early stage of obesity and ameliorate HFD-induced hyperglycemia.

Disclosure: Nothing to disclose.

PP0435

NON-LINEAR ASSOCIATIONS BETWEEN SLEEP DURATION AND VISCERAL ADIPOSITY INDEX: A POPULATION-BASED STUDY

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Introduction: Obesity is a significant global health concern, and recent research has suggested that sleep duration may play a role in its development[1]. However, previous studies have yielded inconsistent results[2,3]. Traditional methods of measuring obesity, such as BMI, do not distinguish between different types of fat. Visceral fat, which is linked to negative outcomes associated with obesity, can be assessed using the visceral adiposity index (VAI), which is based on simple measurements and lipid parameters[4]. Despite being a reliable indicator of visceral fat distribution and function, the relationship between sleep duration and VAI remains unclear.

This study aims to address this gap by examining the association between sleep duration and VAI in a population-based cohort, providing further insight into the potential connection between sleep and obesity.

Aims & Methods: The purpose of this study was to determine the association between sleep duration and VAI in a population-based cohort. In the present study, eligible participants were identified from the National Health and Nutrition Examination Survey (NHANES) between 2007 and 2018. VAI was calculated by anthropometric data (height, weight, and waist circumference) and lipid parameters (triglycerides and high-density lipoprotein cholesterol). The duration of sleep was assessed using a questionnaire and classified into three groups according to The American Academy of Sleep Medicine and the Sleep Research Society: short sleep duration (less than 7 hours per day), normal sleep duration (between 7 and 9 hours per day), and long sleep duration (more than 9 hours per day) [5]. Multiple linear regressions and subgroup analyses were used to evaluate the associations between sleep duration and VAI.

Results: A total 11,274 eligible participants with a mean age of 49.3 years were included in the current study. The mean sleep duration and VAI were 7.05 h/day and 2.03 respectively.

After adjusting for the sociodemographic, lifestyle and other covariates, short sleep was significantly associated with increased VAI (β = 0.15, 95% confidence interval (CI): 0.01– 0.29, p = 0.04) in relation to middle sleep duration, whereas no significant association was found between high sleep duration and VAI. An L-shaped relationship was observed between sleep duration and VAI. When sleep duration was less than 7.5 h/day, a negative correlation between sleep duration and VAI was obvious. However, when sleep duration was > 7.5 h/day, VAI was increased with a longer sleep duration, although it was not significant. In addition, a negative relationship between sleep duration and VAI only existed in the normal weight group, rather than in the overweight and obese groups.

Conclusion: An L-shaped relationship was observed between sleep duration and VAI. Short sleep duration, rather than long sleep, was linked independently with an augmented VAI, suggested that sleep deprivation might influence visceral adipose distribution and disfunction.

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Disclosure: Nothing to disclose.

PP0436

OUTCOMES OF ENDOSCOPIC SLEEVE GASTROPLASTY AFTER FAILURE OF GLUCAGON-LIKE PEPTIDE-1 ANALOG MEDICATIONS FOR WEIGHT LOSS

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Introduction: Glucagon-like peptide-1 (GLP-1) analog medications including semaglutide, liraglutide, and tirzepatide are now available as effective weight loss therapies and are increasingly used for medical management of obesity. However, failure to achieve a high degree of weight loss is common, and many patients do not tolerate the medication due to adverse events. Over the last decade, endoscopic sleeve gastroplasty (ESG) has been established as an effective minimally invasive intervention for obesity. GLP-1 agents and ESG share some common mechanisms including favorable changes in satiety, hormones, delay in gastric emptying and feeling of restriction, thus it needs to be studied if use of ESG in patients with prior use of failure of GLP-1 agonist is effective or futile. However, it is currently unknown if ESG can be effective for weight loss in patients with prior use or failure of GLP-1 agonists.

Aims & Methods: We conducted a retrospective analysis of our prospectively maintained ESG patient registry at West Virginia University. Patients who underwent endoscopic sleeve gastroplasty were identified. We identified prior use of GLP-1 agent and other medications. GLP-1 failure was defined as </= 5% total body weight loss (TBWL) and </= 10% excess body weight loss (EBWL) with the medication. Patients with GLP-1 use less than 6 months at time of ESG were excluded. Clinical success of ESG was defined as >/= 25% excess body weight loss, per ASGE criteria. Adverse events were noted and characterised.

Results: A total of 13 patients with GLP-1 agonist failure who underwent ESG were identified and included. Most patients were female (84.6%), and all patients had at least one metabolic co-morbid condition. Mean pre procedure body mass index (BMI) was 40.94 kg/m^2 [SD (standard deviation): 5.64 kg/m^2]. Seven patients had received semaglutide and 6 patients had received liraglutide treatment. All 13 patients underwent ESG procedure uneventfully and a median of 6 sutures were placed (range 4-8). No immediate complications were noted.

At a mean follow up of 20 weeks, a mean total weight loss of 38.6 lb (SD: 17.90) was noted. Mean percentage TBWL in the cohort was 14.9% (SD: 6.67%). Mean percentage EBWL in the cohort was 39.08% (SD 19.95%). Twelve patients achieved >25% EBWL within study period and were considered treatment success, and failure rate of 1/13 was noted (7.7%).

One patient suffered mild dehydration and received IV fluids in the outpatient clinic with no further consequences. No ESG-related serious adverse events occurred in any participant; and no mortality or need for intensive care or surgery was noted in the cohort.

Conclusion: In our experience, ESG has been safe and effective in inducing weight loss after GLP-1 agent use. These data point towards possible synergistic or salvage role of ESG after GLP-1 treatment; further large studies and prospective data are needed.

Disclosure: Nothing to disclose.

PP0437

GENDER IMPACT TO ENDOSCOPIC SLEEVE GASTROPLASTY OUTCOMES

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Introduction: Endoscopic sleeve gastroplasty (ESG) is established as effective and mini-invasive procedure for obesity. Patients undergoing bariatric procedures in 80% of the cases are females. It is known that gender plays a role in several metabolic networks related to obesity; however no studies have investigated the gender impact on obesity after ESG.

Aims & Methods: To evaluate the gender impact on long-term weight loss outcomes after ESG in patients treated in our bariatric unit. We analyzed 160 patients that underwent ESG at Fondazione Policlinico Gemelli IRCCS from mese 2017 to mese 2021. A matched-pair analysis between the two groups for baseline BMI, age, and timing of the procedure was done. Weight loss outcomes were described in terms of total body weight (TBWL%) and excess weight loss (EWL%) at 12, 24 and 30 months.

Results: We found that men presenting for ESG had a higher body mass index (BMI) than women (40,7 kg/m^2 vs 39,8 kg/m^2). After ESG the TBWL% in female at 12, 24, and 30 months was 17,2%, 14,0% and 15,2% compared to 14,9%, 14,3% and 9,6% in men, respectively. The EWL% was 48,4%, 39,6% and 41,7%, compared to 41,9%, 39,5% and 24,3% in men, respectively.

Conclusion: Women have more durable weight loss compared to men. More in depth studies are needed to understand the cause of this difference.

Disclosure: Nothing to disclose.

PP0438

STRONGER HUNGER CONTRACTIONS IN OBESE THAN NORMAL VOLUNTEERS CORRELATE TO PLASMA PEAK GHRELIN BUT NOT TO GLUCOSE, INSULIN OR GUT HORMONE RELEASE

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Introduction: Obese subjects often report strong, and even painful, hunger contractions during fasting. This incites eating. However, previous studies report less frequent gastric contractions of the migrating motor complex (MMC), substantiated by lower motilin plasma levels in the obese.

Hence, the motilin-regulated MMC was considered defective in the obese. In order to study the meal-related response which is closely related to ghrelin we used the SmartPill wireless motility capsule (WMC) obese to record for a prolonged period over 5 days.

Aims & Methods: The aim of our study was to evaluate the frequency and amplitude of hunger contractions that appear in anticipation of a meal.

For both research and clinical investigations, the SmartPill wireless motility capsule (WMC) is increasingly used to quantify gastric emptying time (GET). Although the two methods are intended to measure essentially the same parameter, physiological variables affecting results can differ.

Correlation data between GET and acetaminophen was therefore pursued. In a separate group, correlations between GET, hunger contractions and the metabolic response to a meal in terms of plasma glucose and peptide hormones were studied.

WMC recordings and metabolic response were obtained from 41 healthy volunteers and 32 obese subjects. Fasted subjects ingested a 260-kcal mixed meal, 1.5g acetaminophen and the WMC. Plasma was obtained -10, 0 (meal), 10, 20, 30, 40, 50, 60, 90, 120, 180 min and stored at -80 °C for later analyses of glucose, insulin, ghrelin, glucose-dependent insulinotropic peptide (GIP), glucagon-like peptide-1 (GLP-1) motilin and peptide YY (PYY). WMC recordings were analyzed with MotiliGI 3.0 software to obtain last hunger contractions (LHC) before gastric emptying, the GET based on pH drop in stomach followed by neutralization upon reaching duodenum. GET was confirmed by a rise of pH to neutral levels representing the passage of the WMC to the duodenum. LHC defined as sudden pressure rises of >100 mmHg within 10 min of GET. Correlations of GET to the number and amplitude of LHC, plasma glucose, insulin, ghrelin, GIP, GLP-1, motilin and PYY as evaluated by plasma concentrations as time to peak (Tmax), maximum concentration (Cmax) and exposure (AUC) were quantified by Pearson correlation coefficients.

Results: LHC occurred in 20/41 healthy volunteers and 15/32 obese. The mean amplitude of LHC was 129.2 ±8.1 mmHg in healthy and 200.2 ±13.0 mmHg in the obese (p <0.002). LHC closely reflected GET (R ~0.99). Hence, GET obtained by WMC likely reflected the actual time of WMC migration into the duodenum. Peptide hormone analyses showed ghrelin strongly correlated with LHC (R 0.74; p<0.0001) and also related to GET (R 0.41, p <0.02). The timing of GLP-1 Tmax as a meal response approached significance (R 0.24, p<0.07), but Cmax and AUC did not. Neither did Cmax, Tmax or AUC of glucose, insulin, GIP, motilin or PYY reveal any correlations to GET. However, a correlation between motilin and ghrelin was seen (R 0.50, p <0.01).

Conclusion: LHC indicate presence of higher hunger contraction amplitudes in the obese as compared to healthy volunteers. GET measured by SmartPill WMC displays a high correlation to hunger contractions occurring at high ghrelin levels, but does not correlate to gastric emptying as measured by acetaminophen absorption, nor to metabolic parameters glucose absorption or insulin and gut hormone release. Hence, hunger contractions is a strong physiological indication of the terminal phase of gastric emptying, which also serve as a basic signal for eating. This function seems enhanced in the obese.

Disclosure: Nothing to disclose.

PP0439

PREVALENCE OF NON-ALCOHOLIC FATTY LIVER DISEASE IN OBESE TUNISIAN PATIENTS: PRELIMINARY RESULTS OF A PROSPECTIVE STUDY

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Introduction: Nonalcoholic Fatty Liver Disease (NAFLD) is currently the most common chronic liver disease in the developed world where it has become a leading cause of cirrhosis, Hepatocellular carcinoma, and recourse to liver transplantation. It is highly associated with overweight and obesity.

However, in Tunisia where obesity is recognized as a real public health problem, the prevalence of NAFLD, in this population, remains undetermined.

Aims & Methods: The aim of our study was to estimate the prevalence of NAFLD and the risk of advanced liver fibrosis in an obese population using Transient Elastography (Fibroscan), as well as to identify its main risk factors.

We conducted a prospective study, enrolling all patients followed for obesity in the department of Nutrition and Diabetology and referred to the department of Hepato-gastroenterology between January 2022 and July 2022, for non-invasive screening of hepatic steatosis. Controlled attenuated parameter (CAP) and liver stiffness measurement (LSM) were assessed by Fibroscan. The presence of hepatic steatosis was defined by CAP ≥ 248 dB/min. A high risk of advanced fibrosis was defined, based on EASL guidelines 2021, by LSM ≥ 12 kPa. The conditions for performing the examination, its reliability criteria, and its contraindications, as set by its manufacturer, were respected. Patients known to have pre-existing chronic liver disease, whatever its etiology, as well as chronic alcohol consumers or those with chronic medication other than that of a metabolic syndrome, were not included in this study.

For all patients diagnosed with hepatic steatosis, a specific check-up was systematically performed, in particular metabolic and virological, a measurement of ferritinemia and serum TSH levels. Statistical analysis of all data was performed using SPSS software (version 22) and P values < 0.05 were considered statistically significant.

Results: We enrolled 219 patients, 88.1% were women, with a mean age of 49 years [18-77 years], a mean body mass index (BMI) of 40.64 ± 10.08 kg/m2, and a mean waist circumference (WC) of 115.29 ± 17.51 cm.

The mean values of CAP and LSM were 291.41 ± 53.48 dB/m and 5.39 ±3.22 kPa, respectively. NAFLD was present in 76.9% of patients. Among them, 4.7% had a high risk of advanced fibrosis.

In univariate analysis, the presence of NAFLD was significantly associated with type 2 diabetes (T2D) (p=0.023), WC (p=0.033), total cholesterol level (p=0.016), triglyceride level (p=0.014), fasting blood glucose (p=0.004), while advanced fibrosis was significantly associated with T2D (p=0.031) and platelet count (p=0.014).

In multivariate analysis, only WC was independently associated with the presence of NAFLD (p=0.007). ROC curve analysis showed that WC had good specificity and sensitivity in predicting NAFLD (AUC=0.776 [0.634-0.918]) with a cut-off of 107.5. In contrast, no factor was independently associated with a high risk of advanced fibrosis.

Conclusion: More than 2/3 of obese people turned out to be affected by NAFLD in our Tunisian population, with more than 4% already having a completely unrecognized high risk of advanced fibrosis. This is an alarming result that should encourage us to implement a systematic screening for NAFLD in this population and in which case an evaluation of hepatic fibrosis in order to activate the management of obesity in its various aspects, which may go as far as to indicate metabolic surgery before it becomes contraindicated, particularly by advanced liver disease.

Disclosure: Nothing to disclose.

PP0440

EFFECTS OF FODMAPS AND GLUTEN ON IRRITABLE BOWEL SYNDROME - FROM SELF-REPORTED SYMPTOMS TO MOLECULAR PROFILING

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Introduction: Dietary regimens for symptom management in irritable bowel syndrome (IBS) include a low fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) diet and a gluten-free diet. However, scientific evidence supporting these dietary recommendations for managing IBS symptoms is weak: trials have been non-blinded and underpowered, while mechanistic understanding and objective markers of response remain scarce.

Aims & Methods: We therefore conducted a large double-blind study to investigate the effect of FODMAPs and gluten on symptomatic and molecular data including gut microbiota and the metabolome, both at a group and subgroup (differential response) level. Moreover, the accuracy of the Bristol Stool Form Scale (BSFS) used in IBS subtype diagnosis was assessed, and thus overcome the lack of objective evaluation of IBS symptoms. The results were recently collected in a doctoral thesis.

Results: Trial data revealed that gluten caused no symptoms and that FODMAPs triggered only modest symptoms of IBS. Subjective reporting according to the BSFS conformed only modestly with stool water content. FODMAPs increased saccharolytic microbial genera, phenolic-derived metabolites and 3-indolepropionate, but decreased bile acids. Saccharolytic genera correlated with increased plasma concentrations of phenolic-derived metabolites and 3-indolepropionate, metabolites related to decreased risk of incident type 2 diabetes and inflammation. Indeed, among FODMAP-related metabolites, only weak correlations to IBS symptoms were detected, as with 3-indolepropionate to abdominal pain and interference with quality of life, warranting further investigation. Gluten displayed a modest effect on metabolites involved in lipid metabolism, but with no interpretable link to health. No molecular biomarkers of a differential response to the challenges were found, despite comprehensive exploration with multiple analytical approaches. This could be explained by the absence of baseline variables, such as other omics layers or psychological factors, that could have determined the difference.

Conclusion: Diet only had a modest effect on IBS symptoms. Caution should be taken when subtyping IBS with BSFS.

Disclosure: Nothing to disclose.

PP0441

CLINICAL FEATURES OF GLUTEN-RELATED DISORDERS AMONG PEDIATRIC PATIENTS IN THE REPUBLIC OF UZBEKISTAN

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Introduction: Wheat is the most consumed cereal and widely used in the food industry around the world. Uzbekistan is one of the top countries where wheat is a major component of the diet. However, digestive disorders can occur when certain specific components of wheat are consumed. These disorders are known as gluten-related diseases (GRD) which have gradually become an epidemiologically significant phenomenon, attracting the attention of the scientific community.

Aims & Methods: To investigate whether there are significant differences in the clinical and laboratory findings in pediatric patients with GRD in the Republic of Uzbekistan.

100 pediatric patients with newly diagnosed GRD were examined: 50 with celiac disease (CD), 16 with wheat allergy (WA), 34 with non-celiac gluten sensitivity (NCGS). The diagnosis of CD was based on the clinical, serological (antibodies to tissue transglutaminase IgA, G), histopathological and HLA class 2 genetical data. The diagnosis of WA was based on the clinical findings, examination of specific IgE to wheat, molecular diagnosis of allergy and the effect of GFD. The diagnosis of NCGS was based on the Salerno Experts' Criteria (2015).

Results: The median age of children with CD was 66.5±7.7 months; with WA was 49.6±5.2 months and with NCGS was 59.3±14.1 months. Diarrhea was observed in 38 (76.0%) children with CD, in 19 (55.9%) children with WA, and in 2 (12.5%) patients with NCGS. Abdominal pain (55.9%), bloating (85.3%) and atopic dermatitis (23.5%) were frequently observed in WA. Vomiting and anemia were observed more frequently in CD (44.0% and 30.0%). Among all examined patients the lowest physical development indexes were observed in CD with median values of SD of height: -2.16; SD of weight: -2.69 and SD of BMI -1.29. In children with WA SD of height was -1.15, SD of weight: -2.04 and SD of BMI: -0.8, indicating a moderate deficit of BMI in this type of GRD. In NCGS, even smaller changes were found on the physical development which showed SD of height: -0.97, SD of weight: -0.6 and SD of BMI: -0.06. Increased enzymes (ALT, AST) were observed in children: 9 (18.0%) with CD, 2 (5.9%) with WA and 1 (6.3%) with NCGS. Bilirubin was elevated in 9 (18.0%) of patients with CD and 3 (8.8%) of patients with WA. Low total protein levels were showed in 60.0% of patients with CD, whereas in children with WA and NCGS were only 8.8% and 2.5% respectively. The lowest serum calcium levels were fixed in CD patients (median 1.7±0.03). In NCGS and WA this index was higher (median 1,9±0,06).

Conclusion: Although celiac disease is the leading cause of the lowest rates of physical development and deficits among patients GRD, many other gastrointestinal symptoms are as common in pediatric patients with NCGS and WA as they are in celiac disease.

References:

Disclosure: Nothing to disclose.

PP0442

EFFECTIVENESS OF COLOSTRUM SUPPLEMENTATION IN THE TREATMENT OF CYSTIC FIBROSIS IN CHILDREN

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Introduction: The direct link between nutritional status and lung function, and survival in cystic fibrosis (CF) is unambiguous, so diet therapy for this disease is an important part of the treatment.

Aims & Methods: To study the influence of colostrum supplements in CF based on the evaluation of symptoms and values of antimicrobial peptides and proinflammatory cytokines.

A total of 56 children aged from 2 months to 3 years with cystic fibrosis were included. To make a diagnosis of CF we used determination of immunoreactive trypsin, sweat chlorides and genetic studies. Fecal calprotectin, fecal β-defensin 2 levels, as well as Il-1β values and antibody concentrations to cell permeability-increasing protein in serum were determined in patients. Colostrum was included in addition to basic therapy. The exclusion criteria were children with allergies to cow's milk protein, which made up 16 children.

Colostrum was administered to 22 children according to the age dosages: up to 1 year -0.25 ml * 3 times a day, from 1 to 3 years - 0.5 ml * 3 times, 3-12 years - 1 ml * 3 times. The duration of use was 3 months. The control group consisted of 18 children on basic therapy.

Results: The cough with a discharge of viscous sputum which was observed in 36 children (90.0%) on admission to the hospital, remained in every fourth child after the basic therapy - 5 (27,7%, $p<0.002$). We registered a sixfold reduction of the number of patients with cough and viscous sputum - 3(13,6%, $p<0.001$) with modified therapy.

On the basic therapy protein-energy deficiency of a severe degree (-3SD) persisted in every fifth child - 4 (22,2%), moderate degree of protein-energy deficiency - in half of all patients - 9 (50%). On the modified therapy, the number of patients with protein-energy deficiency increased due to -2CO (27.7%) and -1CO (59.1%), while none of the patients had severe protein-energy deficiency.

After basic therapy, fatty stool was detected in 5 (27,8%, p<0.001), then in children of the second group this index reliably decreased by 7.3 times compared to the condition before admission (13.6%, p<0.001). In the first group children with polyfecalia recorded in 3 (16.7%, p<0.02 vs. admission), while in the second group the figure was 3.7 times less frequent (p<0.002).

The proinflammatory cytokine Il-1β had a fivefold excess at admission compared with control values. In the dynamics on the modified therapy the value of this index came to normal - 2,9+0,8 pg/ml, twofold excess was kept in the first group.

The level of antimicrobial peptides (fecal calprotectin and β-defensin) was significantly increased in comparison with reference values at admission. Fecal calprotectin decreased after 3 months on the basic therapy and was more pronounced in the group with modified therapy - 52,2±2,8 mcg/g, p<0,002, but they did not reach reference values, remaining three times higher than normal (p<0,001). A similar picture was observed in the estimation of β-defensin level. The most pronounced decrease (1,5 times) was observed in patients on the modified therapy - 72,1 ±3,6 ng/ml, p<0,001. Values in this group practically approached to the norm, which could not be said about the group with basic therapy (93,4±5,4 ng/ml, p<0,001).

Conclusion: The use of colostrum supplementation in the complex treatment of cystic fibrosis with basic therapy has a positive effect on the clinical course and reduces the activity of antimicrobial peptides and proinflammatory cytokines in children with cystic fibrosis.

Disclosure: Nothing to disclose.

PP0443

NUTRITION THERAPY IN ULCERATIVE COLITIS, A SYSTEMATIC REVIEW

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Introduction: Every year, there are increasing bodies of evidence highlighting the positive therapeutic effect of the introduction and elimination of various dietary elements in inflammatory bowel disease. Despite this, nutrition therapy in ulcerative colitis (UC) is not systematically well studied. Resultingly, no recommendations for its implementation into clinical practice currently exist.

Aims & Methods: We aimed to systematically review and summarise the most up to date evidence on anti-inflammatory diet (AID) interventions in ulcerative colitis. We hoped to help clinicians make more informed decisions regarding AID implementation for their UC patients. We performed a systematic electronic search in MEDLINE, EMBASE and Scopus from inception to December 2022, to retrieve human studies investigating the effects of AID intervention on UC patients.

Results: 998 papers were screened, 101 were assessed for eligibility and 13 were selected for inclusion in this systematic review. There were 627 participants in total and six studies were randomised controlled trials (RCTs). In our analysis, we discovered that most the papers assessed showed AID had a statistically and clinically significant, positive therapeutic effect on UC (10/13). We also found AID intervention could induce and maintain remission, reduce colectomy rates, and improve patient quality of life. Efficacy was shown in mild, moderate, and severe forms of UC, and when initiated as either a monotherapy or adjunct with conventional therapy.

Conclusion: Our study is the first systematic review to both investigate and indicate that AID interventions may be efficacious in reducing UC disease severity for both patient-reported symptoms, and endoscopically or biochemically observed signs. We believe however that due to the lack of high quality studies, more RCTs are needed to strengthen the evidence behind this promising hypothesis.

Disclosure: Nothing to disclose.

PP0444

LYMPHATIC ABSORPTION OF PLASMALOGENS WITH ODD-CHAIN FATTY ACIDS FROM MICROORGANISMS IN THE SMALL INTESTINE OF RATS

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Introduction: Plasmalogens (Pls) are ether-type phospholipids with vinyl-ether linkages and are widely distributed in the animal body. Pls have antioxidant properties, and the reduction of plasmalogen in plasma has been observed in diseases associated with oxidative stress, such as Alzheimer's disease (Goodenowe et al., J. Lipid. Res. 2007) and atherosclerosis (M. Nishimukai et al., Clin Chim Acta. 2014), suggesting that the ingestion of Pls may induce ameliorative effects. However, there is little structure-function information, such as whether different fatty acids bound to Pls affect the physiological functions of Pls.

Aims & Methods: Therefore, we investigated the effects of enteral administration of bacterial Pls to rats (N. Sato et al., Front. Cell Dev. Biol., 2022), focusing on the fact that bacterial Pls from *Selenomonas ruminantium* contains shorter even-chain fatty acids than Pls from animal sources (T. Watanabe et al., J. Gen. Appl. Microbiol., 1982).

In this study, the absorption kinetics of microbial Pls bound to shorter odd-chain fatty acids (carbons 13, 15, and 17) than animal Pls were investigated in the rat small intestine.

Our ultimate goal in this study is to elucidate the physiological structure-function relationship of Pls in humans by approaching the absorption mechanism of Pls in the small intestine. Male Wistar/ST rats, 9 weeks of age, were fed a standard diet (AIN 93G formula) for a 3-day acclimation period. A vinyl catheter and a silicone catheter were then implanted in the thoracic lymphatic duct for lymphatic fluid collection and in the duodenum for enteral administration, respectively. After lymph collection for 30 min (initial lymph) on the day after indwelling catheter implantation, the rats were administered 1 mL of emulsified lipid solution of lipids containing PlsEtn extracted from bacteria. Lymph was collected from the thoracic duct lymph over the next 7 hours after the administration of the test solution. Each lymph fluid before and after lipid administration was analyzed for molecular species of Pls in the lymph fluid using LC-MS/MS after lipid extraction was performed.

Results: Bacterial Pls derived from *S. ruminantium*, cultured in a medium including lactic acid as a carbon source, consisted of ethanolamine Pls (PlsEtn) with odd hydrocarbon chains, as 15:1 or 17:1, at *sn*-1 and *sn*-2 positions. At the *sn*-1 position of PlsEtn released into the lymph fluid, odd hydrocarbon chains specific to microbial Pls were bound, whereas at the *sn*-2 position of PlsEtn, 20:4 fatty acids were mainly bound, just as when Pls from microorganisms with short, even-chain fatty acids were administered. In PlsEtn with a 15-carbon hydrocarbon chain bound at the *sn*-1 position, 22:6 fatty acids were mainly bound at the *sn*-2 position.

Conclusion: These results suggest that bacterial Pls to which odd-chain fatty acids are bound are absorbed into the body while maintaining the characteristic structure of odd hydrocarbon chains at the *sn*-1 position. However, it has been suggested that the fatty acids derived from bacterial

PlsEtn are barely bound at the *sn*-2 position and undergo a conformational change similar to that of animal PlsEtn, i.e., 20:4 and 22:6 re-esterification. This finding leads not only to the elucidation of the selectivity and specificity of lipid biosynthesis in the gastrointestinal tract, but also to the effective utilization of bacterial resources as food.

Disclosure: Nothing to disclose.

PP0445

RELIABILITY AND RELATIVE CONSTRUCT VALIDITY OF A FOOD FREQUENCY QUESTIONNAIRE: THE GRONINGEN INFLAMMATORY BOWEL DISEASE NUTRITIONAL QUESTIONNAIRES (GINQ-FFQ)

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Introduction: Inflammatory bowel disease (IBD) is an auto-immune disease comprising Crohn's disease (CD), ulcerative colitis (UC) and colitis-type unclassified (IBD-U). Studies have shown that diet plays an important role in the development and course of IBD.

To improve assessment of dietary intake in the IBD population, our research group recently developed the Groningen IBD Nutritional Questionnaires (GINQ-FFQ), a food frequency questionnaire designed to assess dietary intake of 218 food items using 121 questions in patients with IBD over the previous month. This questionnaire needs to be validated.

Aims & Methods: This study aims to test the reliability and relative construct validity of the GINQ-FFQ.

In total 143 patients (CD N=79, UC N=57, IBD-U N=7); median age 50 [IQR: 38,6]) of the 1000IBD cohort completed both the GINQ-FFQ and a 3-Day Food Diary (3FD).

Intake from the GINQ-FFQ was calculated using the FFQ-Tool™, which was linked to the Dutch food composition database (NEVO). Intake from the 3FD was calculated using a Dutch nutritional calculation tool (Evry, version 2.3.7.0), that converts food consumption into nutrient intake using the same NEVO database.

Nutritional data with implausible energy intake (over- and underreporting) were excluded.

Spearman's rho was performed to assess the correlation between nutrients of the GINQ-FFQ and 3FD (using 0.20-0.49 acceptable and ≥0.50 good outcome). A Bland-Altman (B&A) plot was performed to visualise level of agreement for energy intake (kcal).

Results: For macronutrients Spearman's rho varied between 0.39 and 0.63; For micronutrients between 0.20 and 0.51 (Table 1).

B&A plot for kcal showed good agreement (mean difference of -84.87, limits of agreement [-1358, 1188]).

	3FD		GINQ-FFQ		Spearman (rho)
Nutrient	**Median**	**[IQR]**	**Median**	**[IQR]**	
Energy (kcal)	2120	[1798, 2482]	1990	[1567, 2481]	0.49
Carbohydrate total (g)	216	[176, 258]	210	[173, 265]	0.50
- Fibre (g)	20	[17, 26]	21	[16, 27]	0.43
Protein total (g)	82	[69,102]	74	[61, 92]	0.44
- Animal protein (g)	50	[38, 65]	45	[33, 59]	0.44
- Plant protein (g)	32	[26, 39]	30	[23, 40]	0.42
Fat total (g)	82	[66, 102]	84	[65, 105]	0.43
- MUFA (g)	31	[25, 37]	29	[22, 37]	0.41
- PUFA (g)	16	[13, 20]	16	[11, 22]	0.39
- Saturated fat total (g)	31	[26, 41]	31	[25, 40]	0.49
Alcohol (g)	0	[0, 5]	1.4	[0.1, 6.0]	0.63
Vitamin A (ug)	447	[334, 650]	512	[359, 718]	0.51
Vitamin B2 (mg)	1.54	[1.14, 1.98]	1.27	[1.03, 1.69]	0.31
Vitamin B11 (ug)	263	[206, 327]	227	[175, 228]	0.20
Vitamin B12 (ug)	4.34	[2.90, 5.81]	4.02	[2.82, 5.24]	0.38
Vitamin C (mg)	90	[57, 144]	83	[51, 110]	0.42
Calcium (mg)	1037	[820,1315]	912	[693, 1247]	0.39
Magnesium (mg)	325	[280,400]	325	[252, 420]	0.49
Iron total (mg)	10.5	[8.6, 12.8]	9.91	[7.89, 12.27]	0.41

Abbreviations: 3FD; 3 Day Food Diary. GINQ-FFQ; Groningen Inflammatory Bowel Disease Nutritional Questionnaires.
MUFA; Monounsaturated fatty acids. PUFA; polyunsaturated fatty acids. n3; omega-3 fatty acids. n6; omega-6 fatty acids.

Table 1: Spearman correlation between 3FD and GINQ-FFQ

Conclusion: Compared to a 3FD, the GINQ-FFQ is an acceptable dietary assessment tool.

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PP0446

EFFECTS OF *ALOE BARBADENSIS* MILL. EXTRACT ON GASTROINTESTINAL FUNCTION, FECAL MICROBIOTA AND FECAL METABOLITE COMPOSITION IN HEALTHY ADULTS: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY

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Introduction: *Aloe barbadensis* Mill. (Aloe) with its complex polysaccharide composition has been suggested to have prebiotic properties, however no human intervention trials have previously been undertaken to study this effect.

Aims & Methods: With the aim of designing prebiotic strategies for human gut health promotion, this randomized, placebo-controlled study evaluated the effects of increasing doses of chemically characterized Aloe extract on gastrointestinal function and overall gastrointestinal microenvironment, including fecal microbiota and metabolite composition in healthy adults.

Fecal samples were collected from healthy subjects (56 females and 21 males, age 19 - 69) at baseline, and week 3 and week 6 after intervention with placebo or 0.5 g, 1.0 g or 3.0g of Aloe extract/day. Gastrointestinal symptoms were assessed using validated questionnaires and stool consistency was evaluated using the Bristol Stool Form Scale. A food questionnaire was used to evaluate dietary quality, adapted using an index created by the Swedish National Food Agency. Fecal microbiota was evaluated by GA-map™ Dysbiosis Test, while H-1 nuclear magnetic resonance (NMR) spectroscopy was used for metabolomic profiling. Multivariate Orthogonal Projections to Latent Structures Discriminatory Analysis (OPLS-DA) was applied to fecal microbiota and metabolite data sets. Statistical analyses were carried out using non-parametric tests.

Results: All participants completed the study and demographic parameters such as age, sex, diet quality and BMI did not differ between the study groups at baseline. Intervention with increasing doses of Aloe was safe and well tolerated and did not cause gastrointestinal symptoms, as assessed using the gastrointestinal symptoms rating scale. Stool consistency changed after supplementation with Aloe, (n= 57; 3.9 (3.2 – 4.4) vs 3.6 (2.8 – 4.2), P = 0.005), but not for placebo (n= 20; 3.9 (3.2 – 4.5) vs. 3.7 (3.2 – 4.3), P = 0.82), comparing baseline vs. end of intervention, without difference between the groups (P = 0.33).

No alterations were seen in the fecal microbiota profiles before vs. after intervention, in either of the groups, indicative of a stable overall gut microbiota. Furthermore, the fecal metabolite profiles remained unaltered after intervention with Aloe. However, Aloe modulated the fecal metabolite profile in healthy subjects with BMI ≥25 (n = 24; R2 = 0.87, Q2 = 0.51), but not healthy subjects with BMI ≤24 (n = 32; R2 = 0.44, Q2 = 0.12), when comparing baseline vs. end of intervention by OPLS-DA. Moreover, Aloe intervention showed potential to reduce the difference seen in the fecal metabolite profiles between subjects with BMI ≤24 and those with BMI ≥25 from R2 = 0.57 and Q2 = 0.30 at baseline to R2 = 0.38 and Q2 = -0.11 at end of intervention. No such tendencies were seen in the smaller placebo group (BMI ≤24, n = 12 vs. BMI ≥25, n =6).

Conclusion: Supplementation with increasing doses of Aloe extract is safe and well tolerated in healthy adults. Overall, our findings support safety of Aloe extract, and show that supplementing diet with Aloe extract has the potential to modulate intestinal microbiota function, especially in healthy adults with a BMI ≥25, with an altered intestinal microenvironment.

Disclosure: Presenting Author - Bani Ahluwalia is employed by Calmino Group AB, while carrying out Post-doctoral research at the University of Gothenburg.

PP0447

USE OF CHATGPT AS A GUIDE FOR LOW FODMAP DIET ADHERENCE: A PROOF-OF-CONCEPT STUDY

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Introduction: Low fermentable oligo-, di-, and monosaccharides and polyol (FODMAP) diet is currently recommended for the treatment of irritable bowel syndrome (IBS). However, long-term adherence is not high due to its complex nature.

Recently, ChatGPT (OpenAI, San Francisco, California, USA), a large scale unsupervised language model, was introduced as an easily accessible internet based chat, and demonstrated unprecedented capabilities of processing natural conversations and the ability to provide insightful and comprehensive replies.

Aims & Methods: In this brief proof of concept study, we aimed to evaluate the feasibility of using ChatGPT as a readily available guide for adherence to a low FODMAP diet.

We presented ChatGPT with 3 sets of questions concerned with low FODMAP:

(1) 10 questions in the form of "is B^i low FODMAP" were prompted to ChatGPT in which B^i is the *i* element of a list of 10 base products, 5 of which are considered low FODMAP, and 5 high FODMAP; We chose base products upon which there was unanimous agreement among different available lists of FODMAP-containing foods.

(2) 10 questions in the form of "is D^i low FODMAP" were prompted to ChatGPT in which D^i is the *i* element of a list of 10 popular dishes, 5 of which are considered low FODMAP, and 5 high FODMAP

(3) 7 questions in the form of "suggest a low FODMAP C^i recipe" were prompted to ChatGPT in which C^i is the I course of a traditional 7 course meal.

Questions and answers were then presented to two dietitians from our gastroenterology institute (M.D and C.P), both experienced in the care of IBS patients and low FODMAP guidance.

Dietitians were independently asked to grade each answer as correct or incorrect, and check whether they would use this answer as future recommendation for patients.

Results: A complete agreement between the two dietitians was observed (100% same review of chatGPT answers).

Out of the 27 submitted questions, 22 answers were reviewed as correct (81%).

From the 5 answers that were deemed as wrong, 4 (80%) were from the base products list, and 3 of these 4 were of high FODMAP base products. The additional wrong answer was from the popular dishes list, in which, a dish that contained high FODMAP ingredients was suggested as low FODMAP by the ChatGPT answer.

In the dishes and recipes section ChatGPT provided suggestions for alternative ingredients and food preparation techniques that would make the dishes low FODMAP. All the suggestions were deemed as correct by both dietitians.

Conclusion: ChatGPT perfomed well in answering questions regarding low FODMAP diet. It could possibly be used as an auxiliary tool for daily decisions on low FODMAP diet.
Disclosure: Nothing to disclose.

PP0448

THE INFLUENCE OF DIETARY INTAKE ON GASTROINTESTINAL SYMPTOMS AND INFLAMMATION MARKERS IN PERITONEAL DIALYSIS PATIENTS

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Introduction: Patients with end-stage renal disease frequently experience gastrointestinal issues. Gastrointestinal symptoms (GI) in these patients are related to gastric hypomotility, increased medication intake, uremia, and changes in diet. In addition GI symptoms and problems associated with bowel dysfunction are a common cause of technique failure and poor dialysis efficacy. The chronic inflammatory state is another factor contributing to the prevalence of various GI problems. Increased protein skeletal muscle breakdown, decreased appetite, and hypercatabolism are just a few of the detrimental impacts of inflammation.
Aims & Methods: 17 peritoneal dialysis (PD) patients were included in single Department of Nephrology in the University Medical Center in Ljubljana. All patients were interviewed by a dietitian and nutritional assessments were conducted. Gastrointestinal symptom Rating Scale (GSRS) with 7-grade Likert scale was used to evaluate the intensity of GI symptoms and Bristol Stool Form Scale (BSFS) to classify patient's stool. The dietary intake of PD patients was assessed using 7-day food diaries and analyzed with Prodi program (PRODI® 6.4 Expert program, Stuttgart, Deutschland). Body composition was measured with bio impedance spectroscopy. Routine blood analysis was performed.
Results: Among 17 patients undergoing PD, most of them were male (71.4 %) with average age of 53.07 ± 12.32 years. Average protein intake was 0.87 ± 0.39 g/ kg body weight per day and average fiber intake was 13.75 ± 7.25 g per day. They were inadequate according to the dietary guidelines for PD patients. Average dietary protein-fiber index was 6.86 ± 3.81 per day. Average PRAL value was 15.84 ± 13.44 for women and 6.52 ± 17.99 for men. Average dietary potassium intake was 1917.80 ± 790.08 mg per day which corresponds to the guidelines for peritoneal dialysis patients and average potassium serum value was 4.45 ± 0.42 mmol/L. GSRS questionnaire showed PD patients had minor to mild discomfort in abdominal pain, constipation and indigestion GI symptom cluster. Patients' self-analysis of stool showed BSFS Types 3.23 ± 1.64 if BSFS Types 3-5 are defined as normal stools. Dietary potassium intake moderately to strongly correlated with dietary fiber intake (r=0.62, p=0.025). Serum value of IL-6 strongly correlated with dietary potassium intake (r=0.72, p=0.006) and moderately to strongly correlated with dietary fiber intake (r=0.6, p=0.034). The correlation between dietary potassium intake and serum hsCRP was significant (p=0.042).
The correlation between Bristol stool consistency value and serum hsCRP was significant (p=0.0255). The correlation between total GSRS score and serum value of albumin was significant (p=0.0010), between total GSRS score and dietary potassium intake was significant (p=0.0015) and between total GSRS score and dietary protein-fiber index was significant (p=0.0403).
Conclusion: GI diseases in PD patients are comparatively understudied in the literature, despite having a significant impact on dialysis efficacy and the quality of life. Analysis of GSRS questionnaire showed that abdominal pain, constipation and indigestion caused minor to mild discomfort in PD patients.
The analysis also showed that fiber intake, potassium intake and GI symptoms are significantly associated with inflammation markers and are important contributing factors to chronic inflammatory state in these patients.
The evidence base of the impact of GI symptoms on PD patients is limited and further investigation of potential interventions such as medication use and changes in diet are required in future research.
Disclosure: Nothing to disclose.

PP0449

CLINICAL VALIDATION OF THE VIPUN GMS AS A GASTRIC MOTILITY MONITORING SYSTEM

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Introduction: A novel device intended to evaluate motility in patients at risk for dysmotility and enteral feeding intolerance was developed. This VIPUN Gastric Monitoring System (GMS) consists of a feeding tube with a balloon attached to its distal end and a control unit. Once the balloon is positioned in the stomach the control unit can inflate the balloon, record intra-balloon pressure and analyze gastric motility.
Aims & Methods: Our aim was to validate the GMS as a gastric motility monitoring system by comparing its performance to the gold standard, high-resolution manometry.
The primary hypothesis was that the contraction durations recorded by the GMS and manometry are strongly correlated ($\rho > 0.70$).
Secondary objectives: To correlate the contraction frequency observed by expert gastroenterologists and by GMS analysis software on GMS and manometry, and to observe gastric accommodation upon nutrient intake.
In this monocentric, single-arm, interventional study, a GMS prototype (VIPUN Medical, Belgium) was tested in healthy adults. A solid state manometry catheter (UniTip, Unisensor AG, Switzerland) was used as comparator. The balloon catheter was inserted through the nose. The manometry catheter was inserted through the other nare and positioned with the tip in the duodenum, as verified using fluoroscopy. Afterwards, the GMS catheter balloon was inflated with 120 mL air. The participant was placed in semi-recumbent position for the 2.5 h pressure measurement. After 2 h, a liquid meal (400 kcal, 1.5 kcal/mL) was infused via the GMS catheter.
For manometry, only the channels that were consistently in the stomach were analyzed. Duration of contractility (primary outcome) was calculated as the time baseline-corrected pressure waves exceeded a subject- and technology-specific pressure threshold (1).
The identification of individual gastric contractions (secondary outcome) was done by two independent readers, a third reader served as adjudicator.
Additionally, GMS software was used for the detection of individual gastric contractions. Results are shown as mean (standard deviation).

Results: 13 healthy volunteers (6 women, 27.5 (8.1) years) were included. GMS catheter placement was feasible and safe. Intragastric balloon inflation was well-tolerated. No serious or unanticipated adverse events occurred.

For the primary outcome, the Spearman correlation between the contraction duration recorded by GMS and manometry was 0.96 ($p < 0.01$). The sum of contractile activity per subject was similar: 2588.7 (1872.2) and 2722.3 (1768.7) seconds on manometry and GMS, respectively ($p = 0.44$, paired t-test, see Table 1).

For the number of contractions identified visually by readers, the correlation between GMS and manometry was 0.71 ($p < 0.01$) . Using GMS software for detection of individual contractions on GMS, the correlation with reader-identified contractions on manometry was 0.87 ($p < 0.01$).

Nutrient infusion resulted in a significant decrease in tonic (-1.7 (0.96) mmHg) and phasic (-3.4 (3.1) contractions/10 min) contractility.

	Statistic	Manometry	Gastric Monitoring System
Duration contractile activity, summed per subject (seconds)	n	13	13
	Mean (St.Dev.)	2588.7 (1872.2)	2722.3 (1768.7)
	95% confidence interval	1457.3 – 3720.1	1653.5 – 3791.1
	Sum	33653	35390

Table 1.

Conclusion: The observed strong correlations with the gold standard, manometry, validate the performance of the VIPUN GMS as a gastric monitoring system.

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Disclosure: Nothing to disclose.

PP0450

ASSOCIATION BETWEEN BIOACTIVE FOOD CHEMICALS AND SYMPTOMS IN IRRITABLE BOWEL SYNDROME: A CROSS-SECTIONAL STUDY

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Introduction: Dietary therapies have revolutionised treatment for irritable bowel syndrome (IBS). However, response rates to the diet with the highest evidence of efficacy (the low FODMAP diet) remain at 50-75%, suggesting other potential drivers of symptom onset. A low food chemical elimination-rechallenge diet targeting bioactive food chemicals (including salicylates, amines, glutamate and other additives), is commonly applied in Australia in patients exhibiting both gastrointestinal and extra-intestinal symptoms. However, data supporting the low chemical diet is scant, and safety concerns exist due to its restrictive nature potentially causing nutritional deficiencies and disordered eating.

Aims & Methods: This cross-sectional survey in patients with IBS and healthy controls aimed to evaluate the frequency of co-existing extra-intestinal symptoms, as well as explore patient perceptions and use of the low chemical diet. Participants with IBS (IBS-Severity Scoring System[1] (IBS-SSS) >75), and healthy controls (not meeting Rome IV and ≤75 on IBS-SSS) were recruited via online advertisement. Validated questionnaires were used to assess gastrointestinal symptoms (IBS-SSS[1]), extraintestinal symptoms (extended PHQ-12[2]), and food additive intake (IBD-Food additive questionnaire[3]). Additional questionnaires assessed use of dietary therapies with specific focus on food chemicals. Data was analysed using independent samples t-test and chi-square test.

Results: 204 IBS and 22 healthy controls completed the study. Total IBS-SSS for the IBS participants was 277±79, compared to 36±28 in the healthy control group ($p<0.01$). IBS participants were more likely to report extra-intestinal symptoms including headaches ($p<0.01$), migraines ($p=0.03$), fatigue ($p<0.01$), difficulty sleeping ($p=0.03$), rhinitis ($p=0.02$), urticaria ($p=0.04$) and mood disturbance ($p<0.01$). Twenty-one (10%) of IBS participants were following a low chemical diet compared to none in the control group. Of these 21 participants, dietary advice was provided by a dietitian (n=13), general practitioner (n=6), gastroenterologist (n=6), naturopath (n=3), family/friend (n=4) and/or the diet was self-initiated (n=7). IBS participants were more likely to report at least one food chemical as a trigger for gastrointestinal (38% vs 13%, $p=0.03$) and/or extra-intestinal (30% vs 9%, $p=0.04$) symptoms (Table 1). There was no significant difference in consumption (g/day or g/kg/day) of ultra-processed, additive containing foods.

	Salicylates	MSG	Artificial colours	Sulphites	Amines
Suspected a trigger for gastrointestinal symptoms					
IBS	38 (19%)	35 (17%)	28 (14%)	25 (12%)	26 (13%)
Healthy	2 (9%)	1 (5%)	1 (5%)	0 (0%)	0 (0%)
Suspected a trigger for extra-intestinal symptoms					
IBS	19 (9%)	30 (15%)	23 (11%)	24 (12%)	29 (14%)
Healthy	1 (5%)	0 (0%)	1 (5%)	0 (0%)	1 (5%)

Table 1. Suspected dietary triggers (food chemical specific) for gastrointestinal and extra-intestinal symptoms.

Conclusion: Patients with IBS are more likely to report experiencing extra-intestinal symptoms compared to healthy controls. Despite limited evidence, a low food chemical diet is utilised by patients with IBS to manage both gastrointestinal and extra-intestinal symptoms. Further data is needed to understand the efficacy and safety of the low chemical diet in IBS.

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Disclosure: No conflicts to declare.

PP0451

ASSESSMENT OF THE FATTY ACID PROFILE OF THE ERYTHROCYTE MEMBRANE IN PATIENTS FOLLOWING THE CROHN'S DISEASE THERAPEUTIC DIETARY INTERVENTION (CD-TDI): A PRELIMINARY STUDY

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Introduction: Dietary fatty acids impact the fatty acid profile of cell membranes and act as a source of fatty acids for many key physiological pathways. Overconsumption of n-6 polyunsaturated fatty acids (PUFAs) with low intake of n-3 PUFAs is associated with the pathogenesis of inflammatory-driven diet-related chronic diseases, including CD. Derivatives of n-6 PUFAs, such as arachidonic acid (AA) are involved in the proinflammatory

cascade, whereas the n-3 PUFAs (eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)) maintain anti-inflammatory homeostasis. Considering that fatty acids in the cell membrane may be relevant to inflammation, we examined how changing the fatty acid composition of the diet would alter the erythrocyte cell membrane's (EM) fatty acid profile in adult patients with mild-moderate luminal CD following the CD Therapeutic Dietary Intervention (CD-TDI).

Aims & Methods: This is a sub-study (n=24, 46% female, median age 43(31-54)) of an ongoing RCT designed to determine the effectiveness of the CD-TDI to induce clinical and biomarker remission in patients with CD. We examined how the fatty acid profile of the EM changes in adults with mild-moderate luminal CD (n=13) that follow the CD-TDI or their habitual diet (HD) (n=11) for 13 weeks. The CD-TDI is a whole-food diet which incorporates principles of the Mediterranean diet, with one strategy being to shift the fatty acid profile by limiting dietary sources of n-6 PUFA, increasing dietary sources of n-3 PUFA and monounsaturated fatty acids (MUFA). The HD did not change their dietary intake. Blood samples were collected at Week 0 (W0) and Week 13 (W13) and analyzed for EM fatty acid composition. Fatty acids were extracted using a combined extraction and methylation protocol with direct-injection gas chromatography to quantify long-chain fatty acids from the EM. Dietary intake was evaluated using the ASA 24-hour Dietary Assessment Tool®.

Results: Diet analysis comparing intakes from W0 to W13 revealed a significant reduction in AA intake (p=0.05) with a trend for increased intake of n-3 PUFA from DHA (p=0.07). The HD group had a significantly higher intake of AA (p=0.03), with no other dietary changes in fatty acid intakes observed within or between groups. In the EM of the CD-TDI group, within-group differences at W13 showed a lower percentage of arachidonic acid (n-6 PUFA) (0.3±0.3% vs. 0.1±0.1%, p=0.03), a significant increase in oleic acid (MUFA) (12±2.3% vs 13±2.2% p=0.02) and a trend for higher DHA (n-3 PUFA) (2.9±0.9% vs. 3.4±0.9%; p=0.08). No significant differences within groups were observed in the HD at W0 and W13. Between-group differences at W13 demonstrated that the CD-TDI group had a significantly higher mean percentage of total EM n-3 PUFAs than the HD (4.4% vs. 3.2%; p=0.005). At week 13 a higher EM PUFA balance (EPA+DHA/n-6 PUFA) was observed between groups (CDI:15±3.1% vs HD:11±2.1%; p=0.002). PUFA balance was inversely correlated to the change in the intestinal biomarker fecal calprotectin at W13 in the CDI-group (r2=0.634; p=0.03).

Conclusion: The CD-TDI altered the fatty acid profile of the EM in patients with mild-moderately active CD. Within the EM, the CD-TDI group demonstrated significant reductions in the proinflammatory mediatory AA while increasing oleic acid, total n-3 PUFA, leading to a higher PUFA balance which correlated with intestinal biomarkers of mucosal inflammation. More research is needed to fully understand the relationship between EM and gut inflammation to determine the underlying mechanisms involved.

Disclosure: Nothing to disclose.

PP0452

BARRIERS AND ENABLERS TO SUCCESSFULLY IMPLEMENTING THE LOW FERMENTABLE OLIGOSACCHARIDE, DISACCHARIDE, MONOSACCHARIDE AND POLYOL DIET IN ADULTS WITH IRRITABLE BOWEL SYNDROME

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Introduction: The low fermentable oligosaccharide, disaccharide, monosaccharide and polyol diet (LFD) has been purported as a first line therapeutic treatment for the management of irritable bowel syndrome (IBS)[1,2]. Despite the extensive research supporting the efficacy of the LFD[3,4], there are few studies exploring the lived experience of people with IBS undertaking a dietitian-led three-phase LFD.

Aims & Methods: This study aimed to explore people's expectations of and experience with each phase of the LFD, and identify barriers and enablers to successfully completing each phase. A descriptive, qualitative design employed semi-structured interviews with adults with IBS who undertook all or part of a dietitian-led research study on predictors of response to a LFD. Participants underwent LFD restriction, reintroduction and personalisation between October 2020 and April 2022. Interviews examined expectations and experiences of the LFD process, and barriers and enablers to undertaking and completing each phase. Sociodemographic and IBS characteristics were also collected. Thematic analysis summarised key themes.

Results: Seventeen people (32%, 17/53 response rate) aged 37.5 ± 14 years (88% female) completed interviews, of whom 76% (13/17) completed all three phases of the LFD. Duration of experiencing IBS symptoms ranged from one to 40 years with 76% experiencing diarrhoea as the most predominant symptom. Four themes emerged from the data. Firstly, people presented with different IBS and healthcare experiences, and expectations of what the LFD would provide. Previous unsuccessful treatments (pre- and probiotics, gluten elimination, herbal medicine) motivated people to undertake the LFD. Secondly, people's expectations of outcomes within each phase varied and was related to their symptom response. People expected symptom resolution during the restriction phase and were disappointed that symptoms were not entirely alleviated. Symptoms during the reintroduction phase were a barrier to continuing challenges for some but others felt that symptoms assisted in identifying trigger foods. Despite overall reductions in symptoms during each phase, a residual frustration was felt as symptoms were not eliminated on completion of personalisation. Thirdly, the three-phase process required significant planning, effort and self-efficacy. Ability to adhere to personal tolerance levels of fermentable carbohydrates was an enabler to successful completion of the reintroduction and personalisation phase. Environmental barriers included eating out, multi-person households and altering meals to suit family mealtimes. Personal barriers included perceptions of food triggers, apprehension to try foods that had long been avoided and experiencing symptoms during the reintroduction phase. Lastly, most people incorporated learning and experiences from the LFD into daily life after reintroduction. Those with symptom improvement identified strategies to circumvent FODMAP intake in daily life and were understanding of the interplay between food, the environment and psychological factors on symptoms. Some used the LFD restriction to manage symptom exacerbations.

Conclusion: The LFD process is complex, and personal beliefs, experiences and expectations impact on adherence and completion of each phase. Further personalisation of the LFD to individual circumstances is

fundamental to improving the experience and outcome of this therapeutic management strategy in people with IBS. These findings will be used to inform improved implementation to optimise peoples experience and success with the LFD.

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PP0453

INDOLE-3-CARBOXYALDEHYDE DOES NOT REVERSE THE INTESTINAL EFFECTS OF FIBER-FREE DIET IN MICE

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Introduction: Fiber-free diet reduces intestinal and colonic health in mice, in parallel with a reduction in GLP-1 levels. Moreover, as shown here, levels of indole-3-carboxyaldehyde (I3A) in the colonic content are reduced in mice fed a fiber-free diet. Indoles are thought to bacterial metabolites of tryptophan that increase GLP-1 levels *in vitro* and *in vivo*. We therefore set out to assess whether I3A similarly increases GLP-1 levels, and whether I3A could restore the adverse effects of fiber-free diet in mice.

Aims & Methods: We started with untargeted metabolomics using LC-MS of colonic content samples from our previous study in fiber-free diet mice. Next, we exposed *in vitro* GLUTag cells to different levels of I3A (1 nM to 5 mM), and cumulative GLP-1 secretion was measured after 5 min and 240 min. We then performed isolated colon perfusions in male C57BL6/JRJ mice and male Wistar rats, where I3A (500 µM - 10 mM) was administered via the luminal or arterial side. GLP-1 levels were measured in effluent collected from the portal vein. Finally, we performed an *in vivo* study in chow or fiber-free diet fed female C57BL6/JRJ mice given oral I3A (0.6 mg/day) or vehicle once daily. After 10 days, intestinal permeability was assessed using FITC-dextran, and animals were sacrificed and organs were removed for histology. Colonic contents were analyzed for unspecific indoles with Kovac's method to ensure that I3A had reached the colon after oral administration.

Results: Mice fed a fiber-free diet had significantly lower I3A in their colonic content than in mice fed a control diet (7883±3375 AU, p=0.04). GLP-1 secretion was unchanged in GLUTag cells after five minutes of exposure to I3A. However, GLP-1 levels increased after 120 minutes of exposure to 1 mM (60% increase, p=0.016) and 5 mM (89% increase, p=0.0025) I3A. In isolated perfused mouse and rat colons, I3A applied into the luminal or vascular side did not affect GLP-1 secretion, regardless of concentration. Mice fed a fiber-free diet tended to weigh less compared to chow fed (mean±SEM at study end: 1.14±0.52 g, p=0.14). The small intestine and colon were smaller in fiber-free diet fed mice (reduction 0.65±0.09 %/body weight and 0.26±0.05 %/body weight, respectively; both p<0.0001); however, crypt depth, villus length, mucosal area and intestinal permeability were unaffected compared to chow fed. Supplementation of I3A to mice fed the fiber-free diet did not affect body or organ weight. Importantly, a substantial increase of indoles in colon content (1.9±0.2 mg/mL vs. 5.4±1.2, p=0.001) confirmed that I3A did reach the colonic lumen.

Conclusion: Fiber-free diet lowered colonic content of I3A in mice. I3A increases GLP-1 secretion in vitro, but not in isolated perfusion models. In prolonged *in vivo* intervention, the fiber-free diet decreased the weight of the small intestine and colon regardless of I3A administration. Fiber free diet did not affect body weight, crypt depth or villus length, in contrast to our previous study, perhaps due to the relatively short intervention period here. In conclusion, similar to indoles, I3A stimulates GLP-1 secretion *in vitro*, yet has no evident beneficial effects on intestinal health when administered *in vivo*. Further studies could look into possible metabolic beneficial effects.

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Disclosure: Nothing to disclose.

PP0454

SODIUM DEPLETION AND SECONDARY HYPERALDOSTERONISM IN OUTPATIENTS WITH AN ILEOSTOMY: A CROSS-SECTIONAL STUDY

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Introduction: Patients with an ileostomy may experience postoperative electrolyte derangement and dehydration but are presumed to stabilise thereafter.

Aims & Methods: We aimed to investigate the prevalence of sodium depletion in stable outpatients with an ileostomy and applied established methods to estimate their fluid status.

We invited 178 patients with an ileostomy through a region-wide Quality-of-Life-survey to undergo outpatient evaluation of their sodium and fluid status. The patients delivered urine and blood samples, had bioelectrical impedance analysis performed, and answered a questionnaire regarding dietary habits.

Results: Out of 178 invitees, 49 patients with an ileostomy were included; 22 patients (45%, 95% CI, 31-59%) had unmeasurably low urinary sodium excretion (<20 mmol/L), indicative of chronic sodium depletion, and 26% (95% CI, 16-41%) had plasma aldosterone levels above the reference value. Patients with unmeasurably low urinary sodium excretion had low estimated glomerular filtration rates (median 76, IQR 63-89, mL/min/1.73m^2) and low venous blood plasma CO_2 (median 24, IQR 21-26, mmol/L), indicative of chronic renal impairment and metabolic acidosis. Bioelectrical impedance analysis, plasma osmolality, creatinine and sodium values were not informative in determining sodium status in this population.

Conclusion: A high proportion of patients with an ileostomy may be chronically sodium depleted, indicated by absent urinary sodium excretion, secondary hyperaldosteronism, and chronic renal impairment, despite nor-

mal standard biochemical tests. Sodium depletion may adversely affect longstanding renal function. Future studies should investigate methods to estimate and monitor fluid status and aim to develop treatments to improve sodium depletion and dehydration in patients with an ileostomy.
Disclosure: Nothing to disclose.

PP0455

EFFECT OF A HISTAMINE RICH MEAL VERSUS A LOW HISTAMINE MEAL ON URINARY HISTAMINE AND N-METHYLHISTAMINE EXCRETION

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Introduction: Functional dyspepsia (FD) and irritable bowel syndrome (IBS) are disorders that affect approximately 20% of the population. One of the proposed pathophysiological mechanisms in these conditions is a loss of mucosal integrity, associated with low-grade inflammation and food-induced mast cell activation. To date, confocal laser endomicroscopy to monitor allergy-like reactions to luminal food protein application, or a wheal-and-flare-like reaction to submucosal injection of food proteins have experimentally been used to demonstrate allergy-like food responses in these patients.
Compared to these complex methods, urinary histamine measurement may provide an elegant and non-invasive tool to detect such food reactions in FD and IBS. In this pilot project we assessed the ability to detect an increase of urinary histamine and n-methylhistamine after ingestion of food with different histamine content.
Aims & Methods: Healthy volunteers were recruited to ingest a histamine rich meal (HRM) or low histamine meal (LHM) on two different days with one week in between, in a cross over fashion. All volunteers filled out the upper gastrointestinal ROME-IV diagnostic questionnaire to confirm the absence of disorders of gut-brain interaction. Volunteers came to the hospital fasted and received a standardized breakfast (pancake, brown sugar, water). After two hours participants were asked to empty the bladder before they consumed the study meal. After finishing the meal participants collected all urine and filled out symptom questionnaires of 10 gastrointestinal symptoms (VAS 0-4) for 4 hours. ELISA analysis of urinary histamine and n-methylhistamine were performed in accordance with the manufacturer's instructions. Data are shown as mean ± standard deviation. Statistical tests were done using a paired T-test or two-way ANOVA with correction for multiple testing as appropriate.
Results: We recruited 10 healthy volunteers (70% female) with an average age of 23,8 ± 5,05 years and an average body mass index (BMI) of 21,3±1,55. All participants finished the whole meal. Urinary output was similar after the HRM and LHM (respectively 577±167 mL and 540±128 mL, p=0,605). There was no difference in urinary n-methylhistamine excretion between the HRM and LHM (respectively 34,5±8,8 µg/g creatinine vs 36,3±10,3 µg/g creatinine, p=0,779). Urinary excretion measures of histamine were below the detection limit in the majority of samples, excluding this aspect from statistical analysis.
Overall symptom scores did not differ significantly after the HRM and the LHM. Only at 15 minutes postprandially, higher scores were found for postprandial fullness after the HRM (mean difference of 0,4 [95% CI 0,01 – 0,79], p=0,038).
Conclusion: In healthy volunteers administration of food with high histamine content compared to food with low histamine content does not increase urinary n-methylhistamine excretion. Ingestion of a histamine rich meal was associated with a transient postprandial increase of excessive postprandial fullness and did not induce a significant rise in postprandial symptoms.
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PP0456

EFFECT OF ORAL ERYTHRITOL ON REWARD RESPONSES AFTER REPEATED EXPOSURE

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Introduction: The consumption of sugar-sweetened beverages is correlated with the development of obesity and type 2 diabetes mellitus which have become major health problems in our century. Consequently, the World Health Organization has proposed sugar reduction as a preventive and therapeutic strategy [1]. The use of artificial low-caloric sweeteners (e.g., sucralose) as sugar alternatives remains controversial due to the mismatch between their sweet taste (rewarding oral effect) and energy content (lack of post-oral satiating effects).
Erythritol, a non-caloric bulk sweetener, might be a promising alternative due to its similar sweetness to sucrose and its ability to release gastrointestinal (GI) satiation hormones without affecting glucose or insulin concentrations.
Acquired preference for sweet-flavored beverages could be based on oral (flavor-flavor learning FFL, e.g., sweet taste) and post-oral associations (flavor-nutrient learning FNL, e.g., calories, hormones) [2]. In human studies, evidence is weak whether liking of a novel flavor increases most when it's paired with sucrose (FFL + $FNL_{calories+hormones}$) than with an artificial sweetener (only FFL). Furthermore, the rewarding properties of erythritol remain to be determined.
Aims & Methods: The aim of this study was to assess the effect of the non-caloric sweetener erythritol (FFL + $FNL_{hormones}$) on the reward responses (liking and wanting), GI hormone release and glycemic control compared to sucrose and sucralose.
In this randomized, double-blind crossover study, 20 participants (10 women, 10 men; mean ± SD; age: 25.8 ± 7.5 years, BMI: 22.3 ± 1.8 kg/m^2) rated explicit liking and wanting of three novel and neutral flavored beverages before and after three conditioning visits where the beverages were paired with either erythritol, sucrose or sucralose. Doses of erythritol and sucralose were individually matched to the perceived sweetness of a 10% sucrose solution.

After conditioning, participants had to perform a computerized forced choice task to measure implicit wanting. Blood samples were collected to analyze GI hormones (glucagon-like peptide 1 GLP-1, cholecystokinin CCK) and glycemic control (glucose, insulin).

Results: All 20 participants completed the test visits. The results show that:

i. explicit liking increased significantly after the conditioning (all $p < 0.01$) with no differences between the sweeteners (all $p_{Tukey} > 0.4$);

ii. explicit wanting increased significantly after the conditioning ($p = 0.07$ for erythritol, $p < 0.01$ for sucrose and sucralose) with no differences between the sweeteners (all $p_{Tukey} > 0.8$);

iii. implicit wanting did not differ between the sweeteners (all $p_{Tukey} > 0.5$);

iv. conditioning with the sweeteners had no effect on GI satiation hormone release and glycemic control.

Conclusion: Erythritol led to similar ratings in explicit liking and wanting compared with sucrose and sucralose. Conditioning with all three sweeteners increased the reward responses. Since erythritol appears to be as rewarding as sucrose and sucralose, this sweetener can be seen as potential sugar alternative. These effects may not to be associated with FNL.

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Disclosure: Nothing to disclose.

PP0457

DIETARY IMPACT FACTORS, FOOD RESTRICTION AND DIETARY INADEQUACIES DURING ADULT CROHN'S DISEASE REMISSION: THE INTICO2 COHORT STUDY

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Introduction: Adults with Crohn's Disease (CD) may have dietary restrictions, micronutrient inadequacies and impaired health-related quality of life. With limited dietetic resources typically directed towards those with intestinal failure, overt malnutrition or active disease, there is a need to screen all patients to identify those at risk of nutritional issues for further assessment and support. Traditional methods of identifying nutritional risk focus on weight and BMI, and do not take account of factors related to IBD such as gastrointestinal symptoms that may limit food intake.

Aims & Methods: The INTICO2 study aimed to characterise the nutritional risk factors and nutritional status of adults with CD during disease remission. 196 adult CD outpatients in clinical and biomarker remission were recruited from a single centre UK IBD centre outpatients (Harvey Bradshaw Index<5 and calprotectin<250µg/g) as part of the INTICO2 observational study. Subjects needed to be in intestinal continuity and not under current dietetic care or treatment. Assessments comprised of a 7-day electronic food diary and a single time-point assessment of body composition (Bioelectrical Impedance), functional measurement (hand grip). Dietary impact factors (DIF) were captured using a novel patient-completed questionnaire.

The questionnaire aimed to capture:

1. Weight loss,
2. Appetite using Simplified Nutritional Appetite Questionnaire[1](SNAQ),
3. Restricted foods,
4. Disease specific factors 5) symptoms of micronutrient deficiencies.

Results: Subjects reported a mean of 4 (SD 3) DIFs, with 92% (180/196) of the cohort reporting at least 1 DIF. Food restriction was reported by 34% (67/196) of patients, with the most restricted foods being dairy, wheat, red meat, pulses, garlic and onion. In total, 47 separate food items were reported as being avoided, with a mean of 2 foods avoided per participant. Food diary analysis revealed dietary micronutrient inadequacy to be common with a mean of 6 (SD 4) nutrients below LRNI per subject. Impaired appetite (SNAQ ≤14) was reported in 30% (57/192) of participants; mean SNAQ 15.45±2.29. IBD risk factors and physical manifestations of nutritional issues DIFs are described in Table 1.

	%(n)
Nausea	25(49)
Diarrhoea	37(70)
Abdominal Pain	44(84)
Distension	42(80)
Sensation of food getting stuck in bowel	9(18)
Hair Falling out	13(25)
Mouth Ulcers	18(35)
Glossitis	4(7)
Angular stomatitis	6(11)

Table 1. IBD risk factors and physical manifestations of nutritional issues.

Correlation analysis indicated that a higher count of DIFs was associated with a lower fat free mass index (R:-0.214, *P*:0.003), lower maximum grip strength (R:-0.255, *P*<0.001), lower phase angle (R:-0.189, *P:* 0.009) and a higher number of nutrients consumed below LRNI (R:0.201, *P*:0.005) [Pearson's correlation].

Conclusion: Potentially undiagnosed nutritional issues were reported by patients completing the questionnaire. DIFs such as food restriction and impaired appetite appear to be evident in these adults with CD during clinical remission which may be associated with inadequate micronutrient intake when assessed by dietary analysis and lower fat free mass and muscle function. Developing a structured approach to exploring DIFs by a self-reported questionnaire may help identify individuals who may require a dietetic assessment.

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PP0458

PERCEIVED DIETARY INTOLERANCES AND HABITUAL INTAKE BY PATIENTS WITH AN ILEOANAL POUCH: ASSOCIATIONS WITH POUCH PHENOTYPE (AND BEHAVIOUR)

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Introduction: Ileoanal pouch patients frequently attribute pouch-related symptoms and pouchitis with dietary factors.

Aims & Methods: Aims: We aimed to assess perceived food intolerance rates and habitual dietary intake, specifically FODMAPs and diet quality, and their relationship with pouch indication, symptoms and current or history of pouchitis. To assess the correlation between intolerance and dietary intake, and between dietary intake and risk of pouchitis.

Methods: In this cross-sectional study, patients with an ileoanal pouch completed a dietary intolerance and a food frequency questionnaire, that specifically quantifies habitual intake of FODMAPs. Perceived dietary intolerance rates, dietary intake and diet quality, and their differences based on pouch indication, symptom, and current or history of pouchitis were assessed. Associations between intolerances and intake, and between dietary intake with pouchitis risk were analysed using univariable and multivariable regression analysis.

Results: Of the 80 patients invited to participate, complete data were available from 58 (10 FAP and 48 UC). 81% of UC and 80% of FAP patients reported dietary intolerances. Overall diet quality was good across different pouch patient groups. Differences in dietary intake were limited to a few food groups. Patients with a history of pouchitis had a lower intake of fruits (p=0.03) and nuts (p=0.004). Patients with current pouchitis had a lower intake of lean meat and alternatives (p=0.006), specifically nuts (p=0.02). On multivariable logistic regression, intake of dietary fibre was associated negatively [OR 0.68 (95% CI 0.51-0.92)] and of non-digestible oligosaccharides positively with pouchitis history [OR 5.5 (95% CI 1.04-29.1)].

Conclusion: In patients with an ileoanal pouch, perceived dietary intolerances are common but had minimal impact on nutritional adequacy and diet quality. Negative associations of the intakes of fruits, nuts and dietary fibre and positive association with non-digestible oligosaccharides with a history of pouchitis require further study to inform dietary recommendations.

Disclosure: No conflicts of interest to disclose.

PP0459

IRONING OUT THE DIFFERENCES IN INFUSION REACTIONS BETWEEN FERRIC DERISOMALTOSE AND FERRIC CARBOXYMALTOSE

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Introduction: Currently available intravenous iron formulations have an excellent safety profile, but preliminary data suggests that ferric derisomaltose (FDI) may be associated with an increased risk of mild-moderate infusion reactions compared to ferric carboxymaltose (FCM). FDI may be administered following dilution of doses of up to 1.5g in between 100 to 500ml normal saline, but whether dilution affects risk of infusion related adverse reactions via altering stability of the iron compound is uncertain. This study aimed to evaluate infusion related adverse events in patients who received FCM and two dilutions of FDI in a single tertiary centre.

Aims & Methods: A retrospective study of all patients who received intravenous FDI and FCM from January 2022 to April 2023 in a tertiary healthcare service outpatient infusion centre. Patients who received FDI were age and sex matched with patients who received FCM. Infusion reactions were classified independently by a gastroenterologist and a haematologist as either a Fishbane reaction or a hypersensitivity reaction. Fishbane reactions were defined by arthralgias, flushing and chest tightness without angioedema or hypotension. Hypersensitivity reactions were then further categorised using the Ring and Messmer classification. If discrepancies occurred, the cases were discussed individually. When consensus could not be reached, the reactions were categorised as unclassified. Rates of reactions were compared using a Fishers' Exact test.

Results: 234 patients (185 [79%] female, median age 45 [IQR 37-60] years) who received FDI were age and sex matched with 234 (185 [79%] female, median age 45 [IQR 37-60] years) patients who received FCM. There were no differences in baseline haemoglobin (mean 113 [SD 21] vs 115 [SD 19] g/L) or ferritin (mean 24 [SD 103] vs 24 [SD 19] µg/L) between patients receiving FDI and FCM, respectively. The most common cause of iron deficiency in the FDI group was blood loss [112/234]. Infusion reactions occurred in 23/234 [10%] patients receiving FDI, compared with 5/234 [2%] receiving FCM (p=0.006).

Of the patients who received FDI, 69 [29%] were diluted in 100mL normal saline and 165 [71%] were diluted in 250mL normal saline. There was no difference in the rate of infusion reactions among patients who received FDI diluted in 100mL (7/69 [10%]: 5 Fishbane and 2 hypersensitivity) or those who received FDI diluted in 250 ml (16/165 [10%]: 12 Fishbane, 2 hypersensitivity and 2 unclassified) (p=1.0). Two patients with reactions to FDI were administered adrenaline (both reactions classified as Fishbane) with one requiring hospitalisation. No other patients required hospitalisation.

In the FDI cohort, 31 [13%] received a dose of 1000mg, 202 [86%] received 1500mg and 1 [<1%] received 500mg. There was no significant difference in the rate of infusion reactions between patients who received 1000mg compared with 1500mg (5/31 [16%] vs 18/202 [9%], p=0.204). There was no infusion reaction in the patient who received 500mg.

Conclusion: In this retrospective medical record review, infusion-related reactions were more common in patients who received FDI compared with FCM. Fishbane reactions were the most common reaction type overall, and all but 1 patient were able to be discharged on the same day. Neither the dilution volume of FDI nor the dose of FDI was associated with risk of

infusion reactions. Future large prospective studies are needed to confirm these findings and elucidate underlying factors that may be contributing to differing rates of infusion reactions between FDI and FCM.

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PP0460

EFFECT OF PROBIOTICS ON ALLERGIC RHINITIS: RESULTS FROM A RANDOMIZED CONTROLLED TRIAL

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Introduction: Allergic rhinitis (AR) is an atopic disease that affects the upper airways causing symptoms such as runny nose, watery eyes, sneezing, itchy nose, congestion of the nasal mucosa, breathing difficulty, thus leading to a reduced quality of life (QoL). The exposure of environmental allergens (e.g., pollens, dust, molds, and animal hair) to predisposed subjects triggers an excessive immune response mediated by IgE with the release of pro-inflammatory substances by mast cells and eosinophils. Since more than 70% of the cells of the immune system are located in the gut, and the intestinal microbiota plays a key role in the modulation of the inflammatory process and the immune response, probiotics have been recently considered as a new treatment option for extra-intestinal disorders, e.g. allergic rhinitis.

Aims & Methods: Aim: To assess the effects of a mixture of probiotic strains (*L. acidophilus PBS066, L. rhamnosus LRH020, B. breve BB077, and B. longum subsp. longum BLG240*) on symptoms and immune response in patients with chronic allergic rhinitis. These bacterial strains reduce inflammatory stress and oxidation potential *in vitro.*[1,2]

Methods: This is a randomized, double-blind, placebo-controlled study on two parallel groups of subjects (aged 18-60 years) with seasonal or chronic allergic rhinitis. Group A (n=22) was treated with a placebo; Group B (n=19) was treated with probiotics for eight weeks. The effects were evaluated at the beginning (T0) and four (T1), and eight weeks (T2) of treatment, and after four weeks of follow-up from the end of the treatment (T3, total period: twelve weeks). The allergic immune response was assessed by the analysis of inflammatory blood markers, i.e., eosinophil count, eosinophil cationic protein, and total immunoglobulin E at T0, T2, and T3. Allergic rhinitis symptoms were evaluated by the Total Nasal Symptom Score (TNSS) and the Rhinitis questionnaire score Control Assessment Test (RCAT). The Quality of Life (QoL) was assessed by the Mini Rhinoconjunctivitis Quality of Life questionnaire (MiniRQLQ) at each time point. Fecal microbiome profiling variations were determined by 16S rRNA gene sequencing analysis (SA) at T0, T2, and T3.

Results: The probiotic-treated subset (Group B) showed a statistically significant improvement in TNSS symptoms and MiniRQLQ at T3 *vs.* placebo (Group A) and statistically significant intra-group differences between T0 and T3. SA showed constant gut taxa richness and phylogenetic diversity in both groups at each time point. *Dorea*, which is inversely associated with atopy, and *Fusicatenibacter*, with known anti-inflammatory properties, increased in Group B at T2. Conversely, pro-inflammatory species (*Bilophila* and *Bacteroides*) and *Ruminococcus* unassigned and *Bacteroides*, likely associated with allergies, increased in the placebo subset (Group A) at T3.

Conclusion: The probiotic mix used in this study ameliorates symptoms and QoL in subjects suffering from chronic and seasonal allergic rhinitis. Furthermore, this specific mixture of strains appears to positively affect gut microbiota by promoting the increase of bacterial species with anti-inflammatory and anti-allergic properties.

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Disclosure: Nothing to disclose.

PP0461

PROCESSED POLYMERIC DIETS EXACERBATE TUMORIGENESIS IN MURINE MODELS OF ATF6-DRIVEN COLON CANCER

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Introduction: The interplay between diet, host and intestinal microbiota plays a key role in colorectal cancer (CRC), with processed western diets

(WD) of high fat and low fiber content as main contributors. The endoplasmic reticulum unfolded protein response effector activating transcription factor 6 (ATF6) is associated with early changes in CRC and colitis-associated cancer (CAC). We showed that murine intestinal epithelial cell specific expression of active ATF6 (nATF6) triggers spontaneous CRC (nATF6^{IEC}) and CAC (nATF6^{IEC} x IL10$^{-/-}$) in a microbiota-dependent manner.

Aims & Methods: To substantiate clinical relevance of ATF6 and validate nATF6-driven CRC and CAC mouse models, we performed ATF6 immunohistochemical staining in CRC patients (N = 972), and human-derived fecal microbiota transfer (FMT) into germfree (GF) nATF6^{IEC} and nATF6^{IEC} x IL10$^{-/-}$ mice. Microbiota profiling together with RNA sequencing, metabolomics and lipidomics were used to elucidate ATF6 functional changes in the epithelium. To clarify the role of fat and fiber in tumorigenesis, mono- and biallelic nATF6^{IEC}, and monoallelic nATF6^{IEC} x IL10$^{-/-}$ mice were fed unprocessed chow or processed polymeric diets for 6 weeks after weaning.

Results: ATF6 represents a clinically relevant putative oncogene, with 16 % of CRC patients showing high ATF6 expression in the epithelium. CRC patient FMT established tumorigenesis in GF biallelic nATF6^{IEC} and monoallelic nATF6^{IEC} x IL10$^{-/-}$ mice that are otherwise tumor-free. Multi-omics analyses in specific pathogen-free and GF nATF6^{IEC} mice point towards ATF6-induced alterations in lipid metabolism. Compared to an unprocessed chow diet, the polymeric WD enriched in fat and depleted in fermentable fiber, increased tumor load in biallelic nATF6^{IEC} mice and tumor incidence in monoallelic nATF6^{IEC} x IL10$^{-/-}$ mice.

Unexpectedly, the highly processed WD induced *de novo* tumorigenesis in otherwise tumor-free monoallelic nATF6^{IEC} mice. To understand the impact of high fat in this context, we modified the WD by lowering fat content or by supplementing with fermentable fiber. The absence of fermentable fiber in the polymeric diet already accelerated tumor load as well as *de novo* tumorigenesis.

Surprisingly, fiber supplementation failed to protect the WD-induced tumorigenic phenotype despite microbial and metabolic changes. High fermentable fiber content in the low-fat diet even exacerbated nATF6-driven tumorigenesis, suggesting a tumor promoting rather than tumor protective function of fermentable fiber in processed diets.

Conclusion: These findings highlight the ability of all processed diets to exacerbate nATF6-related tumorigenesis, with dietary fermentable fiber unexpectedly acting as a tumor driver. This implies that plant-derived metabolites of unprocessed chow diet may fulfill protective functions in our mouse models.

Disclosure: Nothing to disclose.

PP0462

SPECIFIC FOODS ASSOCIATED WITH GASTROINTESTINAL SYMPTOMS IN IRRITABLE BOWEL SYNDROME AND FUNCTIONAL DYSPEPSIA

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Introduction: Among patients with functional gastrointestinal disorders (FGID), food intake is often identified as a symptom trigger. Common foods known to cause gastrointestinal (GI) symptoms include fatty foods (1) and fermentable carbohydrates (FODMAPs) (2), but the evidence is limited and may vary among different FGID.

Aims & Methods: The aim of this study was to explore if certain foods are considered more tolerable, and which specific foods are identified as triggers of GI symptoms among participants with irritable bowel syndrome (IBS) and functional dyspepsia (FD). An online survey was conducted including n=537 participants from the Swedish general population with symptoms compatible with a functional bowel disorder. The survey included questions on demographics and an adapted food frequency questionnaire that assessed intakes of 38 different food items or aggregated food groups. For each food, participants had to answer whether or not they considered the specific food to be a trigger for GI symptoms.

Results: Among the respondents, a total of 220 participants with IBS and/or FD (mean age 34.7 years, body mass index 26.8 kg/m^2, women: 78.2%) were included in the analyses, of whom n=128 fulfilled criteria for FD and n=136 for IBS. Foods that were least commonly reported to cause GI symptoms included hard bread, fish and shellfish, berries, nuts, and seeds (Figure). The most frequently reported food triggers included pizza, crisps, confectionery, candy, ice cream, white bread, dairy, french fries, pie, and sausages. White bread, more often than whole grain bread, was reported to cause GI symptoms. Most vegetables and fruits were well tolerated in FD. A few FODMAP-rich vegetables, such as onion, garlic, beans, lentils, cauliflower and cabbage were more often reported as food triggers in IBS compared with FD. Having overlapping IBS and FD increased the prevalence of foods that were considered to cause symptoms.

	FD n=128	IBS n=136	FD+IBS n=44		FD n=128	IBS n=136	FD+IBS n=44
Dairy, milk, yoghurt	47 (36.7%)	58 (42.6%)	17 (38.6%)	Apples, pears	29 (22.7%)	34 (25%)	15 (34.1%)
Ice gream	51 (39.8%)	50 (36.8%)	21 (47.7%)	Bananas	17 (13.3%)	19 (14%)	11 (25%)
Cheese	31 (24.2%)	31 (22.8%)	13 (29.5%)	Grapes	18 (14.1%)	31 (22.8%)	12 (27.3%)
White bread	51 (39.8%)	54 (39.7%)	19 (45.5%)	Peach, plums, cherries	23 (18.0%)	32 (23.5%)	15 (34.1%)
Whole grain bread	27 (21.1%)	34 (25%)	14 (31.8%)	Watermelon	14 (10.9%)	17 (12.5%)	8 (18.2%)
Hard bread	17 (13.3%)	23 (16.9%)	8 (18.2%)	Cauliflower, aspargus	25 (19.5%)	37 (27.2%)	12 (27.3%)
French fries	39 (30.5%)	55 (40.4%)	20 (45.5%)	Berries	15 (11.7%)	19 (14.0%)	7 (15.9%)
Pasta, couscous	35 (27.3%)	39 (28.7%)	11 (25%)	Tomatoes, cucumber	15 (11.7%)	20 (14.7%)	11 (25%)
Pizza	55 (43.0%)	76 (55.9%)	26 (59.1%)	Cabbage, kale, fennel	27 (21.1%)	44 (32.4%)	15 (34.1%)

Conclusion: In individuals with IBS and/or FD, foods traditionally associated with a healthy dietary pattern were less commonly reported to cause GI symptoms, whereas foods associated with western food/junk food were more commonly reported to cause GI symptoms. Promoting healthy food choices seem compatible with dietary treatment of patients with IBS and FD.

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Disclosure: Nothing to disclose.

PP0463

THE EFFECTS OF SODIUM BUTYRATE SUPPLEMENTATION ON THE SEVERITY OF ABDOMINAL SYMPTOMS AND CARBOHYDRATE METABOLISM IN PATIENTS WITH TYPE 2 DIABETES - PRELIMINARY DATA

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Introduction: Patients with type 2 diabetes are prone to the development of dysbiosis, which can manifest as intestinal bacterial overgrowth (SIBO). This may explain the pathomechanism of abdominal symptoms that sometimes affect this group of patients. Disturbances in the composition and quantity of intestinal microbiota translate to impaired production of short-chain fatty acids (SCFA) in the intestinal mucosa.

To increase the concentration of butyrate in the lumen of the intestine, oral microencapsulated sodium butyrate supplementation can be proposed.

Given the limited research conducted on the topic of the effects of sodium butyrate supplementation in alleviating abdominal symptoms in patients with type 2 diabetes, it became the topic of our interest.

Aims & Methods: The aim of the study was to evaluate the effectiveness of oral sodium butyrate supplementation in the population of patients with type 2 diabetes in alleviating abdominal symptoms and to estimate the incidence of small intestinal bacterial overgrowth in this group.

In addition, the impact of the intervention on the carbohydrate metabolism was assessed. A prospective, single-centre, randomized, placebo-controlled study was conducted between October 2022 and April 2023.

52 patients with type 2 diabetes and gastrointestinal symptoms were randomly assigned to one of 2 groups - a group receiving microencapsulated sodium butyrate (Intesta Max) at a dose of 1.5 g/day and a group receiving placebo. As 8 patients (15.3%) were lost to follow-up, for the preliminary analysis 44 patients were included.

The study lasted for 6 weeks. Before and after the intervention the presence of abdominal pain, diarrhoea, constipation and flatulence was assessed, laboratory tests and hydrogen breath tests were performed, the HOMA index and body mass index were calculated.

Results: At baseline SIBO was diagnosed in 73.1% of patients in the experimental group and 58.8% of patients in the control group. After 6 weeks of the intervention there was a significant drop in SIBO occurrence in sodium butyrate group – 22.2% (p=0.001). The incidence of SIBO in the control group did not change – 64.7% (p=0.21).All patients included in the study declared abdominal pain before the intervention.

After 6 weeks the pain was reported by 42.3% of the patients receiving the sodium butyrate vs. 88.4% of the patients receiving placebo (p=0.002).

After the intervention there was a significant difference between the groups regarding diarrhea – 18.5% and 58.8% (p=0.006) in sodium butyrate and placebo groups respectively. A decrease in the incidence of bloating in the sodium butyrate group was observed - 100% before vs. 29,6% after the intervention (p<0.00001).

The study also showed a decrease in BMI level, the HOMA index and glycated hemoglobin level after consumption of the sodium butyrate vs. placebo for 6 weeks. These results need confirmation in a larger group.

Conclusion: To our knowledge this is the first study reporting the effectiveness of oral butyric sodium supplementation in relieving abdominal symptoms (abdominal pain, diarrhea, flatulence) in patients with type 2 diabetes. Furthermore, an improvement in carbohydrate metabolism parameters was noted and body weight decrease was observed after the intervention.

Disclosure: Sodium butyrate (Intesta Max) we received from the company that produces it.

PP0464

CLINICAL PRESENTATION AND DIAGNOSIS OF COELIAC DISEASE IN BULGARIAN CHILDREN: INSIGHTS FROM A WEB-BASED SURVEY

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Introduction: The diagnosis of coeliac disease (CD) in Bulgaria is an important public health issue due to the rising prevalence of the disease.

The aim of this study is to analyze the clinical presentation, diagnostic process, and diagnostic delays among newly diagnosed CD patients in Bulgaria.

Aims & Methods: A web-based survey was conducted in 2021 among pediatric gastroenterologists in Bulgaria who uploaded medical data of newly diagnosed CD children. The survey consisted of specific data fields designed to assess changes in clinical picture, diagnostic process, and diagnostic delays.

Results: A total of 78 children with CD were included in the analysis. Majority of CD patients were female (67.9%), and the mean age at diagnosis was 5 years old. Serological tests were made prior to diagnosis, and the majority of patients were diagnosed using a no-biopsy approach (85.9%). The initial test performed in children diagnosed using a no-biopsy approach was determination of TGA antibodies in 100% of cases. In most patients, confirmatory tests were performed after positive initial TGA, with EMA being used as a confirmatory test.

The diagnostic work-up for CD was initiated based on symptoms and signs in most patients, with diarrhea being the most prevalent leading symptom (65.4%). The median delay from first symptoms to the confirmation of diagnosis was 2 months.

Conclusion: Conclusion 1: The majority of newly diagnosed CD patients in Bulgaria were female, and the mean age at diagnosis was 5 years old. Serological tests were made prior to diagnosis, and the majority of patients were diagnosed using a no-biopsy approach. The diagnostic work-up for CD was initiated based on symptoms and signs, with diarrhea being the most prevalent leading symptom.

The median delay from first symptoms to the confirmation of diagnosis was relatively short (2 months) compared to other countries in the Danube region.

Conclusion 2: In conclusion, the study reveals that the median diagnostic delay in Bulgaria is 2 months, which is significantly shorter than the median delay in other participating countries in the Danube region.

However, there is still room for improvement in terms of the diagnostic process, as a considerable number of patients in Bulgaria are diagnosed using the no-biopsy approach without secondary confirmatory tests.

Therefore, there is a need for better education and awareness among healthcare professionals and patients to ensure timely and accurate diagnosis of coeliac disease, which can ultimately improve the quality of life for patients.

Disclosure: Nothing to disclose.

PP0465

LACTOSE INTOLERANCE IN ADULT PEOPLE: CORRELATION BETWEEN CLINICAL FEATURES REPORTED BEFORE BREATH TEST, SYMPTOMS DEVELOPED AFTER ORAL INGESTION OF 25 G LACTOSE AND RESULTS OF LACTOSE BREATH TESTING

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Introduction: Lactose malabsorption (LM) is a common digestive disorder. The hydrogen breath test (HBT) is currently the non-invasive gold standard in diagnosing LM and lactose intolerance (LI), which is defined only in case of developing symptoms directly related to lactose ingestion in subjects with LM. (Misselwitz et al. 2019)

The analysis of methane values in air samples may increase the accuracy of the test by including subjects "non hydrogen producers". (De Geyter et al. 2021)

Aims & Methods: The aim of this study is to describe the relationship between pre-test clinical features, symptoms reported during lactose challenge and the result of the HBT in adults.

In this prospective study we included a consecutive series of adult patients who underwent a HBT during a 5-month period. Air samples were taken every 30 minutes for 4 hours after the ingestion of a charge of 25 g of lactose. Symptoms reported in the previous 15 days (abdominal pain, bloating, diarrhoea, flatulence) and those experienced after lactose ingestion were assessed using a standard questionnaire establishing their presence or absence, and relative severity using 0-10 scale. The results were considered positive when a H_2 peak exceeded 20 parts per million (ppm) above the baseline or in case CH_4 excretion reached 10 ppm above the baseline, for experimental purpose. LI was defined by at least one symptom experienced during the test in subjects with LM.

Symptoms during the test	*Total number of patients. N=68*	*positive H_2/CH_4 BT , N=45*	*negative H_2/CH_4 BT-, N=23*	*p value*
Abdominal pain	38 (56%)	28 (62%)	10 (43%)	non statistically significant
Abdominal bloating	43 (63%)	33 (73%)	10 (43%)	**0,02**
Flatulence	40 (59%)	30 (67%)	10 (43%)	**0,08**
Diarrhoea	12 (18%)	10 (22%)	2 (9%)	non statistically significant

Table.

Results: 68 patients were included in the study and 40 of them (59%) were positive at the HBT. 52 (76%) developed at least one symptom while LI was diagnosed in 34 patients of them (65%). Only 40% of patients who referred pre-test symptoms had LM and none of the four symptoms was associated with LM or LI. A positive trend was found between abdominal bloating after lactose ingestion and a positive HBT (p 0.08).

This association was statistically significant (73% vs 43%, p 0.02), with a positive trend also for flatulence (p 0.08) (Table), implementing diagnostic test with values of exhaled methane, finding 10 more intolerant patients.

Considering the variation of symptoms (new or worsening of symptoms after lactose ingestion), the worsening of bloating was significantly more frequent in subjects with positive HBT compared to those with a negative test (40% vs 14%, p 0.03) and predictive of LI (PPV= 80%). Diarrhoea was the most predictive symptom of LI (PPV up to 88%).

An association between the number of symptoms experienced during the test and LM was confirmed, while we didn't find the same relationship with pre-test symptoms. (Beyerlein et al. 2008)

Conclusion: Symptoms reported before HBT seems to be non-related to LI. This may lead to arbitrary dietary exclusion of dairy products with consequences on bone health (Infante and Tormo 2000) and suggest that the causal role of lactose should be confirmed by HBT. In adult, the development ex-novo or the exacerbation of abdominal bloating and diarrhoea during the test, in subjects with LM, seems to be the most predictive of LI. Furthermore, the increase of the number of symptoms complained makes the diagnosis of LI more likely. On these basis, a domestic screening with 25 g of lactose (500 ml of milk) to establish whether the patient really needs the execution of breath test should be explored.

References: Beyerlein et al. 2008
De Geyter et al. 2021
Infante and Tormo 2000
Misselwitz et al. 2019

Disclosure: Nothing to disclose.

PP0466

DATABASE FOR PERSONALIZED MICROBIOTA CORRECTION BY BIOLOGICALLY ACTIVE COMPOUNDS AND PLANTS EXTRACTS

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Introduction: Biologically active compounds (BACs) and plants extracts (PEs) are promising alternatives for biological preparations in personalized medicine, especially for personalized microbiota correction. However, due to fact that microbiota is a large complex system, the composition of which varies from person to person, there are various issues that needs to be solved in order to use biologically active compounds and plants extracts for microbiota correction.

Aims & Methods: The aim of this study, was to describe all these issues as well as possible solutions to them and propose the solution to the most fundamental issue for personalized microbiota correction i.e. data source (database).

Methods: Development of the database as well as user interface for its usage included such steps: 1) Search, selection, extraction and analysis of literature data on the impact of BACs and PEs on microorganisms; 2) Development of a tabular structure of the database and the filling of its relational tables with selected and appropriately grouped information; 3) Construction of tools that enable convenient use of the information.

PubMed was used to search for literature sources. Statistical analysis of extracted data was carried out by well-known methods of descriptive statistics and statistical inference, using the libraries of the Anaconda – Python environment created for scientific research and the OriginPro software package. The search for statistically significant pairwise Pearson and

Spearman correlations between types of microorganisms, and between types of BACs or PEs was carried out by using the Stats library of the SciPy library module of the Anaconda - Python environment.

Results: The developed database consists of 7,717 records on plants effects on microorganisms and 3,034 records on biologically active compounds effects on microorganisms. The database contain not only data of inhibitory effect but also stimulatory effect data as well as the unification of all data, which is a key features of this database. We also performed various types of analysis on extracted data, i.e. correlation analysis, the results of which could be used for development different prognostics and machine-learning models.

Conclusion: The described idea of using linear methods for personalized adjustment of microbiota using BACs or plants can be used for the development of appropriate biotechnology for personalized microbiota correction, as well as the development of biological preparations. The approach can also be used to select other components, such as microorganisms, and a necessary condition for this is the availability of relevant data on the effect of these components on specific representatives of the microbiota.

An important result is the developed database on the effects of plants and BACs on microorganisms, which solves the actual problem of initial data for selection and allows a wide range of users to use the relevant data also for solving other problems, in particular, preliminary evaluation of components during scientific research. The results obtained by us from the correlation analysis of the created database are unique and allow us to reveal certain regularities in the influence of certain BACs, plants or the sensitivity of microorganisms to them. These data can be used in the future to create a new, more accurate, personalized approach for microbiota correction, as well as to build various models, including machine learning.

Disclosure: Nothing to disclose.

PP0467

THE EFFECT OF DIETETIC RESTRICTIONS AND GASTROINTESTINAL SYMPTOMS ON BODY COMPOSITION IN HYPERMOBILE EHLERS-DANLOS SYNDROME

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Introduction: Hypermobile Ehlers-Danlos Syndrome (hEDS) is a hereditary connective tissue disease characterized by joint hyperlaxity, skin hyperextensibility. Many patients report gastrointestinal (GI) involvement, including gastroesophageal reflux symptoms, abdominal pain, bloating, abdominal pain and bowel habits alteration.

In order to manage GI symptoms, patients may observe dietary restrictions which contribute to weight loss and nutritional deficiency (Zeitoun JD et al, 2013); (Di Francisco-Donoghue J. et al, 2022); (Phoebe A Thwaites et al, 2022).

Aims & Methods: The aim of the study was to assess the effect of GI symptoms and dietetic restrictions on body composition in hEDS. 25 hEDS patients (pts) (92% females, mean age 41.6±14 years) referred to the "Rare Diseases Desk" at the Polyclinico Umberto I, University of Rome "Sapienza" were enrolled in the study in the years 2017-2019.

All pts filled in the standardized "Rome III" questionnaire (in use in the referred period)investigating proximal and distal GI symptoms, The Irritable Bowel Severity Scoring System (IBS-SSS) to evaluate severity of symptoms, a 2 weeks food diary for self-monitoring dietary intake, and bioimpedance analysis (BIA) to study body composition (Akern BIA 101 instrument). Daily intake of carbohydrates (CHO), lipids and proteins was compared with "Reference Intake Levels of Nutrients and Energy for the Italian Population" (LARN) and the estimated total daily energy expenditure (BRM) was compared with the Harris–Benedict equation. Data are expressed as mean or percentage and statistical analysis using Pearson test.

Results: All patients reported almost a GI symptom with a IBS-SSS mean of 293,6 ±112. The most notable symptoms were epigastric pain (96%), bloating and abdominal pain (64%), dysphagia (4%), heartburn (64%), non cardiogenic chest pain (68%) and nausea (68%). The analysis of food diaries showed a daily calorie deficiency in 40% of pts (1330±346 kcal/day vs BMR of 235.8±219.1 kcal/day in females and 1575±176.8 kcal/day vs BMR of 174±14 kcal/day in males). Regarding macronutrients, the analysis showed an inadequate intake of protein in 66% of pts (daily percentage of protein was 15,9±2,9/day) of CHO in 41% and lipid in 50% of pts (daily percentage CHO consumed was 51%±0,6/day and 24,6±2,6/day for lipids). Analysis of BIA showed a fat free mass (FFM) level of 71.4% ±7,9 (n.v 75-82%), fat mass (FM) level of 28,4% ±7,8 (n.v. 18-25%), hydration level of 73% ±12 (n.v. 72,7-74,3%).

Conclusion: Our study confirms that gastrointestinal disorders are common in patients in hEDS and probably multiple symptoms may influence the quality of diet.The high value of IBS-SSS suggests these symptoms may have relevant role in the management of diet. According to LARN, hEDS had a sbalanced, predominantly caloric and protein- deficient diet which may negatively affect the body composition, regarding FFM and FM. It is reasonable to hypothesize that the dietetic restrictions we observed are in relation to severity of GI symptoms but studies involving more patients are needed to draw definitive conclusions.

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PP0468

FUNCTIONAL NAUSEA AND DISORDERED EATING IMPACT NUTRIENT INTAKE IN PATIENTS WITH HYPERMOBILE EHLERS DANLOS SYNDROME (HEDS) - A LARGE CROSS SECTIONAL STUDY

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Introduction: Patients with Hypermobile Ehlers Danlos Syndrome (hEDS) have a high prevalence of Disorders of Gut-Brain Interaction (DGBI) and pose complex nutritional challenges in gastroenterology clinic. Despite this, little is known regarding nutrient intake and adequacy in hEDS.

Aims & Methods: Our aim was to assess nutrient intake and adequacy of patients with hEDS, as well as to determine which factors, including co-existent DGBI, are associated with poor intake. We conducted a cross sectional survey of patients with hEDS from two tertiary neurogastroenterology clinics as well as the Ehlers-Danlos Support UK. Inclusion criteria were adults with hEDS, exclusion criteria were those currently or previously using artificial nutrition. Patients completed the validated semi-quantitative Scottish Collaboration Group Food Frequency Questionnaire (FFQ) alongside questionnaires characterising: demographics, DGBIs (Rome IV), gastrointestinal, mood, somatic and autonomic symptoms, past history of eating disorders and screen for Avoidant Restrictive Food Intake Disorder (ARFID) using the Nine Item Avoidant-Restrictive Scale (NIAS). Nutrient intake was calculated from the FFQ and nutrient adequacy was calculated by comparison with UK daily reference values (DRVs) for age and sex. Unpaired t-tests were performed to compare nutrient intakes among patients with and without comorbidities, including the most common DGBIs.

Results: 425 participants were included in the final analysis (mean: 41 years, 96% female). Only 48.5% reported BMI in the normal range, whereas 5.2% were underweight (BMI <18.5 kg/m^2) and 46.4% were overweight/obese (BMI >25 kg/m^2). Only one third met their estimated average requirements (EAR) for energy (kcal/d). The majority met their reference nutrient intake (RNI) for protein (87.3%) and fat (72.5%), in contrast to only 21.2% for carbohydrate. Fibre intakes were very low (AOAC mean 23.7g/day (SD: 12.7) with only 24.7% meeting the RNI of 30 g/d. More than 58% of participants met/exceeded their DRV for micronutrients (zinc, magnesium, copper, manganese and selenium) and >95% for vitamins. Patients with functional nausea (n=157) were less likely to meet their protein requirements compared to those without (82.2% vs. 90.3%, p=0.015) and also had lower intakes for sodium (p=0.02), magnesium (p=0.02), calcium (p=0.01), zinc (p=0.002), selenium (p=0.03), folic acid (p=0.02) and vitamin C (p=0.05). Patients with previous eating disorders were less likely to meet nutrient requirements for thiamine (p=0.01) and vitamin B12 (p=0.04). Patients with ARFID (n=110) were less likely to meet requirements for all nutrients (except fat, calcium, vitamin D, vitamin B12) compared to patients without.

Conclusion: Patients with hEDS are rarely underweight and tend to consume high protein, high fat diets that are low in fibre. Functional nausea is the single most important DGBI impacting nutrient intake, as well as previous eating disorders and disordered eating (ARFID). These factors should be considered by clinicians and dietitians when assessing nutrient intake in this complex patient group.

Disclosure: RT, AF and QA have received a grant from EDS-UK to conduct this study. AF undergoes consulting work for Abbvie.
KW has received research funding from Almond Board of California, Danone, International Nut & Dried Fruit Council, and has a patent for volatile organic compounds in the detection and management of IBS.
QA undergoes consulting work for Takeda Pharmacueticals, and Classado Biosciences Ltd.

PP0469

TUMOUR SEEDING FROM HEAD AND NECK CANCER AT THE SITE OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY

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Introduction: There are around 12,400 new cases of head and neck cancer diagnosed in the UK each year. It is the 8th most common cancer in the UK and incidence rates are projected to rise by 3% over the next two decades. Between 33 and 69% of patients with Head and Neck cancer will require enteral feeding via a gastrostomy tube to support their nutrition and hydration during treatment. Percutaneous endoscopic gastrostomy (PEG) is often the preferred method of placement of the gastrostomy tube and is generally considered safe but malignant seeding of the tumour to the PEG site is a rare complication. It has been reported that rate of metastasis at the PEG site is between 0.5-3%.

Aims & Methods: We carried out a retrospective chart review of all patients undergoing PEG insertion at the Bristol Royal Infirmary between January 2015 and December 2021. The primary aim was to determine the rate of PEG site metastases at our centre. Demographic data were collected, as well as cancer type and stage, details of disease progression.

Results: A total of 284 patients underwent PEG insertion during the period of data collection. Of these, 204 patients had their gastrostomy inserted for a head and neck cancer indication. All PEG tubes were put in using the 'pull' method. 2 patients were identified as having abdominal metastatic disease and these cases were reviewed in greater detail. On further review these 2 patients were not found to have malignant spread to the PEG site specifically, but more general peritoneal disease, unrelated to the method of gastrostomy insertion. For both patients, the abdominal disease was in the context of widespread metastatic disease. There were therefore no cases of PEG site metastases at our centre between January 2015 and December 2021 (0/204, 0%).

Conclusion: Our data suggests that PEG is a safe method of gastrostomy insertion for head and neck cancer patients, without significant risk of tumour seeding to the PEG site.

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Disclosure: No conflicts of interest to declare.

PP0470

MICROBIOME CHANGES UNDER NUTRIENT DEPRIVATION ARE DYNAMIC AND DEPENDENT ON INTESTINAL LOCATION

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Introduction: The microbiome has a pivotal role in intestinal health, while nutrition has a major role in shaping its structure. Enteral deprivation, in which no oral/enteral nutrition is administered, is common in hospitalized/GI patients. The dynamics that enteral deprivation exerts on the microbial community, specifically in the small intestine, the site of nutrition absorption, is not well understood.

Aims & Methods: We have modelled enteral deprivation with a total parenteral nutrition (TPN) mouse model. Singly housed mice were euthanized at baseline or allocated to receive either saline and chaw (control) or TPN and euthanized after 2, 4 and 6 days. DNA was extracted from jejunum, ileum and colon luminal content. 16S sequencing was performed and changes in microbial communities were compared between the groups. Functional pathways were predicted using PICRUSt2.

Results: Across the GI tract, microbial community changes have occurred in TPN mice compared with baseline/control. Beta diversity in feces showed a clear separation between baseline/control and TPN groups (Bray-Curtis, $p<0.001$). Time-dependent dynamics were seen in ileal samples transitioning from baseline/control to TPN groups, while no change was seen in jejunal samples. While alpha diversity was lower in feces of TPN compared with control/baseline (Chao1, $p<0.01$), no change (rather a trending increase) was seen in ileal/jejunal samples (p=ns). Destabilization of the community was on day 2 and progressed through day 6, measured by the progressive loss of single taxa domination, mostly in the small intestine. This was accompanied by increase/decrease in specific taxa, as found in differential abundance analyses. A clear separation was seen in the functional capacity of the community between fed and enteral-deprived mice.

Conclusion: Enteral deprivation disturbs the microbial community in a location-specific manner. While a mild change was seen in the proximal small intestine, dramatic changes occurred in the distal small intestine and colon, differing in pattern.

Disclosure: Nothing to disclose.

PP0471

NUTRITION THERAPY COMPARED TO STANDARD THERAPY IN CROHN'S DISEASE

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Introduction: Dietary intervention is well recognised as an effective treatment for Crohn's disease in children, and there is a growing evidence base for its use in adults in inducing and maintaining remission[1]. It has a number of advantages over standard therapy including a low side effect profile and being cost effective, but despite this nutrition therapy is underused in practice[2].

Aims & Methods: To investigate the efficacy of the addition of dietary intervention including elemental formula and a Low Fat/ Fibre Limited Exclusion (LOFFLEX) diet in addition to standard therapy on outcomes in Crohn's disease, compared to standard therapy alone.

A cohort of patients at MDHB in Palmerston North, New Zealand, with Crohn's disease who were started on dietary intervention as monotherapy or in addition to standard therapy in non-responsive patients between the beginning of 2019 and the end of 2021 were analysed retrospectively. A cohort of patients treated with standard therapy alone, which includes treatment with 5ASA, immunomodulator and biologic therapy were also retrospectively recruited from a database of IBD patients at MDHB. Baseline data for both groups were collected and standardised using regression model analysis for baseline characteristics including duration of disease, gender, smoking status, location and behaviour of disease, baseline Harvey-Bradshaw Index (HBI) and C-reactive protein (CRP).

Outcomes for both groups were measured using number of flares (defined by course of steroids and/or hospital presentations), biochemical markers including CRP and faecal calprotectin, and a composite marker of symptoms using the Harvey Bradshaw Index.

We fitted a mixed effects model to the response (i.e. HBI, CRP, faecal calprotectin and number of flares) separately with a fixed effects of time (12 and 24 months) for the nutrition and standard groups.

Results: At the 12 month mark, patients on nutrition therapy had a significantly lower HBI (1.9126) compared to those on standard therapy alone (4.3454 with a p-value of 0.0026. There was no significant difference between groups at 24 months. There was no statistically significant difference between the groups for other outcome measures including CRP, faecal calprotectin, and number of flares.

Outcomes													
	Month 12							Month 24					
	Nutrition			Standard				Nutrition			Standard		
Response	n	Mean	SE	n	Mean	SE	Response	n	Mean	SE	n	Mean	SE
HBI	41	2.72[a]	0.44	41	4.69[b]	0.49	HBI	22	4.68	1.13	39	4.29	0.68
CRP	36	6.36	2.37	42	20.42	6.9	CRP	18	13.96	10.64	44	20.3	8.69
WBC	41	8.01	0.37	43	6.7	0.4	WBC	25	8.12	0.62	44	7.44	0.44
Faecal Calprotectin	35	168.94	26.8	18	252.44	62.7	Faecal Calprotectin	17	172.65	51.4	11	285.82	101.87
No. of flares	41	1.56	0.4	46	1.04	0.22	No. of flares	29	3.55	1.13	43	1.93	0.33

Conclusion: Our study suggests nutrition therapy in Crohn's disease is effective as monotherapy or when combined with other treatment modalities in non-responsive patients already on pharmacotherapy. At the 12-month duration nutrition therapy was more effective in this group

compared to patients on standard therapy based on the Harvey-Bradshaw Index, suggesting a potential alternative treatment approach for adults with mild to moderate Crohn's disease, and highlighting the need for further research in this area.

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Disclosure: Nothing to disclose.

PP0472

INTESTINAL ADAPTATION AND SARCOPENIA IN SHORT BOWEL SYNDROME: RESULTS FROM A PROSPECTIVE STUDY (SARCO-SGC)

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Introduction: Malnutrition and sarcopenia are highly prevalent in chronic gastrointestinal diseases, including short bowel syndrome (SBS, <2m of small bowel). While restoration of colonic continuity (RC) improves intestinal adaptation, the link with malnutrition and sarcopenia is unknown.

Aims & Methods: SBS patients were included at a single tertiary care expert centre. Malnutrition (GLIM-criteria) and sarcopenia (EWGSOP2-criteria) were assessed before and 6 months after RC. The primary outcome was the evolution of sarcopenia, defined as a reduced fat free mass index (FFMI, using bioimpedance analysis) and handgrip strength (HGS). Changes in C-reactive protein (CRP) and albumin were also studied with parametric analyses after testing for normality. Comparisons were done based on weaning off home-parenteral nutrition (HPN) and presence of a jejuno-colonic (JC) or jejuno-ileo-colonic (JIC) anastomosis.

Results: In total, 46 patients (23 female, mean age 59 ±15 years) were included. Complete weaning was seen in 21 (46%) patients after 6 months, with a mean caloric reduction (kcal/day) of 33% in the remaining 25 patients. Malnutrition was present in 16 (35%) patients before and 21 (46%) after RC (p= 0.29), with no significant change in BMI (table). Although proportions of reduced FFMI (42% vs. 34%, p= 0.51) and sarcopenia (16% vs. 11%, p= 0.48) were similar before and after RC, a trend for increased FFMI was found in all patients (table). Proportions of malnutrition (52% vs. 40%, p= 0.4) and sarcopenia (10% vs. 13%, p= 0.75) were also similar in those with or without complete weaning after 6 months. In contrast, a significant increase in HGS was found (table), but only in those with complete weaning (p= 0.04). While CRP decreased and albumin increased in both groups, levels were higher in case of complete weaning after 6 months (p= 0.02) with similar CRP. Results were similar between SBS-JC (n= 26) and SBS-JIC (n= 20) patients.

Variable	Baseline	6 months	p-value
BMI (kg/m^2)	25.7 (5)	25.8 (5.4)	0.78
FFMI (kg/m^2)	14.5 (5.1)	15.1 (5.2)	<0.1
HGS (kg)	23.2 (10.2)	27.5 (12.9)	<0.01
Albumin (g/L)	31.6 (5.3)	38.2 (5)	<0.0001

Conclusion: Restoration of colonic continuity allows a reduction of HPN in SBS, with stable rates of malnutrition and sarcopenia. Besides a potential effect on body composition (FFMI), muscle strength and albumin levels increased, especially in those with complete weaning. Further study of the role of the colon and use of these functional markers during adaptation is required.

Disclosure: Nothing to disclose

PP0473

THE IMPACT OF NUTRITION SUPPORT TEAMS ON EMERGENCY ADMISSIONS FOR PERCUTANEOUS ENDOSCOPIC GASTROSTOMY COMPLICATIONS IN ENGLAND 2007-2021:A POPULATION BASED STUDY

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Introduction: Percutaneous endoscopic gastrostomy (PEG) provides long-term enteral nutrition access in patients with a functional gastrointestinal tract and impaired swallowing. Population-based data on hospital admissions with long term PEG complications are lacking. This study examines the impact of nutrition support teams on admissions with PEG related complications and associated factors.

Aims & Methods: Adults undergoing first PEG insertion in England from 2007 to 2021 were identified in Hospital Episode Statistics. Long term complications (>30 days after PEG) were identified using ICD-10 codes and categorised into two groups: mechanical (PEG obstruction, displacement and leakage) and PEG site infection. Data on NHS trust nutrition support teams were available from GIRFT. The proportion of patients with hospital admissions associated with PEG related complications within 5 years of insertion was calculated. Cox proportional hazards models examined factors associated with both emergency and elective admissions with PEG complications.

Results: Of 108,515 patients (57.7% male; age 69(IQR 57-69)),10.8% had an emergency admission (with 84% for >48 hours) and 1.6% an elective admission due to PEG complication. Hospitals without a nutrition support team had 60.7(36.8-84.2)% emergency admissions due to PEG related mechanical complications compared with 49.5(22.5-90.6)% in hospitals with a nutrition support team.

Factors associated with any emergency admissions for PEG complications included: female (adjusted hazard ratio (aHR) 1.04(95% CI 1.01-1.08)); Asian ethnicity (aHR 1.10(1.02-1.19)); PEG insertion during an emergency admission (aHR 1.38(1.32-1.44)); dementia as PEG indication (aHR 1.27(1.08-1.49)); oesophageal cancer as PEG indication (aHR 2.28(1.99-2.62)); no trust nutrition support team (aHR 1.20(1.13-1.28)) and more recent years of PEG insertion (2021 aHR 1.75(1.52-2.00)). Factors associated with any PEG related complication admission included: PEG insertion during emergency admission (aHR 1.27(1.22-1.32)); oesophageal cancer

as PEG indication (aHR 2.24(1.97-2.54)); dementia as PEG indication (aHR 1.24(1.06-1.44); other neurological conditions than stroke as PEG indication (1.16(1.10-1.23)); no trust nutritional support team (aHR 1.16(1.09-1.23)); increasing age (>82 years aHR 0.60(0.57-0.64)); the least deprived quintile (aHR 0.83(0.78-0.87)) and increasing comorbidity Charlson score >5 (aHR 0.86(0.82-0.91)).

Conclusion: 10.8% of patients had an emergency admission with a complication within 5 years of PEG insertion, with 84% staying in hospital for >48hrs.The lack of a trust nutritional support team increased the risk of emergency admissions with complications.

Disclosure: No conflict of interest to declare.

PP0474

THE ASSOCIATION BETWEEN VARIATION IN ENDOSCOPY PRE-MEDICATION PRACTICE AND PNEUMONIA RISK FOLLOWING PERCUTANEOUS ENDOSCOPIC GASTROSTOMY

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Introduction: Percutaneous endoscopic gastrostomy (PEG) provides long term nutrition in patients with impaired swallowing and a functional GI tract. Such patients are often at increased risk of aspiration.

Aims & Methods: This study examines the association between the use of sedation and local anaesthetic throat spray during PEG insertion and aspiration pneumonia risk. Adult patients with PEG insertion were identified from Hospital Episode Statistics between January 2016 and July 2022. Data on sedation and throat spray use during PEG insertion at NHS trust level were available from the National Endoscopy Database. The proportion of patients with aspiration pneumonia and pneumonia within 7 days of PEG insertion at NHS trust level were examined.

Multivariable logistic regression analysis was used to examine the association of sedation and throat spray with pneumonia following PEG against a baseline of general anaesthetic/propofol adjusting for demographics, comorbidities, PEG trust volume and PEG indications.

Results: 33,357 patients undergoing PEG insertion were analysed (59.8% male). 71.4% of NHS trusts predominantly used sedation only compared with 28.6% who predominantly used both throat spray and sedation for PEG insertion.

Patients who had sedation only (Odds Ratio 0.45(95% CI 0.29-0.70)) had a significantly lower risk of pneumonia, compared with sedation plus throat spray (OR 0.61(0.39-0.97)) (p=0.01) and general anaesthetic/propofol. Other factors associated with pneumonia included: increasing age >82 years (1.27(1.06-1.51)) and head and neck cancer as PEG indication (0.23(0.18-0.30)).

Patients who had sedation only (1.51 (0.95-2.40)) had less aspiration pneumonia after PEG insertion, compared to sedation and throat spray (2.29 (1.41-3.71)) (p=0.001) . With general anaesthetic/propofol as baseline other factors associated with aspiration pneumonia included: less PEG procedures per trust < 27 (1.17(1.03-1.34)); PEG insertion during emergency admission (4.25(3.71-4.86)); and increasing age > 82 years (1.83(1.55-2.16)).

Conclusion: The use of sedation in combination with local anaesthetic throat spray for PEG insertion is associated with a higher risk of pneumonia and aspiration pneumonia, compared to using sedation only. Endoscopy providers and endoscopists should consider whether using throat spray with sedation in patients undergoing PEG insertion is appropriate when they are already at increased risk of aspiration.

Disclosure: No conflict of interest to declare.

PP0475

A SIMPLIFIED APPROACH TO PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) TUBE PLACEMENT IN AMYOTROPHIC LATERAL SCLEROSIS (ALS) PATIENTS – SAFETY AND COMPLICATIONS

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Introduction: Amyotrophic Lateral Sclerosis (ALS) is a progressive neurodegenerative disease in which muscle weakness develops insidiously. In advanced stages of the disease dysphagia, weight loss and malnutrition occur in the majority of patients. Thus, the consideration of Percutaneous Endoscopic Gastrostomy (PEG) tube placement is common.

However, the optimal timing and setting for the procedure as well desired spirometry results are either are not stated in most guidelines or debated. Previous studies have suggested greater procedural risk for patients whose forced vital capacity (FVC) was less than 50% than predicted

Aims & Methods: The aim of this study was to assess the safety of our tertiary center simplified approach to PEG tube placement in patients with ALS.

The electronical records of patients who underwent percutaneous endoscopic gastrostomy (PEG) placement between 1.1.2020 to 1.1.2023 were retrospectively reviewed. All adult patients diagnosed with ALS who underwent ambulatory PEG tube placement were included. Patients who underwent PEG tube placement during hospitalization due to acute illness were excluded.

The common practice of our center regarding PEG placement in patients with ALS is as follows: initial evaluation at the Gastroenterology clinic of patients referred by the neurology clinic, followed by ambulatory PEG placement under sedation by an anesthesiologist.

We collected baseline information from the neurology and gastroenterology clinic visits regarding comorbidities and baseline FVC and the functional rating score [ALS-FRS, 0-48 points, lower score indicating a more severe disease). The data concerning the procedure and possible complications were collected from endoscopy reports, emergency department visits and clinic visits after the procedure.

Results: Six hundred and sixty patients had underwent PEG tube placement in our center during study period. Of them, 67 patients had an established diagnosis of ALS (10.2%). One patient was excluded due to PEG placement in the setting of an acute illness during admission, thus 66 patients were included (mean age at PEG placement 63.5±12.7 years and 37.8% were females). Mean ALS-FRS score was 23.6±8.81 and mean FVC was 49.8±19.45% of predicted. More than half (54.7%) of the patients were using non-invasive ventilation support device at home prior to the procedure and 12.1% of patients had underwent endotracheal tube placement prior to PEG tube placement.

The averaged duration of PEG tube placement was 11.96±5.3 minutes. All PEG procedures were completed successfully. Complications were documented during two PEG placements (3%): one patient suffered from aspiration and was hospitalized and later diagnosed with aspiration pneumonia and the second patient suffered from gastric perforation and peritonitis which was diagnosed a few hours after the procedure. During the 30 days following PEG placement, 3 (4.5%) complications were docu-

mented: Two patients (3%) suffered from PEG site infections and were treated with antibiotics and one (1.5%) was diagnosed with aspiration pneumonia. No deaths occurred during the procedure or during the 30 days that followed.

Conclusion: The simple straight forward approach to PEG placement in our institution was successful and safe in the vast majority of cases. The complications rate in our cohort is comparable to other studies, even though the patients in our cohort had significantly reduced lung function and functional scores then accepted in the common practice.

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Disclosure: Nothing to disclose.

PP0476

IMPACT OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY ON SURVIVAL AND PROGNOSTIC FACTORS IN ENT CANCER PATIENTS: A LONGITUDINAL STUDY FROM 2006-2022

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Introduction: Percutaneous endoscopic gastrostomy (PEG) is a widely recognized procedure for delivering enteral nutrition to head and neck cancer patients who often suffer from dysphagia and malnutrition. Nevertheless, the influence of PEG on survival among ENT cancer patients is yet to be fully understood.

Aims & Methods: This research seeks to determine the overall survival rate of ENT cancer patients with PEG and identify the critical factors affecting survival during the period of 2006-2022. We conducted a retrospective cohort study on ENT cancer patients diagnosed between 2006 and 2022. The Kaplan-Meier method was employed to estimate overall survival, while Cox proportional hazards regression was used to compute hazard ratios (HRs). Forest plots were generated to illustrate the HRs and corresponding 95% confidence intervals (CIs) for factors significantly linked to survival.

Results: Our analysis included 6646 patients, with 1851 undergoing PEG (27.9%) and 4795 without PEG (72.1%). According to the Kaplan-Meier analysis, patients who received PEG had a median survival time of 2.34 years (95% CI: 2.17 to 2.65) compared to 1.09 years (95% CI: 1.03 to 1.16) for non-PEG patients. The Forest plot identified several key factors significantly related to improved survival, such as PEG (aHR: 0.66, 95% CI: 0.61 to 0.70), younger age (aHR: 1.02, 95% CI: 1.02 to 1.02), and lower cancer stage (stage 2: aHR: 1.24, 95% CI: 1.08 to 1.43; stage 3: aHR: 1.45, 95% CI: 1.26 to 1.67; stage 4: aHR: 1.87, 95% CI: 1.66 to 2.12). The relationship between PEG and survival suggests a 34% decrease in mortality risk for PEG patients.

Conclusion: This study shows that PEG plays a significant role in enhancing the overall survival of ENT cancer patients. Factors such as age and cancer stage also strongly impact patient outcomes. These results underline the potential advantages of PEG in ENT cancer patient management and stress the necessity for a multidisciplinary strategy to optimize patient care. Further prospective research is needed to establish the causal link between PEG and increased survival and to pinpoint the best timing and selection criteria for PEG in ENT cancer patients.

Disclosure: Nothing to disclose.

Poster presentations
IBD

Poster Presentations
IBD

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IBD

PP0477

SERUM PROFILING TO PREDICT RESPONSE TO ANTI-TNF TREATMENT. TOWARDS PERSONALIZED THERAPY OF IBD

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Introduction: Inflammatory bowel diseases (IBD) including Crohn's Disease (CD) and Ulcerative colitis (UC), are chronic and relapsing inflammatory conditions of the gut. In severe IBD and in corticosteroid-dependent or -resistant cases, the use of biological drugs, targeted towards TNF is indicated.

However, 20-40% of patients do not respond to biological agents, leading to increased direct and indirect costs. To date, there are no reliable clinical or molecular predictors of response to anti-TNF.

Aims & Methods: The aim of this study is to promote personalized medicine in IBD, using serum proteomic profiling to identify potential molecular markers, which may predict the response vs. failure of Infliximab therapy. Immunodepleted serum from 54 IBD patients, collected up to the third infusion (29 CD, 20 responders and 9 non-responders; 25 UC, 14 responders and 11 non-responders) were characterized by MALDI profiling analysis.

The acquired spectra of the responders and anti-TNF non-responders, both UC and CD patients, were compared in order to highlight the "best separating" peaks. Blood levels of anti-TNF were measured using a commercial ELISA kit for therapeutic drug monitoring (TDM).

Results: We analyzed proteomic profiles in order to identify differences between patients responding to therapy (R) and non-responder patients (NoR) in both UC or CD groups. Comparing immunodepleted serum, collected up to the third infusion, of UC R vs NoR patients, 2, 8 and 11 "best separating" peaks were differentially expressed before the first, second and third infusions, respectively ($p<0.05$, CV<25%, ROC curve≥0.75) in the m/z range 1-35 KDa. Among these "best separating" peaks we identified up-regulated proteins in NoR that participate in immune response, lipid metabolism, cell proliferation and differentiation.

Whereas, in CD pts spectra analysis between R vs NoR before the first and the second infusion showed significant variation in two and six "best separating" peaks, respectively, all up-regulated in NoR. Quantifications of circulating drug levels were performed in all pts who reached the 6th week of treatment (W6). The circulating drug level before infusion demonstrate that R pts have significantly lower circulating drug levels than NoR (7.29µg/ml ± 0.90µg/ml vs 16.42µg/ml ± 5.14µg/ ml; $p<0.001$), with no differences between disease.

Conclusion: Proteomic analysis has highlighted a number of "best separating" peaks and circulating proteins between UC and CD responders and non-responders patients to anti-TNF therapy that have the potential to be tested as predictors of non-response to IFX therapy. Prospective clinical studies should be performed to evaluate real role of these serum markers in predicting outcomes with anti-TNF treatment.

Disclosure: Nothing to disclose.

PP0478

SINGLE-CELL TRANSCRIPTOMIC ANALYSIS IDENTIFIES EARLY IMMUNE DISTURBANCES IN PRECLINICAL CROHN'S DISEASE

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Introduction: Despite the increasing incidence of Crohn's disease (CD), its early immune disturbances have not been described yet. The preclinical period provides an opportunity to gain insight into the initial processes involved in the pathogenesis of the disease.

Aims & Methods: The main aim of our study was to describe how the subclinical inflammatory process is modifying the individual's immunologic environment while the patient is still on preclinical period. We analysed scRNASeq data from peripheral blood mononuclear cells (PBMC) of patients with incidentally-diagnosed CD according to ECCO criteria during the colorectal cancer screening programme, after histologic confirmation. Their gene expression profile was compared to healthy individuals acquired from publicly available datasets. The analytical pipeline included merging of the datasets followed by batch correction concerning integration from different studies, quality control and filtering, and finally cell-type annotation and differential gene expression analysis.

Results: Two patients with CD (mean age 53,5 years) and 2 healthy controls were included. We observed distinct transcriptomic profile in preclinical patients compared to controls, with small intragroup differences. The cell-type annotation identified B cells (B), CD4+ and CD8+ T-cells (CD4T, CD8T), dendritic cells (DC), monocytes (Mono) and natural killer cells (NK). The analytical pipeline included 17,021 cells (B:3,274, CD4T:5,798, CD8T:3,476, DC:315, 2, Mono:928, NK:3,230) and 3000 quantified genes. Considering each cell type individually, we identified 49 differentially expressed genes (DEG) between CD patients and controls (B:39, CD4T:37, CD8T:41, DC:42, Mono:37, NK:37), from which 30 were DEGs in all cell types.

Building on the list of 49 detected DEGs, we report three insights into the preclinical period of the disease.

First, pathway analysis revealed significant enrichment of the pathway that is related to immunoregulatory interactions between lymphoid and non-lymphoid cells, and functional annotation analysis identified gene

products that are related to immunological defense. Second, we identified significant transcriptomic alterations in genes that have previously been related to the symptomatic phase of IBD, or reported as potential biomarkers. Third, after performing principal component analysis we observed greater separation between the patients groups in the CD8T cells compared to the other cell-types.

Conclusion: This study reveals the initial transcriptomic profiles and the main pathways that precede the onset of symptomatic inflammatory bowel disease. Our findings may help in identifying potential targets for early disease intervention.

Disclosure: Nothing to disclose.

PP0479

VISUALIZATION OF DNA DAMAGE RESPONSE AND ITS ASSOCIATION WITH CLINICOPATHOLOGICAL FEATURES IN ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) are characterized by chronic inflammation and ulcers in the large intestine with risk of developing colorectal cancer in the long term.

DNA damage response is implicated in inflammation in UC as well as carcinogenesis. However, *in situ* DNA damage response in epithelium in ulcerative colitis, as well as its association with inflammation status and dysplasia, is poorly explored. p53-binding protein 1 (53BP1) accumulates at double strand break legions and form a nuclear focus, thus serving as a molecular marker of DNA damage response.

Aims & Methods: The aim of this study was to visualize the patterns of 53BP1 nuclear foci expression pattern in UC specimen, and to evaluate correlations between 53BP1 expression patterns and investigate their association with clinico-pathological features.We performed immunofluorescence staining with 53BP1 on colorectal tissue of control and UC (control n=18, UC=51, total n=69). Expression pattern with 3 or more nuclear foci and/or nuclear foci larger than 1μm in diameter was defined as abnormal pattern as previously reported (Akazawa et al, Modern pathology, 2019). We then assessed the rate of each expression pattern of 53BP1 with clinical characteristics and degree of histological activity. In addition, colocalization of 53BP1 and Ki67, which indicate abnormal timing of DNA damage response in proliferative state, was examined by triple immunofluorescence study with 53BP1, Ki67, and AE1/AE3 in UC(n=4), dysplasia(n=4), three colitic cancer (n=3) specimen.

Results: The occurrence ratio of 53BP1abnormal, pattern was significantly increased in UC (without dysplasia) compared to control group (10.80% vs 43.99%, p=0.026). Rate of abnormal 53BP1 expression was positively correlated with c-reacting protein (p=0.0296), Mayo endoscopic score (p=0.0122), Mayo score(p=0.0050) and histological severity (p=0.0054) among UC. However, 53BP1 expression *per se* did not increase between UC and dysplasia. In contrast, co-localization ratio of 53BP1 and Ki67 showed step wise increase during progression of UC, dysplasia, and colitic cancer. A significant difference was observed between non-dysplastic epithelium vs dysplasia/cancer (p=0.0327).

Conclusion: The study indicates that DNA damage response associates with to the disease activity in UC, and co-localization of 53BP1 and Ki67 may be beneficial in distinguishing dysplasia.

Disclosure: Nothing to disclose.

PP0480 WITHDRAWN

PP0481

INVESTIGATING THE ROLE OF GUT EUKARYOTIC VIROME IN CONTRIBUTING TO COLORECTAL CANCER CARCINOGENESIS

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Introduction: Eukaryotic-targeting viruses have recently attracted considerable interest in gastrointestinal diseases such as ulcerative colitis (UC), a chronic inflammatory condition of the colonic tract, and colorectal cancer (CRC)[1–3], the third most commonly diagnosed malignancy and the fourth leading cause of cancer death in the world[4]. Both UC and CRC share several factors influencing their etiogenesis, including intestinal dysbiosis[2,5–7].

Our group has recently published a work pinpointing a gut virome-associated Orthohepadnaviridae protein, namely Hepatitis B protein X (HBx) to correlate with UC pathogenesis and promote intestinal inflammation in mice by disrupting the epithelial barrier and shaping the gut mucosal immune environment, independently of the microbiota[3].

Moreover, we showed that HBx is able to induce DNA damage-related biological processes and active biological processes related to the Wnt pathway[3] known to be involved in colorectal carcinogenesis[8].

Aims & Methods: Based on this evidence we hypothesize that HBx may fill the gap existing between intestinal inflammation and CRC onset by stimulating pro-inflammatory and/or pro-carcinogenic effects.

To verify this hypothesis, we address the following Aims:

1. To evaluate the presence of HBx-transcript in CRC-derived mucosal samples.
2. To evaluate the pro-carcinogenic properties of HBx *in vitro.*
3. To investigate the role of HBx in CRC onset and development *in vivo.*

HBx positivity of CRC patient-derived gut mucosa was assessed by RT-PCR and Sanger.

Multidimensional flow cytometry analysis was performed on HBx-overexpressing Caco-2 cells, an *in vitro* model of the gut barrier.

C57BL/6 mice underwent intramucosal injections of liposome-conjugated HBx-encoding plasmids or the control. Multidimensional flow cytometry analysis and transcriptomic analysis were performed on colonic samples from HBx-treated and control animals.

Results: Metatranscriptomic analysis revealed that HBx is significantly abundantly present in CRC-derived mucosal samples compared with healthy individuals, strengthening the link between a virome protein-induced inflammation and tumor development in patients.

Moreover, HBx overexpression in Caco-2 cells directly provokes DNA damage, as assessed by the significant increase in the number of γH2AX+ cells, a marker of double-strand DNA breaks which identifies genomic instability that can potentially contribute to cancer initiation and progression[9].

Furthermore, we already showed that HBx was able to induce colitis-like symptoms in mice after 15-20 days-long administration[3].

Interestingly, experiments conducted in C57BL/6 mice at longer time points (from 40 to 60 days-long observation) revealed that animals developed polypoid structures in the colonic mucosa, characterized by decreased abundance of T cells, including effector T cells and NK T cells[10].

Of note, in vivo HBx modulated the expression of genes involved in the regulation of transcription and activation of the proto-oncogene PIM3[11], further supporting the role of a viral protein on CRC onset.

Conclusion: This study introduces unconventional and innovative insights for giving CRC studies a new direction for the scientific and clinical investigations, looking at the gut virome as an active component and not as a mere bystander entity of the microbiota, ultimately promoting a new standpoint in the CRC studies and management in the short-term future.

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PP0482

PLATELET ACTIVATION AND PLATELET-MONOCYTE INTERACTIONS CORRELATE WITH MUCOSAL INFLAMMATION AND DISEASE SEVERITY IN ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is a refractory inflammatory bowel disease of the colon with repeated relapses and remissions that requires lifelong treatment. Previous studies indicated that proinflammatory cytokines involved the onsets and developments of UC. New treatments for targeting these cytokines, such as TNF-α, IL-12 and IL-23 have been developed in a recent decade, underlying that immune abnormalities are the core for the etiology of UC.

Platelets play a role not only in hemostatic coagulation but in inflammatory mediator by interacting with various cells in the innate and adaptive immunity. Chronic inflammatory response confers platelets activation leading to elevated platelet count and hypercoagulability. Moreover, platelets aggregates with leukocyte in active inflammatory milieu. In fact, thrombocytosis, thromboembolism and upregulation of platelet-monocyte complex (PMC) in UC patients have been reported, implying that platelets could be novel biomarker, therapeutic target and clues for elucidating the pathology of UC. However, the clinical significance of platelet activation and PMC formation in UC is not fully elucidated and few studies were conducted to assess how platelet activation contributes to disease aggravations of UC.

Therefore, we comprehensively analyzed platelet activation and platelet-monocyte complex by focusing on a correlation with clinical severity of UC.

Aims & Methods: Patients with UC (n=70) including MES0-2 group (n=34) and MES3 group (n=27), diagnosed according to a combination of symptoms, endoscopic findings, histologic findings, and the absence of alternative diagnoses, and age and sex-matched healthy controls (HCs) (n =19) were enrolled for this study. We analyzed the surface markers such as CD62P, CD40L, CD63, PAC-1 and Annexin V on CD61+ platelets by flow-cytometry (FCM) in patients with UC in comparison with those in healthy adults. We also analyzed the proportion of CD61+CD14+ platelet-monocyte complexes and quantified the activation of PMCs by FCM. Moreover, we also investigated the correlation among surface markers, proportion of platelet-monocyte aggregates and Mayo endoscopic score (MES) in UC patients.

Results: The expression of CD62P but not other surface markers on platelets was significantly upregulated in UC when compared to HCs ($p<0.01$), and was significantly upregulated in in MES3 group when compared to the MES0-2 group ($P<0.001$). The proportion of PMC was also higher in MES3 groups when compared to MES0-2 group ($P<0.05$), and was markedly reduced by treatment ($P<0.05$). In addition, CD16+ monocytes, phenotypically mature and pro-inflammatory cell population, were increased in patients with UC when compared to HCs ($P<0.01$). The expression of CD16 on monocytes aggregated with platelets was significantly higher when compered to that without platelet ($P<0.001$).

Conclusion: Our study suggests that platelet activation accelerates mucosal inflammation via adhesion with monocytes in UC and contributes to the aggravation of disease.

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Collins CE, et al. Platelets circulate in an activated state in inflammatory bowel disease. *Gastroenterology.* 1994 Apr;106(4):840-5.

Disclosure: Nothing to disclose.

PP0483

THE PROBIOTIC *SACCHAROMYCES BOULARDII* CNCM I-745 PRESERVES AND RESTORES THE FUNCTIONALITY OF THE INTESTINAL BRUSH BORDER UPON INFLAMMATION

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Introduction: Permeability alterations, associated with excessive and inappropriate inflammatory responses, underlie the pathogenesis of many diseases such as inflammatory bowel diseases (IBD). Identification of novel molecular players involved in the control of the intestinal barrier is therefore of great interest for the management of IBD.

A recent study has revealed that dysfunction of a cadherin-based intermicrovillar adhesion complex (IMAC), critical for brush border (BB) assembly and maturation, is associated with disease severity and treatment response in IBD [1,2,3].

Aims & Methods: The aim of this study was to determine the effects of the probiotic yeast *Saccharomyces boulardii* CNCM I-745 (*Sb*, Biocodex, France) on the protection and/or restauration of the intestinal epithelium barrier function upon inflammation.

Experimental models for the human colon were based on 2D monolayers (Transwell insert) formed by either the Caco-2/TC7 cell line or organoids. Inflammatory set-ups included treatment with TNF-a/IL1-b cytokines and IBD organoids. Paracellular and transcellular permeability were assessed by real-time transepithelial electrical resistance (TEER) and dextran-FITC measurements. Localization and expression levels of junction and BB proteins (E-cadherin, sucrase isomaltase, DPP-IV, Villin; IMAC: CDHR5, CDHR2, MYO7-b) were analyzed by Western blot and immunofluorescence. BB assembly through microvilli clustering was observed using super-resolution

spinning-disk confocal microscopy. *Sb* treatment was initiated either prior (preventive model) or after (curative model) cytokines stimulation.

Results: We showed that *Sb* supernatant strengthens intestinal barrier function both in Caco-2/TC7 cells and colonoïd organoid-derived monolayers. In Caco-2/TC7 cells exposed to pro-inflammatory cytokines, *Sb* is able to preserve the structural and functional parameters of the cell monolayer and to accelerate their recovery. We found that *Sb* treatment has a positive effect on the adherens junction localization (E-cadherin complex) in both preventive and curative situations.

In addition, we discovered that *Sb* also acts on the IMAC, favoring microvillar clustering and maintaining the presence of IMAC at the top of microvilli, thereby restoring a mature and functional BB.

Conclusion: Taken together our results demonstrate that *Sb* CNCM I-745 globally protects and reestablishes functional integrity of the intestinal epithelium in inflammatory conditions. *Sb* may thus offer a significant benefit in diseases with persistent lesions of the intestine, such as IBD. In addition, they suggest that a better understanding of BB assembly through the IMAC will foster new therapeutic opportunities.

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PP0484

CELL WALL DEFICIENT (CWD) MYCOBACTERIA IN WBCS AND ILEAL CROHN'S TISSUES

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Introduction: *Mycobacterium genus* contains over 190 species. *M tuberculosis complex* (MTBC) and *M leprae* receive all the attention. *Mycobacterium avium complex* (MAC) and 'Non tuberculous Mycobacteria' (NTM) cover other members of the genus.

Mycobacteria exist in two forms:

1. Fully intact cell wall bacilli, and;

2. Cell wall deficient mycobacteria that are pleomorphic and are found in a variety of forms and often intracellularly. Current clinical laboratory procedures are optimized to stain and culture bacillary MTBC, however conventional laboratory methods are suboptimal for visualization and culture of CWDM.

Aims & Methods: A revised method of the Ziehl-Neelsen stain enables visualization of CWD-Mycobacteria (CWDM). The industry standard Mycobacteria Growth Indicator Tube (BD MGIT™) is not optimized to grow CWDM. New culture techniques are required.

Results: Combining the two methods reveals NON-TB Mycobacteria L-Forms in blood myelocytes and in diseased ileal tissue in Crohns Disease.

Conclusion: A role for mycobacteria in Crohn's Disease has been theorized for over a century. The inability to visualize or culture the microbe has been the main impediment for acceptance of this theory. It is now possible to visualize and culture mycobacteria in blood and diseased CD tissue.

The pictures we provide prove the presence of L-Forms of the Genus Mycobacterium in Crohn's Disease. CWDM-Mycobacteria are visualized in diseased ileum in 18/18 CD patients vs. 0/15 Controls. CWD-Mycobacteria in cultures of blood buffy coats is greater in clinical flares compared to times of remission. Sub-clinical infection is common.

Genetic and acquired immune deficiencies predispose to mycobacteria disease. Future treatments should strive to strengthen innate immunity.

References: Original Research Findings

Disclosure: William Chamberlin MD is co-founder of Protibea Therapeutics that is currently advancing a synthetic hormone as an immune therapeutic that enhances innate immunity. It can be used to treat mycobacteria by strengthening host immunity.

Thomas Borody has assets in Red Hill Pharmaceuticals that has a patent on a therapy to treat non-tuberculous mycobacteria.

Gaurav Agrawal has no conflicts of interest.

John Aitken has no conflicts of interest.

PP0485

NEW INSIGHTS INTO THE MECHANISM OF ACTION OF GRANULOCYTE-MONOCYTE APHERESIS REVEALED BY SINGLE-CELL TRANSCRIPTOMIC ANALYSIS

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Introduction: Granulocyte–monocyte apheresis (GMA) is a non-pharmacological therapy approved for the treatment of ulcerative colitis (UC), mainly in steroid-dependent cases. Its mechanism of action is based on the removal of activated leukocytes, but its exact immunological changes have not been fully described yet.

Aims & Methods: Our aim was to characterize the response in the transcriptome at the single-cell resolution level and cell population effects of GMA device. We analysed scRNASeq data from peripheral blood mononuclear cells (PBMC) of two UC patients undergoing their first GMA session. Their gene expression profile was compared before (PRE) and one month after (POST) the GMA treatment, from the inflow and outflow lines, respectively. The analytical pipeline included quality control and filtering, cell-type annotation, differential gene expression and pathway enrichment analysis.

Results: Two patients with UC (mean age 59 years; both E2) were included. Overall, the cell populations that appear to have been affected by the GMA treatment were natural killer cells and monocytes with both populations being reduced after the treatment. The distribution of the annotated cell-types was 2,369 B cells (PRE:50%, POST:49%), 11,462 CD4+ (PRE:49%, POST:50%) and 8,845 CD8+ T-cells (PRE:51%, POST:48%), 47 dendritic cells (PRE:40%, POST:59%), 3,773 natural killer cells (PRE:54%, POST:45%) and 2,352 monocytes (PRE:59%, POST:40%). Annotation at higher resolution identified 27 cell-types with monocytes being subannotated as 1,972 CD14 (PRE:62%, POST:37%) and 380 CD16 (PRE:48%, POST:51%) monocytes. Differential gene expression analysis identified in total 86 significant genes across six cell-types (CD4+ naive and central memory T-cells, natural killer cells, B intermediate cells, double-negative T-cells and CD14 monocytes) with 63% of these genes being downregulated after the GMA treatment. Pathway enrichment analysis identified higher contribution of the double-negative T-cells to the enriching genes.

More specifically, after the treatment the double-negative T-cells exhibited upregulation of the *NEFL* that is associated with the MAPK cascade and downregulation of genes related to immune response and signalling pathways. Regarding the CD14 monocytes, after the GMA treatment we observed significant downregulation of the genes *LINC02315*, *IGHEP1* and *IGHE*, with the latter being linked to innate immune response pathways.
Conclusion: GMA induces a range of modifications in the gene expression profile across different cell types that change the immunological environment of UC patients.
Disclosure: Financial support from an unrestricted grant from Adacyte, who had no role in the study design, interpretation of data or drafting the abstract.

PP0486

ALISTIPES PUTREDINIS IS A KEY SPECIES OF FECAL MICROBIOTA TRANSPLANTATION FOR ULCERATIVE COLITIS

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Introduction: We previously demonstrated that fecal microbiota transplantation (FMT) following bowel cleaning with amoxicillin, fosfomycin, and metronidazole (AFM therapy) improved short-term efficacy and recovery of the Bacteroidetes composition, which is associated with ulcerative colitis (UC) severity in patients [1].
Besides, the proportion of certain Bacteroidetes species is decreased in UC and is associated with the efficacy of FMT combined with AFM (A-FMT) [2].
We speculate that Bacteroidetes species may be an important breakthrough driving the progress of UC treatment.
Aims & Methods: We have carried out *in vitro* and *in vivo* study on whether Bacteroidetes species are the key species for UC treatment by reverse-translational approach. We focused on cases of UC that had a significant response to FMT, then isolated Bacteroidetes species from effective donor stools. The immune function of Bacteroidetes was then evaluated by *in vitro*and *in vivo* studies.
Results: Twenty-four Bacteroidetes species were isolated and identified. From *in vitro* IL-10 induction assays, we found 4 Bacteroidetes species that showed remarkable IL-10 induction activity. The full genome sequences of the isolated strains differed in some structures from those in conventional databases. We found that stronger IL-10 inducing activity was observed when accidentally mixed Veillonella.sp (VE) was stimulated together with acquired Bacteroidetes spp. In the transplantation of isolated Alistipes putredinis (AP), including VE, into a gnotobiotic mice model of enteritis induced by 2.5% DSS and 1% Oxazolone, which has been verified to have strong IL-10 inducing activity, can significantly improve the symptoms of colitis and suppress body weight loss compared to vehicle ($p = 0.01$).
Conclusion: As a representative of Bacteroidetes species, AP has been confirmed to exhibit anti-inflammatory characteristics in *in vivo*and *in vitro* studies, and other Bacteroidetes species have yet to be further explored. And although our evaluation methods and conditional settings also need to be further improved. But the A-FMT-based reverse-translational approach of promising bacterial species has proven to be a breakthrough for microbiome drug development.
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Disclosure: Kyowa Kirin Co., Ltd., Kyowa Hakko Bio Co., Ltd., Kirin Holdings Co., Ltd., and Metagen Therapeutics Co., Ltd.

PP0487

CIRCULATING MIRNAS IN INFLAMMATORY BOWEL DISEASES - PRELIMINARY RESULTS

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Introduction: Inflammatory bowel diseases (IBD) are a distinct class of gastrointestinal disorders mainly represented by Crohn's Disease (CD) and Ulcerative Colitis (UC). The dysregulation of microRNAs (miRNAs), a class of conserved endogenous, small non-coding RNA molecules, both tissue-derived and circulating, have shown to be promising biomarkers in IBD. These biomarkers can be useful for differential diagnosis, drug response prediction and can have prognostic value for the evolution of the disease. Moreover, miRNAs are interesting tools for potential future therapeutic approaches by miRNA antagonists or mimics [1].
Aims & Methods: In this study we aimed to perform a preliminary screening of a large panel of 179 miRNAs in the plasma of 6 patients with IBD and 12 non-IBD patients (CTRL) in order to identify a set of highly dysregulated miRNAs to be investigated in a larger cohort. Isolation of miRNAs has been conducted using miRNeasy Serum/Plasma Kit and the miRNAs expression has been evaluated using the Human serum/plasma focus, MIRCURY LNA miRNA Focus PCR panel (Qiagen) by qRT-PCR. After excluding 29 miRNAs that were not expressed in the investigated samples, we identified miR-19a-3p and miR-17-5p as the most stable miRNAs by the RefFinder analysis. Thus, the Ct values of the other 148 miRNAs have been normalized against the geometric mean of these two miRNAs as endogenous controls using the 2^{-DCt} method. All the clinical, sociodemographic and miRNAs expression data have been analyzed using SPSS. Categorical variables were tested by means of the chi-square test, and continuous variables with t-test or the non-parametric Man Whitney test, according to the normality of the data distribution.
Results: The two groups were age matched (mean age IBD= 45.83±21.27, mean age CTRL = 50.08±8.16, $p=0.543$) and did not differ for sex distribution (IBD= 33.3% female, CTRL=58.3% female, $\chi 2= 1.00$ and $p=0.317$). The statistical analysis revealed 45 miRNAs differentially expressed ($p<0.05$). In particular, we identified 29 overexpressed miRNAs (miR-223-3p, miR-143-3p, let-7f-5p, miR-30b-5p, miR-26a-5p, let-7a-5p, miR-142-3p, miR-374a-5p, miR-339-5p, miR-150-5p, miR-454-3p, let-7d-5p, miR-29a-3p, miR-146a-5p, miR-199a-3p, miR-221-3p, miR-142-5p, miR-191-5p, miR-338-3p, let-7g-5p, miR-103a-3p, miR-23a-3p, miR-145-5p, miR-374b-5p, miR-24-3p, miR-107, miR-27b-3p, let-7c-5p, miR-26b-5p) in the IBD group compared with the CTRL showing a fold regulation (FR)>1.5 and 7 miRNAs underexpressed reporting a FR<-1.5 (miR-421, miR-320d, miR-106b-3p, miR-320c, miR-20b-5p, miR-320b, miR-486-5p).
Notably, the expression of let-7a-5p that was upregulated in the IBD group (FR=2.45; $p=0.001$) positively correlated with the years of disease duration ($p=0.01$, Pearson $r=0.919$). The same positive correlation was observed for miR-30b-5p ($p=0.049$, Pearson $r=0.812$).
Conclusion: The reported data, showing 45 miRNAs differentially expressed in the plasma of IBD patients compared to controls, represent preliminary results that must be validated. The most statistically signifi-

cant dysregulated miRNAs, as well as those that correlated with the years of disease duration and other clinical parameters will be investigated in a large IBD cohort in order to examine the potential value of these miRNAs as diagnostic and prognostic biomarkers.

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Disclosure: Nothing to disclose.

PP0488

ENDOCANNABINOID SYSTEM IN INFLAMMATORY BOWEL DISEASES: MUCOSAL GENE EXPRESSION PRELIMINARY DATA

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Introduction: The endocannabinoid system (ECS) can have a role in gut homeostasis, pain, intestinal inflammation and immune function. This system comprises two cannabinoid G-protein coupled receptors, CNR1 and CNR2 that are predominantly expressed in the brain and nervous system, but also in other peripheral tissues, including in the gut [1]. Both receptors have been shown to play a role in Inflammatory Bowel Disease (IBD). In particular CNR1 has been found more expressed at protein level in inflamed mucosa from ulcerative colitis (UC) and Crohn Disease (CD) patients compared with non-inflamed mucosa, whereas no changes in CNR2 have been detected so far [2]. Other ECS members have been found altered in the inflamed mucosa of UC and CD patients compared with healthy or non-inflamed mucosa. However, the results are conflicting and dependent on the technique used [2].

Aims & Methods: In this study we aimed to evaluate the gene expression profile of a panel of genes involved in ECS in the IBD colonic mucosa. Thirty patients with IBD were included in the study: 17 were diagnosed with UC and 13 with CD. For each patient inflamed mucosa (IM) and non-inflamed mucosa (NIM) was collected. Normal mucosa (NM) was collected from 17 non-IBD individuals (CTRL). The two groups of IBD patients and controls were age matched ($p>0.05$), but were different on sex distribution ($p<0.05$). The following disease parameters were considered: clinical disease status at the moment of sample collection (active/remission), age at onset, disease duration and therapeutic regimen. The expression of ten transcripts belonging to the ECS (CNR1, CNR2, DAGLA, DAGLB, FAAH, GPR18, GPR55, MGLL, PPARG, TRPV1) was analyzed by qRT-PCR in IM, NIM and CTRL specimens. The Ct values were normalized against the geometric mean of two selected housekeeping genes (HPRT1 and RPLP0). Differences among the groups were evaluated using Kruskal-Wallis Test followed by pairwise comparison, whereas Related samples Wilcoxon Signed Rank test was used to assess differences between paired tissues (IM vs NIM).

Results: The comparison between IM vs NIM in the entire IBD cohort identified the upregulation of CNR2 ($p=0.005$), whereas a downregulation of TRPV1 and GPR18 was observed ($p=0.032$, $p=0.037$, respectively). The analysis of the UC group confirmed the upregulation of CNR2 ($p=0.009$), and the downregulation of TRPV1 ($p=0.028$) in the IM compared to NIM and to CTRL ($p=0.003$). When analyzing the gene expression level in the mucosa of the 13 patients with CD only TRPV1 was identified as downregulated in IM vs CTRL ($p=0.040$). No changes in the expression of any genes were observed according to the therapeutic regimen and no difference was observed comparing patients in remission vs active disease. Moreover, no significant correlation between gene expression levels and disease duration in years was observed ($p>0.05$).

Conclusion: In this study we identified a general impairment of the expression of genes belonging to ECS in the mucosa of IBD patients. The gene expression dysregulation was more evident in patients with UC than those diagnosed with CD. Further studies on larger IBD cohorts are needed to validate the obtained preliminary results.

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PP0489

EARLY LIFE EMULSIFIER EXPOSURE INDUCES DYSBIOSIS AND DEFECTIVE INTESTINAL BARRIER IN THE OFFSPRING

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Introduction: During the first 3 years of life, gut microbiota undergoes critical development and maturation, making it a vital stage for health.[1, 2] Proper colonization relies on delivery mode, feeding mode, and environmental exposure.[3] Maternal-infant transmission of microbiota occurs during delivery and breastfeeding.[4] Interference with maternal gut microbiota during gestation/lactation can affect offspring's microbiota, persisting through 3 generations.

Polysorbate 80 (P80), a nonionic surfactant, disrupts intestinal barrier, causes dysbiosis/metabolic disorders. Maternal P80 intake during gestation/lactation may impact offspring. Study aims to investigate its influence on ontogeny and intestinal microbiota of 2nd and 3rd-generation offspring.

Aims & Methods: The study used six-week-old C57bl/6 mice, which were randomly assigned to two groups. One group was given sterile water throughout the study, while the other group was continuously provided with drinking water containing 1% P80. After co-housing with male mice from the same group for one week, successfully pregnant female mice were raised, and their offspring were delivered. The second generation of offspring were co-housed with their mothers and fed by maternal breast milk until weaning. Some of the second generation mice in both groups were sacrificed, and their body weight and liver weight were recorded. The remaining second generation mice were raised alone for five weeks using sterile water.

Afterward, each female mouse was co-housed with male mice from the same group for one week, respectively. Successfully pregnant female mice were raised, and their offspring were delivered. The third generation of offspring were co-housed with their mothers for three weeks before being sacrificed. The body weight and liver weight were recorded. Fecal samples and intestinal specimens were collected and stored for later assays. Ontogeny was estimated by comparing the body weight and liver mass and measuring the length of villi using HE stained specimens. The amount of goblet cells was counted using Periodic Acid-Schiff (PAS) dye. The ex-

pression of secretory IgA (sIgA) was evaluated using immunofluorescent staining. Real-time PCR (RT-PCR) was used to quantify the expression of components of tight junction and MUC2, as well as the expression of inflammatory cytokines. The fecal microbiota was analyzed using 16srDNA sequencing techniques.

Results: 1. The second and third generations of mice exposed to P80 showed shorter intestinal villus, and the third generation had shorter jejunal villus. Additionally, the P80 group had shorter colonic glands in both generations.

2. The P80 group exhibited a different composition of gut microbiota compared to the control group in both the second and third generations. Notably, Mucispirillum was less abundant in both generations.

3. Both the second and third generations of mice in the P80 group had higher expression of IL-6 and IL-1β.

4. The P80 group had lower amounts of colonic goblet cells in both the second and third generations. Additionally, the P80 group had lower expression of ZO-1 and claudin-3, lower expression of MUC2, and a lower positive rate of sIgA dye in both generations.

Conclusion: This statement suggests that exposure to P80 during gestation and lactation could potentially cause negative effects on the offspring's gut health, including disruptions to intestinal barrier function, dysbiosis, and low-grade inflammation. These effects could, in turn, impact the ontogeny or developmental trajectory of the gut.

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Disclosure: Nothing to disclose.

PP0490

INTESTINE-SPECIFIC DELETION OF TNK1 KINASE AMELIORATES COLITIS BY MODULATING MICROBIOTA COMPOSITION

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Introduction: Intestinal mucosa harbours a unique microbial community of central importance for the mutualistic relationship between the host and its microbiota. Additional research is warranted to characterise this "hidden" ecosystem and uncover mechanisms by which it can promote health in intestinal and systemic pathological states. We decipher how TNK1 kinase impacts the composition of mucosa-associated microbiota and its interplay with host mucosa via microbial extracellular vesicles (mEVs) and metabolites.

TNK1 is an essential player in development and functioning of the gastrointestinal tract. Whereas TNK1 expression is tightly regulated in the adult gut, and only cellular stress can reverse the otherwise strong repression of the TNK1 promoter. Indeed, TNK is highly expressed in the gut in gastrointestinal and systemic pathological conditions, e.g. IBD, sepsis, hemorrhagic shock and critical conditions. We showed that TNK1 is an essential mediator of intestinal barrier breach and subsequent organ failure. Intestinal overexpression of TNK1 elicits a sepsis-like condition by inducing stem cell apoptosis, followed by epithelial disruption and microbial translocation. Conversely, intestine-specific knockout of Tnk1 (Tnk1-KO) alleviates local and systemic signs of inflammation in a murine model of colitis.

Aims & Methods: We aim to establish the link between TNK1, microbial EVs and metabolites, and host intestinal regeneration. Mucosal microbial samples from Tnk1-KO and wild-type littermates were subjected to microbiome profiling by 16S rRNA sequencing. The therapeutic potential of Tnk1-KO microbiota was probed by microbiota transfer to germ-free wild-type recipient mice, subsequently challenged with dextran sodium sulfate colitis. Murine stool samples were obtained to characterise faecal microbial EVs and metabolites. Murine colon organoids were exploited as an ex-vivo platform to analyse TNK1 downstream signalling and cross-talk between microbial extracellular vesicles and colon epithelium.

Results: The current study shows that the TNK1 expression pattern impacts the composition of mucosa-associated microbiota in response to colitis. Namely, we show that targeting TNK1 in the intestine preserves microbial diversity and facilitates an increase in the abundance of beneficial butyrate-producing bacterial phyla. Moreover, we demonstrated in the colitis model that microbiota transplantation from Tnk1-KO mice has beneficial therapeutic potential. Further data suggest TNK1 directs changes in microbiota composition via regulation of the expression of antimicrobial peptides in the intestinal epithelium. However, how TNK1 and changed microbiota impact intestinal integrity needs to be clarified. Microbial extracellular vesicles (mEVs) and metabolites are critical components of bacterial communication with the host. Thus, we also characterised the number and size of mEVS and showed an increase in their number in stool from Tnk1-KO mice. We hypothesise that TNK1's protective effect on intestinal mucosa in colitis is mediated via microbial products-metabolites and EVs.

Conclusion: Transplantation of microbiota modified by targeting TNK1 results in the preservation of the intestinal barrier, which may be related to the modulation of bsEV secretion. Additional cargo analysis of mEV is necessary to identify potential host targets.

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Disclosure: Nothing to disclose.

PP0491

GENERATION, CHARACTERIZATION AND SCREENING OF ENT001 A NEW THERAPEUTIC TOOL FOR IBD

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Introduction: Insulin-like growth factor binding protein 3 (IGFBP3) signals through the death receptor TMEM219 to modulate survival of target cells; inhibition of this signaling has been associated with a rescue of intestinal stem cell death.

Aims & Methods: Here we report the screening, generation, and characterization of fully human IgG monoclonal antibodies (mAbs) through phage display or by hybridoma technology, that block IGFBP3 or TMEM219. We used in vitro large crypts organoids (mini-guts) generated by crypts obtained from healthy subjects and from patients with inflammatory bowel

disease to test the effect of the mAbs on the regenerative potentials. Expression of intestinal stem cell markers and apoptotic markers by RT-PCR was also analyzed.

Results: Both anti-IGFBP3 and anti-TMEM219 mAbs showed high affinity binding with the target antigens and potent effects in protecting self-renewal ability of intestinal stem cells in *in vitro* relevant assays. Among all the mAbs tested, anti-TMEM219 mAbs generated by phage display, particularly Ent001, showed the highest score in displacing the IGFBP3/TMEM219 binding and in rescuing ISC expression and function in IGFBP3-cultured human mini-guts obtained from healthy donors. In human *in vitro* proof-of-concept studies, in which we generated mini-guts from patients with immune-mediated intestinal disease such as Crohn's disease, Ent001 successfully restored mini-guts growth and ISC markers' expression, while expression of the proapoptotic IGFBP3-related factor Caspase 8 was downregulated.

Conclusion: Ent001 may represent a novel IGFBP3/TMEM219 inhibitor to be further tested and developed in *in vivo* models and in clinical studies as a novel therapeutic in human diseases.

Disclosure: P.F. and F.D. hold a patent on IGFBP3/TMEM219 axis. V.M., M.N., F.C. are employees of Enthera S.r.l.

PP0492 WITHDRAWN

PP0493

A HIGHER TH2/TREG RATIO MAY BE A MARKER OF REFRACTORY ULCERATIVE COLITIS WITH LONGER DISEASE DURATION AND FREQUENT USE OF STEROIDS AND/OR IMMUNOSUPPRESSANTS, WHEREAS HLA GENOTYPE IS NOT

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Introduction: Personalized therapy offers great potential to improve disease outcomes. To this end, identifying different subsets of patients according to their disease prevalence may be helpful in building therapeutic strategies. Unlike Crohn's disease (CD), ulcerative colitis (UC) is highly variable in response to treatments, including biologic agents (1). UC patients may be stratified according to distinctive cytokine profiles, excluding classical pro-inflammatory cytokines such as TNF-α and IL-6. We hypothesized that clarifying this difference in cytokine profile would help optimize therapeutic strategies.

Aims & Methods: To prove this hypothesis, both helper T-cell (Th) cytokine profiles of UC patients and HLA genotyping, which may have caused differences in immune responses, were analyzed. In this study, in a cohort of clinically and endoscopically diagnosed UC patients and/or healthy control subjects (HC) and CD patients, blood samples were examined for Th cell profiles (Th1, Th2, Th17, Treg (regulatory T cell)) and HLA typing by surface chemokines.

Results: Sixty-two patients with UC [male/female 40:22, mean age 51.1 years (22-80), mean disease duration 14.74 years (2 months-54 years), disease distribution; 11 proctitis, 18 left-sided colitis 31 cases with pancolitis and 2 other cases (right-sided colitis and local type)] were analyzed with full informed consent. Most of the UC patients were in clinical remission (8/62 active), and 31 patients had current or previous steroid use, including 1 resistant case and 23 dependent cases. Sixteen UC patients were treated with biologics (4 patients with infliximab, 1 patient with golimumab, 1 patient with adalimumab, 2 patients with ustekinumab, 1 patient with vedolizumab, and 4 patients with tofacitinib). Compared to CD and HD, UC was characterized by significantly higher Th2 and Treg low ($p<0.05$). UC was divided into high and low groups with a Th2/Treg ratio of 1.0. Those with a higher Th2/Treg ratio had significantly longer disease duration (18.91±12.45 vs 12.58±9.84, p=0.04) and tended to use steroids/immunosuppressants more frequently (66.7% vs 48.5%, p=0.26).

Moreover, such aberrant immune responses were derived from HLA typing, but interestingly, a characteristic HLA bias oriented toward lower Th2/Treg ratios (DRB1*15:02:01, DQB1*06:01:01, DPB1*09:01) (40.0% vs 78.5% , p=0.05; 92.8% vs 40.0%, p=0.02; 40.0% vs 78.5%, p=0.05).

Conclusion: Cytokine assessment may help identify patient subgroups that may benefit from therapeutic approaches that modulate Th2 cytokines. However, disease pathophysiology is not necessarily correlated with genetic factors, and various causes such as intestinal microbiota must also be considered.

Reference: 1. Aliment Pharmacol Ther. 47(2):162-175, 2018.

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PP0494

ANTI-INFLAMMATORY EFFECT OF LMT503, A MODULATOR OF CELL METABOLISM, AMELIORATES MURINE ADOPTIVE T CELL TRANSFER-INDUCED COLITIS

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Introduction: Inflammatory bowel disease (IBD), a chronic inflammatory disease of the gastrointestinal tract, is caused by various factors, including genetic factors and environmental factors, as well as dysregulated immune responses. LMT503, a novel organic small-molecule compound, has the potential to suppress pro-inflammatory cells and induce anti-inflammatory cells by modulating their cell metabolisms.

We evaluated the anti-inflammatory effects of LMT503 in a murine adoptive T cell transfer-induced colitis model.

Aims & Methods: This study was conducted to evaluate the anti-inflammatory effect of LMT503 in the murine chronic colitis model. Naïve $CD4^+CD25^-CD45RB^{high}$ $CD62L^{high}$ T cells that were isolated from wild-type mice by flow cytometry based-method and transferred to *Rag1* knock-out mice by intraperitoneal injection to induce murine adoptive T cell transfer-induced colitis. LMT503 was orally administrated (50mg/kg, 100mg/kg) for 2 weeks starting at 5 weeks after naïve T cell transfer. The disease activity index (DAI) was checked daily, and histopathological score, macroscopic injury score, and colon length were evaluated upon sacrifice. Macrophages and T cells from the spleen were analyzed by flow cytometry. Gene expression in colon tissue was measured by qRT-PCR and cytokine profiles in plasma was measured by cytometric bead array. Myeloperoxidase (MPO) activity was measured using the MPO activity kit.

Results: Oral administration of LMT503 ameliorated adoptive T cell transfer-induced colitis in mice. The DAI, histopathological score, and macroscopic injury score were significantly decreased after the administration of LMT503 in a dose-dependent manner. The LMT503-treated group showed significantly increased mucin production in the colon. Th1, Th17 cells, and M1 macrophages in the spleen were suppressed, and M2 macrophages were induced by the administration of LMT503. MPO activity and gene ex-

pressions of pro-inflammatory cytokines, such as IL-6, IL-1β, and TNF-α, in colon tissue were suppressed by the administration of LMT503. And the level of inflammatory cytokines, such as IL-2, TNF-α, and IFN-ɣ, in plasma were significantly suppressed by the administration of LMT503.
Especially, LMT503 treatment significantly increased the gene expression of peroxisome proliferator-activated receptor gamma coactivator 1-alpha (*Ppargc1a*), a master regulator of mitochondrial biogenesis, suggesting that LMT503 modulates cellular metabolism towards an anti-inflammatory metabolism.
Conclusion: Our data suggest that the anti-inflammatory effect of LMT503 ameliorates murine adoptive T cell transfer-induced colitis by modulating cellular metabolism and immune cell modulation. Therefore, LMT503 may be a novel therapeutic drug that opens new avenues for the treatment of IBD.
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PP0495 WITHDRAWN

PP0496

AUTOPHAGY/OXIDATIVE STRESS IMBALANCE IN STENOSING CROHN'S DISEASE PATIENTS: A PROOF-OF-CONCEPT STUDY

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Introduction: Crohn's disease (CD) is a chronic disabling condition in which a consistent proportion of patients may develop stricturing complications. Despite the increasing availability of therapeutic options, to date no treatment exists for prevention or treatment of intestinal fibrosis in CD patients. Autophagy is a vital metabolic process by which the cell degrades, eliminates and recycles misfolded proteins and damaged organelles, and autophagy-related genes have been linked to CD occurrence, particularly in disease with fibrostricturing phenotype. In the intestinal mucosa, autophagy regulates oxidative stress and plays a role in controlling the inflammatory process by eliminating and degrading pathogenic bacteria and inhibiting the inflammasome complex. Increased levels of oxidized circulating biomarkers have been implicated in the pathogenesis of CD, particularly in the occurrence of tissue damage and fibrosis.
Aims & Methods: Aim of the study was to evaluate the potential role of defective autophagy in CD, and, in particular, we tested the novel hypothesis that autophagy/oxidative stress imbalance can be a relevant feature in CD patients with stenosing phenotype. We collected blood and bioptic samples from patients with CD (n=25) and in healthy controls (n=11). CD patients were divided into three groups based on their clinical history and colonoscopy findings: A) Inflammatory phenotype in remission (B1 according to Montreal Classification, with normal appearing mucosa); B) Inflammatory phenotype with active disease (B1, with endoscopic findings of inflamed mucosa); and C) stenosing (B2). We evaluated autophagy using the autophagosomal marker Lc3b-II, after extraction of total protein from bioptic samples and Western Blot analysis. Serum oxidative stress markers sNOX2-dp, H2O2, and serum hydrogen peroxide (H2O2) breakdown activity (HBA) were measured by means of ELISA method and HBA assay kit. Comparison between groups for continuous variables was carried out by ANOVA with Bonferroni correction.
Results: Lc3b-II levels are significantly reduced in samples with active inflammation (P<0.01) and stenotic phenotype (P<0.001). Remission samples have lower levels of autophagosomes (P<0.05) than healthy patients but higher than the stenotic phenotype. sNOX2-dp levels are significantly increased in groups with active inflammation (P<0.001), in remission (P<0.001), and in the stenotic group (P<0.0001).
Moreover, H_2O_2 levels are significantly increased in groups with active inflammation (P<0.01) and stenosis (P<0.01) compared to the control group. Lastly, antioxidant power is significantly reduced in groups with active inflammation (P<0.001), in remission (P<0.01), and in the stenotic group (P<0.01).
Conclusion: Autophagic and redox homeostasis are impaired in CD patients, in particular in those with stenosing phenotype. Autophagy stimulation may represent an innovative pathway for the development of future anti-fibrotic therapies in CD patients and deserves further research.
Disclosure: Nothing to disclose.

PP0497

SHOTGUN ANALYSIS OF GUT MICROBIOTA WITH BODY COMPOSITION AND LIPID CHARACTERISTICS IN CROHN'S DISEASE

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Introduction: Several changes in microbes of the gut and decreased diversity especially in inflammatory bowel disease (IBD) are well-known. The exact pathophysiological connection is lacking, but the systemic inflammation due to the microbial alterations are assumed.
Aims & Methods: This study aimed to perform analysis of faecal microbiota composition simultaneously with body composition and lipid characteristics in Crohn's disease (CD) patients to find specific microbiota profiles connected to altered metabolism and obesity. In our prospective cohort study, CD patients were enrolled. At the inclusion, demographic and clinical data, blood, and faecal samples were obtained. Disease activity was assessed by CDAI, and SES-CD. Laboratory tests were made including C-reactive protein (CRP), albumin and lipids (triglyceride, cholesterol). Faecal bacterial composition was assessed using shotgun method. Each

patient underwent a body composition analysis via bioelectrical impedance analysis. A nutritional questionnaire was filled by each subject.

Results: We analysed 27 CD patients in this study (median age was 35 IQR 13.5 years). A 44,4% and 27,3% of patients were obese based on BMI and VFA. Beta diversities were higher in non-obese patients (VTA, p<0,001), however relative abundances did not differ. Firmicutes has a lower, while C.innocuum has a higher abundance at high cholesterol level (p=0,001, p=0,0034). Adlercreutzia, *B.longum* and Blautia alterations were correlated with triglyceride level. Higher Clostridia (p=0,009) and *B.schinkii* (p=0,032) and lower Lactobacillus (p=0,035) were connected to high VFA. *B.bifidum* had richness amongst low-weight patients (p=0,01). Beside Clostridia, Eubacteriales and *R.hominis* also correlated with waist-hip ratio (p=0,04, p=0,04 and p=0.048). Higher body fat mass was paired with increased *B.schinkii* (p=0,021) and decreased *L.paragasseri* (p=0,015) and *R.intestinalis* (p=0,035). Disease activity was coupled with dysbiotic elements. Microbiota alterations were found during different treatments.

	n = 27
Gender (male, N, %)	9 (33.3)
Age (years, median (IQR)	35 (13.5)
Disease duration (years, median (IQR)	7 (11.0)
CDAI at inclusion, mean (± SD)	141 (97.2)
SES-CD at inclusion, mean (± SD)	7.4 (8.0)
Fecal calprotectin (ug/g, median, (IQR))	728.6 (626.3)
CRP at inclusion, mean (± SD)	17.0 (35.3)
Serum cholesterol (mmol/l, mean, ± SD)	4.3 (0.9)
Serum triglyceride (mmol/l, mean, ± SD)	1.6 (1.0)

Table 1. Baseline demographic and clinical characteristics of the study population [n = 27].

Conclusion: Changes in Blautia, Lactobacillus, Clostridia and Bifidobacterium abundances in obesity highlight the importance of gut microbiota in diseases with similar inflammatory background. It suggests to treat obesity to achive better disease contol in IBD and it helps to develop new therapeutic approaches, such as pre- or probiotics or personalized faecal microbiota transplantation.

Disclosure: Nothing to disclose.

PP0498

LONG-TERM CULTURING OF HEALTHY- AND ULCERATIVE COLITIS-PATIENT DERIVED COLON ORGANOIDS IS ASSOCIATED WITH DECREASED METHYLATION LEVEL OF LINE-1

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Introduction: The usage of intestinal stem cell-derived organoids for intestinal diseases studies is emerging. The main reason for this is that they can be generated from the intestinal tissue and cultured *in vitro* for prolonged period. It has been shown that long-term cultured intestinal organoids maintain stable genetic and transcriptome profiles, spatial and compositional cellular arrangement and reflect the *in vivo* state of the tissue of origin [1-3].

However, the data on DNA methylation levels and its stability in colon organoids derived and sub-cultured from adult intestinal stem cells remain very scarce, especially in the context of ulcerative colitis (UC) [4-5].

Aims & Methods: The aim of the study was to evaluate the epigenetic stability of human intestinal organoids obtained and cultured from colonic biopsies of UC patients and healthy controls during long-term culture by assessing quantitative methylation level of LINE-1.

Study included control subjects (CON, n=6), patients with active UC (aUC, n=6) and quiescent UC (qUC, n=7) recruited at the Department of Gastroenterology, Hospital of Lithuanian University of Health Sciences. Bisulfite conversion of DNA samples of colon biopsies, crypts primary and sub-cultured organoids was performed (in total, n=95 DNA samples), followed by PCR amplification using biotin-labeled LINE-1 primers. Quantitative determination of methylation of LINE-1 CpG islands was performed by pyrosequencing on *PyroMark Q24* machine.

Pyrograms were analyzed using the *PyroMark Q24* software (v. 2.0.8, Qiagen), statistical analysis of quantitative methylation data (Wilcox-test) and data visualization were performed using R studio (R version 4.0.3).

Results: LINE-1 region was highly methylated in all studied biological sample groups of all conditions. The average LINE-1 methylation level when assessing all collected biological samples of corresponding group was identical in CON (66.4% ± 5.1) and qUC (66.6% ± 4.0) groups while it was slightly lower in the group of aUC (64.5% ± 4.7). Further, the tendency indicating that regardless the condition, methylation level of the initial colon biopsy samples differ significantly when comparing them to the respective epithelial colon organoid cultures was observed. In CON group, LINE-1 methylation level of late-passage organoids decreased significantly when compared to colon biopsy (by 8.1%), crypts (by 8.0%), and passage 0 (by 6.3%) and passage 1 (by 5.9%) organoids. Similarly, methylation levels of passage 1 and passage 5 organoids also differed from primary biological material in the groups of qUC (by 4.0 and 5.0%, respectively) and aUC (by 4.9 and 4.6%, respectively).

Finally, LINE-1 methylation level comparisons of organoids-derived data revealed significant differences between health conditions. Methylation level of LINE-1 region was lower in the passage 1 organoids of aUC patients when compared to either CON or qUC group (by 4.7 and 3.7%, respectively).

Interestingly, sizable decrease in LINE-1 methylation level was observed in the late-passage organoids of CON group, which, in turn, resulted in significant difference of 3.8% when compared to passage 5 organoids of qUC.

Conclusion: LINE-1 region of both healthy control and UC patients colon tissues and corresponding intestinal organoids is highly methylated, and long-term culturing of these organoids results in decrease of LINE-1 methylation level which proceeds at different pace depending on the inflammation status of primary tissue.

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PP0499

JAK/STAT PATHWAY AND IL-6 ACTIVITY IN MODERATE TO SEVERE ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory bowel disease with a high social and health care system burden. Despite recent advances in UC treatment with available drugs acting in different signalling pathways related to the disease, there is still a significant proportion of non-responders who end up being overtreated and exposed to treatment's secondary effects. Therefore, it would be helpful to know the activity of each inflammatory pathway involved in UC pathogenesis in order to tailor the best treatment for each patient.

Aims & Methods: The aim of our study was to measure the activation of JAK/STAT pathway and IL-6 levels in colonic biopsies from patients with UC.

Methods: A prospective, observational single-centre study was designed and it is currently on going. Adult UC patients with any endoscopic activity (Mayo Endoscopic Score (MES) > 0) in a routine colonoscopy were included. Biopsies from inflamed (endoscopically active) and non-inflamed (endoscopically inactive) colon of each patient were homogenised and processed by using RIPA buffer and ultrasounds to obtain cell lysates. Determination of the activation of JAK/STAT pathway was performed by detecting phosphorylated forms of JAK1, JAK2, JAK3, TYK2, STAT1, STAT3 and STAT4 by Western blot. Human Luminex discovery assay was used for IL-6 quantification. Data are shown as percentage, median, interquartile range (IQR) and mean ± standard deviation as appropriate.

Results: So far, 19 patients were consecutively included (median age 60.9 years (IQR 40.8-66.6), 58% female). About 47% had left-sided UC, 32% extensive UC and 21% had proctitis. Regarding endoscopic activity, 52.6% of patients showed MES-3, 42.1% MES-2 and 5.2% MES-1. IL-6 was increased in biopsies from inflamed colon, while no IL-6 was found in biopsies from non-inflamed colon (p=0.00). Median IL-6 in inflamed colonic biopsies from patients with MES-2 was 41.5pg/ml (IQR 7.4-106.7) and 51.9pg/ml (IQR 17.5-220.5) in patients with MES-3 (p=0.4). Every patient showed, at least, one phosphorylated JAK protein and one phosphorylated STAT protein from JAK/STAT pathway in inflamed colonic biopsies. Nevertheless, the pattern of activation of JAK/STAT pathway was different in all patients as shown in table 1.

		JAK/STAT PATHWAY'S COMPONENTS (mean±SD)						
		JAK1P	JAK2P	JAK3P	TYK2P	STAT1P	STAT3P	STAT4P
PATIENTS	1	1.55±0.20	1.24±0.22	2.33±0.13	2.22±0.31	1.40±0.24	1.48±0.25	1.50±0.29
	2	1.97±0.07	0.95±0.20	1.08±0.30	2.68±1.29	1.54±0.27	1.48±0.08	0.92±0.13
	3	0.99±0.35	1.61±0.41	1.52±0.69	1.89±0.17	1.87±0.25	2.07±0.29	0.99±0.25
	4	1.66±0.40	0.62±0.23	0.95±0.06	0.97±0.05	1.01±0.17	0.78±0.34	1.47±0.54
	5	0.80±0.61	0.76±0.08	1.80±0.51	2.68±0.66	1.20±0.34	0.85±0.13	1.58±0.05
	6	1.11±0.54	1.13±0.14	0.99±0.05	1.40±0.39	1.83±0.44	0.68±0.13	1.96±0.62
	7	0.72±0.24	1.51±0.11	1.34±0.07	1.46±0.32	0.71±0.38	0.93±0.25	1.12±0.26
	8	0.87±0.08	1.07±0.45	1.02±0.07	2.09±0.35	1.25±0.13	0.92±0.19	1.11±0.30
	9	1.46±0.24	1.24±0.12	0.95±0.35	1.42±0.08	1.84±0.85	1.54±0.26	1.10±0.08
	10	0.56±0.12	0.83±0.17	1.25±0.12	1.70±0.35	1.62±0.32	0.68±0.15	1.21±0.09
	11	1.02±0.16	0.76±0.15	1.19±0.23	1.51±0.23	1.95±0.36	1.43±0.24	3.67±0.37
	12	0.74±0.26	1.13±0.27	0.68±0.27	1.21±0.65	1.83±0.25	0.97±0.44	1.41±0.27
	13	1.03±0.01	1.17±0.42	1.01±0.27	0.91±0.06	1.03±0.15	1.42±0.09	1.12±0.05
	14	0.92±0.13	0.86±0.21	1.24±0.40	1.12±0.43	1.97±0.36	1.84±0.31	1.25±0.16
	15	1.12±0.50	1.79±0.39	1.68±0.25	0.89±0.44	1.16±0.13	1.50±0.11	1.68±0.25
	16	1.16±0.06	0.63±0.17	1.18±0.73	0.77±0.32	0.96±0.33	1.38±0.12	1.07±0.31
	17	0.60±0.09	0.82±0.09	1.10±0.73	1.90±0.51	1.14±0.40	0.44±0.03	1.21±0.79
	18	1.13±0.21	1.18±0.34	3.19±1.45	1.63±0.15	1.89±0.75	1.90±0.40	1.27±0.26
	19	1.65±0.18	1.79±0.23	1.66±0.42	2.46±1.32	1.65±0.49	1.36±0.22	1.05±0.37

Table.

Conclusion: Different activated forms of JAK and STAT kinases are detected in inflamed colonic biopsies from UC patients, even though the activation pattern of JAK/STAT pathway differs among them. IL-6 levels are increased in inflamed colonic biopsies from UC patients while it is not detected in non-inflamed mucosa.

Disclosure: Nothing to disclose.

PP0500

PREDICTIVE TRANSCRIPTIONAL SIGNATURES ASSOCIATED TO VEDOLIZUMAB THERAPY RESPONSE IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Vedolizumab is one of the current treatments for patients with inflammatory bowel disease (IBD). The efficacy and safety, along with its gut specificity, make this drug an appealing therapeutic option for IBD patients with moderate to severe disease. However, as observed for other biologic treatments, a significant proportion of patients do not have an initial response to vedolizumab treatment. Currently, there is a lack of reliable predictive tools for vedolizumab treatment response, although this would help to alleviate the socioeconomic costs derived from this disease.

Aims & Methods: The primary aim of this study is to show putative transcriptional signatures associated with vedolizumab treatment response.

Methods: For the realization of this study, we used RNA-seq datasets from the Gene Expression Omnibus (GEO) database: GSE191328. This dataset includes samples from peripheral blood cells from responder and non-responder ulcerative colitis (UC) patients treated with vedolizumab and infliximab at baseline. Gene Set Enrichment Analysis (GSEA) was performed to compare the differential expression and the enrichment analysis was calculated using ssGSEA of the different groups under study.

Results: The analysis of the transcriptome of peripheral blood cells from responder (R) and non-responder (NR) vedolizumab-treated patients at baseline revealed interesting enrichment results. We found 20 gene sets positively enriched in NR versus R and only 9 gene sets negatively enriched in the same phenotypes. In order to find vedolizumab specific transcriptional signatures, we performed a similar analysis in samples from infliximab-treated patients. After that second round of analysis, we observed that around 50% of the enriched gene sets were similar for both biological treatments. Nevertheless, several interesting biological functions such as peroxisome function, reactive oxygen function or beta-catenin signalling are specifically enriched in NR patients to vedolizumab treatment.
Conclusion: Our data suggest that vedolizumab NR patients specifically show a transcriptional enrichment profile, which differs from vedolizumab R patients. Also, the comparative analysis with infliximab-treated patients reveals that those specific transcripts are modulated in response to this α4β7 integrin antibodies in peripheral blood cells. Therefore, we found a solid system to search for vedolizumab therapy predictive response markers using low invasive techniques.
Disclosure: Nothing to disclose.

PP0501

OVEREXPRESSION OF MIR-376A-3P IN CIRCULATING EXOSOMES IN PERIPHERAL BLOOD OF PATIENTS WITH CROHN'S DISEASE

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Introduction: MicroRNAs (miRs) can modulate the development and/or progression of chronic inflammation in patients with Crohn's disease (CD), influencing the efficacy of treatments.
Aims & Methods: The objective was to assess the miRs content of circulating exosomes in the peripheral blood of patients with CD to identify new biomarkers useful in disease management. Patients with CD diagnosed and followed up at the Hospital General Universitario de Alicante and healthy controls were included. Extracellular vesicles were isolated from serum and exosomes were quantified by "Nanoparticle Tracking Analysis" (NTA), confirmed by Transmission Electron Microscopy (TEM) and by specific markers (Tsg101, CD63, CD81) by Western blot, performing an expression analysis of a non-targeted panel of human miRs from exosomal RNA. Patient and control samples were also subjected to enzyme-linked immunosorbent assay (ELISA) measurement of different target-predicted protein substrates.
Results: Thirty patients and ten controls were included in the study. Patients were 42±9 years old, disease duration 62±9 months, 40% women and 80% showed ileal or ileocolonic involvement. Six patients (20%) had perianal disease. Ninety-three per cent were undergoing biological treatment with infliximab (IFX, n=13), adalimumab (ADA, n=8) or ustekinumab (USTE, n=7). A significant increase in exosome concentration was observed in the serum of patients vs controls. NTA and TEM confirmed the size and purity of the obtained exosomes. The distribution in the expression of miRs and its differential analysis showed a significant increase in miR-376a-3p as well as a reduction in miR-20a-5p in patients vs. healthy controls. Functional analysis of miR-376a-3p determined its interaction with gene targets involved in autophagy (ATG4C), TGF-b signaling (ACVR1C) and cell survival (PIK3R1, IGF1R). Protein levels of these substrates indicated the potential control of TGF-beta signaling pathway by the downregulation of ACVR1C, and the increase in survival pathway measured by IGFR1 presence in patient's serum.
Conclusion: CD patients show a higher number of circulating exosomes, with an overexpression of miR-376a-3p. The involvement of this microRNA in different intracellular signaling pathways suggests its participation in the unbalance of the immune activity present in CD.
Disclosure: The authors declare that they have no conflict of interest.

PP0502

MICROBIOME CHARACTERIZATION IN STOOL FROM NEWLY DIAGNOSED PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: The pathogenesis of inflammatory bowel disease (IBD) involves a complex interplay among a genetically susceptible host, environmental factors, dysregulated immune response, and intestinal microbiota. Multiple studies have documented differences in the composition of gut microbiota between patients with IBD and healthy individuals, particularly regarding microbial diversity and relative abundance of specific bacteria. However, studies generally include patients treated with immunosuppressive therapy, which may modify the microbiota and can make a result harder to interpret.

Aims & Methods: Our aim was to elucidate the microbiota in newly diagnosed IBD patients compared to healthy controls (HC), and the differences between patients with Crohn's disease (CD) and ulcerative colitis (UC). Stool samples were collected from IBD patients before having started any treatment for the disease and HC from a biobank. Shotgun metagenomic sequencing was performed in each sample, and subsequent bioinformatic analyses were done with Cutadapt, Kraken2 and Bracken programs. IBD activity was classified by the Simple Endoscopic Score in the case of CD (SES-CD) and by the endoscopic subscore of the Mayo index in the case of UC.

Results: We included 104 patients with CD, 145 with UC and 49 HC. Patients with CD had a statistically significant decrease in the α-diversity, calculated with Shannon Index on species-level taxa, compared with UC and HC groups; in addition, an inverse relationship was observed between the severity of activity and microbial α-diversity. However, in patients with UC the microbial α-diversity was similar to HC cohort. We also calculated the β-diversity between pair-wise combinations using Bray-Curtis dissimilarity, showing that this index was lower in UC vs. HC compared to CD vs. HC. Regarding to the severity of disease in CD patients, β-diversity index increased directly with severity. On the other hand, we found no differences between severity activity groups in UC patients. Considering the taxonomic abundance at the microbial species taxonomic level, the greatest differences in patients with CD globally and those with severe activity, were found in *Lactobacillus paragasseri* and *Gemella haemolysans*, compared to HC. However, patients with mild CD had the greatest differences in several species of *Shigella* genus, and those with moderate CD in *Granulicatella elegans*. Patients with UC globally, and particularly with mild, moderate and severe activity, showed the greatest differences in *Toxoplasma gondii* and *Aspergillus oryzae*, compared with HC.

Conclusion: Our data suggest that patients with CD, from the moment of diagnosis, showed relevant differences in the composition of the microbiota compared with UC patients and HC individuals; however, UC microbiome is relatively closer to HC. Moreover, the severity of IBD is associated with the distribution of species in fecal microbiota.

Disclosure: Nothing to disclose.

PP0503

PROTEIN FINGERPRINT BIOMARKERS OF COLLAGEN REMODELING CAN EVALUATE FIBROGENESIS IN AN *IN VITRO* COLONIC SCAR-IN-A-JAR MODEL

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Introduction: Intestinal fibrosis affects most inflammatory bowel disease (IBD) patients, resulting in severe clinical complications and reduced treatment response. With no treatments approved for intestinal fibrosis, there is a need for preclinical models to investigate the pathobiology and novel treatments. Myofibroblasts are the main drivers of intestinal fibrosis and the excessive accumulation of extracellular matrix in IBD patients. We investigated a prolonged scar-in-a-jar model of colonic fibrogenesis to validate protein fingerprint (PF) biomarkers of collagen formation for clinical use and the *in vitro* model as a screening tool.

Aims & Methods: Human colonic fibroblasts (CCD-18co, ATCC) were grown in EMEM supplemented with 10% FBS and 1% P/S in culture flasks with 200 µg/cm^3 gelatin to reduce cell activation. At 80% confluency, the cells were seeded at 30,000 cells/well in a 48-well plate noted as day -2. The cells were either stimulated from day 0 and every fourth day, except day 15, with either 50 pM TGF-β or 0.1 % DMSO. Starting at day 4 certain wells were co-stimulated with TGF-β1 and an ALK5 inhibitor (ALK5i) (0.01, 0.1, 1.0, or 10.0 µM). The experiment was terminated on day 15 upon which wells were decellularized and the collagen matrix stained with Sirius Red for visual confirmation of collagen formation. Imaging was done using light microscopy at X20 magnification using similar settings for all images. Fibrogenesis was quantitatively determined by measuring the biomarkers PRO-C1, PRO-C3, and PRO-C6 in the supernatants. The biomarkers reflect type I, type III, and type VI collagen formation, respectively. We applied Šídák's multiple comparisons test for differences in the collagen formation biomarker levels calculated as ng/mL or percentage change from day 4 following ALK5i stimulation.

Results: Stimulation with TGF-β signifcantly increased type I, III, and VI collagen formation at days 4, 8, 12, and 15 compared to DMSO stimulated cells quantified with the PRO-C1, PRO-C3, and PRO-C6 biomarkers as ng/mL (p value <0.0001) (Table 1). On day 4 certain cells were co-stimulated with TGF-β1 and an ALK5i, resulting in a significant reduction of type I, III, and VI collagen formation at days 8, 12, and 15 (p value <0.0001) (Table 1). The reduction of the collagen formation biomarkers were largest when stimulating with 1.0 or 10.0 µM of ALK5i, reducing PRO-C1 up to 125.7% on day 12, PRO-C3 up to 560.1% on day 12, and PRO-C3 up to 68.2% on day 8. Collagen deposition was confirmed by Sirius Red (data not shown). To determine stimulation effects on the metabolic activity, Alamar blue was measured on days 0 and 15 demonstrating no significant difference between TGF-β1 and the highest concentration of ALK5i (10.0 µM) (Table 1).

Stimulation comparison	PRO-C1, Type I collagen formation (Day)	PRO-C3, Type III collagen formation (Day)	PRO-C6, Type VI collagen formation (Day)	p-value for comparison(s) (Days 0, 4, 8, 12, and 15)
TGF-β1 vs. DMSO	191.7 vs. 75.9 (Day 4); 282.5 vs. 94.9 (Day 8); 273.1 vs. 100.4 (Day 12); 209.2 vs. 99.3 (ng/mL)	1.5 vs. 1.4 (Day 4); 3.8 vs. 1.4 (Day 8); 9.0 vs. 2.0 (Day 12); 10.5 vs. 1.7 (ng/mL)	0.8 vs. 0.4 (Day 4); 0.7 vs. 0.4 (Day 8); 0.5 vs. 04 (Day 12); 0.4 vs 0.4 (ng/mL)	PRO-C1 (all: <0.0001); PRO-C3 (ns, <0.01, <0.0001, <0.0001); PRO-C6 (<0.01, <0.01, ns, ns)
TGF-β1 vs. 0.01 µM ALK5 inhibitor	50.2% vs. 21.5% (Day 8); 43.3% vs. 14.4% (Day 12); 10.0% vs. 4.6% (Day 15)	155.1% vs. 128.8% (Day 8); 511.7% vs. 419.8% (Day 12); 606.6% vs. 400.1% (Day 15)	14.3% vs. -30.1% (Day 8); -29.4% vs. -51.4% (Day 12); -35.2% vs. -52.3% (Day 15)	PRO-C1 (all: ns); PRO-C3 (ns, ns, ns, <0.01); PRO-C6 (all: ns)
TGF-β1 vs. 0.1 µM ALK5 inhibitor	50.2% vs. 19.0% (Day 8); 43.3% vs. 1.7% (Day 12); 10.0% vs. 2.3% (Day 15)	155.1% vs. 66.5% (Day 8); 511.7% vs. 473.2% (Day 12); 606.6% vs. 437.4% (Day 15)	14.3% vs. -9.6% (Day 8); -29.4% vs. -42.4% (Day 12); -35.2% vs. -40.3% (Day 15)	PRO-C1 (ns, ns, <0.05, ns); PRO-C3 (ns, ns, ns, <0.05); PRO-C6 (
TGF-β1 vs. 1.0 µM ALK5 inhibitor	50.2% vs. -31.9% (Day 8); 43.3% vs. -63.4% (Day 12); 10.0% vs. -62.3% (Day 15)	155.1% vs. 22.5% (Day 8); 511.7% vs. 84.5% (Day 12); 606.6% vs. 51.1% (Day 15)	14.3% vs. -53.9% (Day 8); -29.4% vs. -54.0% (Day 12); -35.2% vs. -54.0% (Day 15)	PRO-C1 (ns, <0.0001, <0.0001, <0.0001); PRO-C3 (ns, ns, <0.0001, <0.0001); PRO-C6 (
TGF-β1 vs. 10.0 µM ALK5 inhibitor	50.2% vs. -56.1% (Day 8); 43.3% vs. -82.4% (Day 12); 10.0% vs. -82.1% (Day 15)	155.1% vs. 6.1% (Day 8); 511.7% vs. 100.7% (Day 12); 606.6% vs. 46.5% (Day 15)	14.3% vs. -49.1% (Day 8); -29.4% vs. -54.3% (Day 12); -35.2% vs. -54.3% (Day 15)	PRO-C1 (ns, <0.0001, <0.0001, <0.0001); PRO-C3 (ns, <0.05, <0.0001, <0.0001); PRO-C6 (ns, <0.05, ns, ns)
	Metabolic Activity at Day 0	Metabolic Activity at Day 15		
TGF-β1 vs. 10 µM ALK5i	11928 vs. 11352	12058 vs. 10368		Day 0 (ns) and Day 15 (ns)

Conclusion: PF biomarkers can be applied *in vitro* to quantify fibrogenesis objectively, demonstrating a significant increase following TGF-β stimulation of colonic fibroblasts. The model may be combined with the biomarkers to evaluate drug targets of intestinal fibrosis.

Disclosure: M. Pehrsson, M.A. Karsdal, and J.H Mortensen are employed at Nordic Bioscience A/S.

PP0504

COLONIC RATHER THAN ILEAL EXPRESSION OF ITGA4/ITGB7 CORRELATES WITH LOCAL INTESTINAL INFLAMMATION IN IBD

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Introduction: Lymphocyte trafficking to the inflamed gut is one of the hallmarks of Inflammatory Bowel Disease (IBD) pathology. Integrin a4b7 and its ligand MADCAM1 play an important role in targeting immune cells in the bloodstream to mucosal tissues and blocking this pathway using the anti-a4b7 monoclonal antibody Vedolizumab (VDZ) proved to be an effective treatment in IBD.

However, VDZ is most efficient in treatment of Ulcerative Colitis (UC) and of colonic rather than ileal Crohn's Disease (CD), for which the reasons have not been completely understood.

Aims & Methods: Aim: To compare the expression of ITGA4, ITGB7 and MADCAM1 in gut tissue biopsies from small and large bowel with respect to the underlying severity of tissue inflammation.

Methods: Differential gene expression analysis was conducted using bulk RNA Sequencing data generated from gut tissue biopsies of the large and small intestine of 611 CD and 315 UC patients enrolled in a multicentred longitudinal Study of a Prospective Adult Research Cohort with IBD (SPARC IBD) obtained from the IBD Plexus program of the Crohn's and Colitis Foundation. Gene expression levels of ITGA4, ITGB7 and MADCAM1 were compared across ileal, colonic and rectal segments of the intestine and data were then linked to available measures of local inflammation.

Results: ITGA4, ITGB7 and MADCAM1 were expressed at comparable levels in large vs small bowel biopsies. Expression of MADCAM1 was significantly increased in both ileal and colonic biopsies from patients with moderate to severe CD based on segmental or composite endoscopy score (SES-CD) across all bowel segments. Expression of both ITGA4 and ITGB7 was similarly increased in colonic biopsies of moderate/severe CD patients, whereas only minor changes were observed for both genes in ileal biopsies. Similar findings were obtained from UC patients, where expression of MADCAM1 was significantly increased in inflamed or ulcerated biopsies from both sigmoid colon and cecum as compared to normal appearing biopsies. Expression of ITGA4 and ITGB7 was only increased in inflamed/ulcerated biopsies of the sigmoid colon but not the cecum and correlated with the modified Mayo endoscopic score (MMES).

Conclusion: Our analysis suggests that influx of leukocytes to inflamed tissue via ITGA4/ITGB7 and MADCAM1 interactions is more common in the distal colon compared to proximal colon or ileum. This provides a possible mechanistic explanation as to why VDZ is most effective in patients with colonic IBD. Further work is needed to understand the differential regulation of cell trafficking to different regions of the gut.

Disclosure: Nothing to disclose

PP0505

AIR POLLUTION PARTICULATE MATTER FROM COTTONWOOD AS A DEVELOPMENT FACTOR OF INFLAMMATORY BOWEL DISEASES

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Introduction: Worldwide, air pollutants shorten the average human lifespan by approximately 1.8 years (1). Recent studies are drawing attention to the fact that particulate matter (PM) – one of the major air pollutants (2) and can contribute to the development of gastrointestinal tract (GI) diseases (3). At the same time, the role of PM in the development of inflammatory bowel diseases (IBD) remains poorly understood. An important aspect is the dependence on the type of pollutant and the strength of its negative impact. Previously, we have shown that carbon-containing nanoparticles from the combustion of cottonwood are the most toxic compared to wood and leaves of birch and pine (4).

Aims & Methods: Our work aimed to study the chronic effect of air pollution particulate matter obtained from the combustion of cottonwood (PM_C) on the state of the intestinal barrier and to evaluate their ability to promote the development of inflammation under conditions of experimental colitis in rats.

PM_C was administered orally to Wistar rats (180-200 g, n = 40) at a dose of 180 µg/100 g once a day for 7 days. Experimental colitis was induced by a single rectal injection of 0.1 ml of a 6% solution of iodoacetamide (IA) dissolved in a 1% solution of methylcellulose (7 cm from the anus using a rubber catheter). Colitis modelling was performed on the 8th day of the experiment. Rats were euthanized 2 hours after iodoacetamide administration. We examined endothelium permeability by Evans blue (EB) extravasation (µg/g wet colon), level of myeloperoxidase (MPO) activity, total glycoprotein level at the mucosal surface by PAS-staining, colon weight, bodyweight percentage changes and water content in feces.

Results: After a seven-day oral administration of PM_C or vehicle, the body weight gain in the PM_C-pretreated group was 10% less compared to the control ($p < 0.01$), and the water content in feces was elevated by 7% ($p < 0.05$), which may denote an impairment of water absorption processes in the large intestine. Induction of IA-colitis on the 8th day of the experiment revealed a decrease from 185.00±19.28 units up to 85.67±23.37 units ($p < 0.01$) in the colonic surface mucus glycoproteins and increased colonic mucosa MPO level from 6.75±2.06 to 8.73±1.29 ($p < 0.05$) in PM_C-pretreated vs vehicle-pretreated group of rats. Moreover, PM_C-pretreated rats had increased colonic vascular permeability vs the vehicle-pretreated group. For the control group, the level of EB dye extravasation was 18.80±1.79 µg/g wet colon, while in the group with chronic exposure to PM_C, it was 24.00±0.66 µg/g wet colon ($p < 0.05$). The colon weight was also higher ($p < 0.05$) in PM_C-pretreated rats (1.07±0.04 g/100 g of body weight) vs vehicle-pretreated group (0.92±0.01 g/100 g of body weight) after the IA-colitis induction.

Conclusion: Long-term exposure to PM_C contributes to the violation of intestinal barrier integrity in the colon of rats. In particular, it reduces the level of the glycan part of mucus glycoproteins and increases colonic

endothelial permeability. In aggregate, this results in the development of proinflammatory changes in the colon, confirmed by the increase in MPO activity and diarrhoea development, and can be the reason for the development of iodoacetamide-modelled colitis.

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PP0506

HUMAN DENTAL-PULP MESENCHYMAL STEM CELLS AMELIORATE TNBS-INDUCED INTESTINAL FIBROSIS VIA BALANCING PRO-AND ANTI-FIBROTIC SIGNALING PATHWAYS

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Introduction: Intestinal fibrosis is a late Crohn's disease (CD) complication characterized by poor treatment efficacy and prognosis[1]. Mesenchymal stem cells (MSCs) have the characteristics of multidirectional differentiation and immune regulation and are expected to become a new means of CD treatment[2]. Human dental-pulp MSC (hDP-MSC), originating from the neural crest, is easy to obtain and exhibits a strong immune-modulating ability[3].

Aims & Methods: We aimed in this study to demonstrate the roles of hDP-MSC in intestinal fibrosis. We established a TNBS-induced mouse chronic intestinal fibrosis model and observed the effect of hDP-MSC on the mouse model, with human umbilical cord MSC (hUC-MSC) as a positive control. To track the location of MSC in vivo, MSCs tagged with indocyanine green were injected into the tail vein of the mouse, and fluorescence was analyzed with in vivo imaging system. Besides, we performed Hematoxylin-Eosin staining, Masson staining, western blotting, and ELISA to determine the expression level of pro-fibrotic markers and inflammatory cytokines. Furthermore, to determine the possible mechanism of MSC in intestinal fibrosis, transcriptome sequencing of intestinal tissues of all four groups was applied to analyze pathway changes in the MSC treatment group.

Results: Both intravenous injections of hDP-MSC and hUC-MSC attenuated body weight loss, reduced colon length shortening, lowered disease activity index (DAI), and macroscopic fibrosis score of TNBS modeling mice, with hDP-MSC more statistically significant. Western blotting showed that the expression level of Fibronectin, Collagen I, and α-SMA was increased in the TNBS modeling group, but was decreased in the MSC treatment group. ELISA showed that hDP-MSC significantly decreased the levels of proinflammatory cytokine IL-1β, IL-6, and TNF-α. For transcriptome sequencing, the top ten differentially expressed gene (DEG) of the hDP-MSC versus TNBS modeling group was *MMP3, Pla2g5, Rfx2, Sh3rf3, H4c4, Slc34a2, Cldn4, Hbegf, Ibhba, Myo18b*. KEGG pathway enrichment of all DEGs showed that the TGF-β signaling pathway was inhibited in the hDP-MSC group, while the IFN-γ signaling pathway was activated.

Conclusion: Collectively, our findings identify that hDP-MSC ameliorates intestinal fibrosis through balancing pro-and anti-fibrotic signaling pathways, which might act as a novel therapeutic approach for the treatment of intestinal fibrosis in Crohn's disease.

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PP0507

A NEW ROS-RESISTANT *BIFIDOBACTERIUM LONGUM* STRAIN PROTECTS AGAINST MURINE COLITIS BY ENHANCING INTESTINAL COLONIZATION

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Introduction: Inflammatory bowel disease (IBD) is a chronic inflammatory disease of the gastrointestinal tract that results from various factors, including genetic factors, inappropriate immune response, changes in gut microbiota balance, and oxidative stress.[1, 2] *Bifidobacterium longum* is a representative bifidobacterium that exists in the human gastrointestinal tract and plays a significant role in protecting against colitis.[3] Oxidative stress elicits an unfavorable environment for the survival and colonization of beneficial probiotics as well as causing tissue damage in colitis.[4, 5]

Aims & Methods: In this study, we aimed to identify the genome characteristics, ROS-resistant properties, colonization abilities, and anti-colitic effects of the newly isolated *B. longum* strain (*B. longum* S2) from the feces of a healthy adult in South Korea. Viability of *B. longum* S2 against hydrogen peroxide was assessed using H_2O_2-containing media. The antioxidant activity of *B. longum* S2 was measured using the ABTS and DPPH assays. Colonization in the colon was observed using a scanning electron microscope. Whole genome sequencing, data assembly, and gene analysis were performed. The anti-colitic effects were evaluated in mice using 2.5% DSS-induced colitis and adoptive T cell transfer models. Bifidobacterium was

administrated by oral gavage 1 × 10^9 CFU and the disease activity index (DAI) was scored. Colon length was measured and the histopathologic score was assessed with PAS-stained colon tissue. T cells in lamina propria mononuclear cells from the small intestine, lymphocytes from the spleen, and peritoneal cavity cells were analyzed using flow cytometry. Epithelial barrier function was evaluated using a FITC-dextran permeability assay on Caco-2 cells. Gene expression and cytokine profiles were analyzed using qRT-PCR.

Results: *B. longum* S2 colonies in H_2O_2-containing media were observed more frequently than those of other bifidobacterium strains. The antioxidant activity of *B. longum* S2 on ABTS and DPPH radicals was higher than that exhibited by other bifidobacterium strains. We identified that *B. longum* S2 possesses oxidative response genes, such as LexA and HrcA, through pan-genome and comparative genome analysis. However, the average nucleotide identity highlights a 94.92% value with respect to *B. longum* ATCC, 98.65% with respect to *B. longum* JCM1217 and 98.64% with respect to *B. longum* NCTC 11818, supporting the characteristics of *B. longum* S2 as a novel strain of bifidobacteria. *B. longum* S2-treated group showed alleviation of the colitis index, including a higher survival rate, restoration of body weight loss and colon shortening, and improvement of the DAI compared to the control group. *B. longum* S2 treatment significantly decreased the loss of goblet cell and the histopathological score in colon tissues. *B. longum* S2 induced the expression of markers of Treg cells and M2 macrophages in the isolated mouse tissues. Moreover, the *B. longum* S2-treated group showed decreased gene expression of pro-inflammatory cytokines, including mucin gene, compared to the control group. Pre-treatment with *B. longum* S2 significantly reduced the TNF-α-induced permeability of intestinal epithelial cells, suggesting that B. longum S2 improves epithelial barrier function.

Conclusion: Our study revealed that the newly isolated *B. longum* strain, *B. longum* S2, possesses unique anti-colitic effects and colonization abilities, as demonstrated in both in vitro experiments and in two different mouse colitis models. These findings strongly suggest that *B. longum* S2 holds great promise as a potential treatment for IBD.

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PP0508

TRANSCRIPTOMIC PROFILING OF LYMPHOCYTIC COLITIS HIGHLIGHTS DISTINCT DIARRHOEAL PATHOMECHANISMS COMPARED TO OTHER INFLAMMATORY BOWEL DISEASES

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Introduction: Lymphocytic colitis (LC) is a debilitating, non-destructive inflammatory bowel disease (IBD) that causes intense watery, non-bloody diarrhoea. LC is diagnosed by an increased lymphocyte infiltration in the mucosa that has been correlated with increased Th1/Th17 cytokine secretion and subsequent sodium malabsorption. Still, LC pathomechanisms have not been fully characterized and its relation to other forms of IBD is unclear.

Aims & Methods: Our aim was to define a LC-specific transcriptome to gain insight into LC pathology, identify genetic signatures uniquely linked to LC, and uncover potentially druggable disease pathways. For that, we performed whole mucosa bulk RNA-sequencing of LC and collagenous colitis (CC) samples from patients with active disease, and healthy controls (n=4-10 per cohort). Differential gene expression was analyzed by gene-set enrichment and deconvolution analyses to identify pathologically relevant pathways and cells, respectively, altered in LC. Key findings were validated using reverse transcription quantitative PCR and/or immunohistochemistry. Finally, we compared our sequencing data to a previous cohort of ulcerative colitis and Crohn's disease patients (n=4 per group) to distinguish non-destructive from classic IBD.

Results: The LC-specific transcriptome was defined by a limited mucosal immune response against microbiota compared to CC and classic IBD samples. In contrast, we noted a distinct induction of regulatory non-coding RNA species in LC samples. Moreover, compared to CC, we observed decreased water channel and cell adhesion molecule gene expression, which was associated with reduced intestinal epithelial cell proliferation.

Conclusion: We conclude that LC is a pathomechanistically distinct disease that is characterized by a dampened immune response despite massive mucosal immune cell infiltration. Our results point to regulatory micro-RNAs as a potential disease-specific feature that may be amenable to therapeutic intervention.

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PP0509

ALTERED EXPRESSION AND ENZYMATIC ACTIVITY OF XANTHINE OXIDASE IN INFLAMMATORY BOWEL DISEASE

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Introduction: Xanthine oxidase (XO) catalyzes the oxidation of hypoxanthine to xanthine and xanthine to uric acid (UA) with the production of superoxide anion. The accumulation of UA has been shown to initiate the inflammatory process through NLRP3 inflammasome and the production of reactive oxygen species (ROS), which contributes to inflammation-related tissue damage observed in inflammatory bowel disease (IBD). In murine models of colitis, XO inhibitors, allopurinol or febuxostat, reduced the expression of proinflammatory cytokines supporting the involvement of XO in the intestinal inflammatory process.

Aims & Methods: The aim of this study was to evaluate the expression level and enzymatic activity of XO in the intestinal mucosa of IBD patients (pts), both ulcerative colitis (UC) and Crohn's disease (CD), compared to healthy controls (HC).

Sigmoid-colon biopsies from consecutive UC and CD pts, with a confirmed diagnosis (by ECCO guidelines) in regular follow-up at University Hospital of Cagliari with an indication to endoscopy according to standard clinical practice, were collected. Site-matched biopsies from individuals undergoing screening colonoscopy for colorectal cancer were used as controls.

Demographic data and endoscopic grade for disease activity scored by endoscopic Mayo and SES-CD score were collected. Real-Time PCR was used to evaluate XO relative expression levels (RQ) and data was confirmed by analyzing GEO database (study code GSE11223). XO activity was measured in whole protein extracts from biopsies by spectrophotometric quantification of UA production and expressed as nmol of UA/min/mg of total protein. The relative abundance of XO was further investigated by Western Blot. Finally, XO expression was assessed in sections of paraffin-embedded intestinal biopsies by immunohistochemistry.

Results: Biopsies of 15 HC, 20 UC, and 15 CD pts were collected. Mean age was 50 for UC, 49 for CD and 54 for HC. Mayo endoscopic subscore was 0 in 25% of UC pts, 1 in 18,75%, 2 in 21,2% and 3 in 25%. SES-CD was between 0-2 in 28,6% of CD pts, 3-6 in 21,4%, 7-14 in 42,8% and >14 in 7,1%. Real-time PCR showed that XO expression values were increased in the sigmoid mucosa of pts with UC compared with HC individuals (RQ 1,93 vs 0,99. p=0,004). This data was confirmed by analysis of XO expression in the GEO database study code GSE11223. The difference in XO expression between HC and CD was not statistically significant (p=0,13). Western blot analysis of XO protein expression in CD and UC pts compared with HC showed a significant increase in IBD pts (p<0,001).

XO activity was significantly higher in UC and CD pts as compared to HC. XO activity mean was 3,75 in UC pts and 5,10 in CD pts vs 1,11 nmol of UA/min/mg of protein in HC individuals (p<0.001). Moreover, in UC pts XO activity was correlated with Mayo endoscopic sub-score (r= 0.346; p=0.05). Immunohistochemistry confirmed higher expression of XO in IBD pts than HC with a prevalent expression observed in epithelial cells.

Conclusion: XO expression was higher in UC pts than in HC individuals. XO activity was higher in both CD and UC pts than HC and in UC pts XO activity correlated with endoscopic disease suggesting its potential role as therapeutic target.

Disclosure: Nothing to disclose

PP0510

COLONIC EPITHELIAL BRUSH BORDER ALTERATIONS IN MICROSCOPIC COLITIS: AN INTEGRATED MULTI-OMIC ANALYSIS

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Introduction: Collagenous colitis (CC) and lymphocytic colitis (LC), the two main subtypes of microscopic colitis (MC), are chronic inflammatory diseases of the colon of unknown etiology. Colonic barrier dysfunction has been identified in patients with MC. However, whether molecular and structural alterations underlie an aberrant barrier in MC remains to be defined.

Aims & Methods: To identify the molecular pathways involved in the colonic epithelial brush border structure and its ultrastructural alterations in MC. Total RNA and protein were obtained from sigmoid mucosal biopsies of healthy controls (Hc) (N=11), patients with active diarrhoea predominant irritable bowel syndrome (IBS-D) patients (N=13), and active newly diagnosed naive of treatment MC patients (N=12 CC and N=12 LC). Transcriptomic and proteomic analyses were performed by RNAseq analysis and liquid chromatography mass spectrometry, respectively. Additionally, in a subset of patients (N=8 CC, N=8 LC, N=8 IBS-D and N=8 Hc) sigmoid biospies were collected and processed for scanning and transmission electron microscopy (SEM and TEM, respectively), to perform a qualitative and quantitative assessment of the colonic epithelium. Integrated data assessment was performed to explore biological and molecular functions.

Results: By RNA-Seq enrichment study, three microvilli-related pathways (organization, regulation of microvilli organization and length) were significantly enriched in the colonic mucosa of CC patients compared to LC, IBS-D and Hc. The integrated multi-omic analysis identified 28 genes with a significant positive correlation between RNA expression and its corresponding protein expression, (4 genes with a strong correlation (r>0.7, p<0.05) and 21 genes with a moderate correlation (0.3<r<0.7, p<0.05)), which were related to each other at the network level by string database

analysis. Reduced expression of the microvilli proteins, was observed in CC compared to Hc, IBS-D and LC patients. Reduced expression of the actin-binding proteins, was also observed in CC. Moreover, decreased protein expression and an increased expression of proteins in the actin-membrane junction, were observed in CC and LC. Ultrastructural observation revealed that microvilli on the colonic surface of MC patients were more scattered, irregular and shorter in MC than IBS-D and Hc.

Furthermore, the number of microvilli per colonocyte length (microvilli/um) was lower in CC (3.7[2.8-5.3], p<0.0001) and LC patients (5.2[4.0-6.6], p=0.01) compared to Hc (7.5[6.6-8.7]). Similarly, microvilli length was also reduced in CC (0.5[0.4-0.8], p=0.0003) and LC (0.6[0.4-1.1], p=0.04) patients compared to Hc (1.1[1.0-1.4]). No differences in the number and length of microvilli were observed between IBS-D and Hc groups.

Conclusion: Dysregulated brush border molecular pathways underlie epithelial colonic dysfunction in MC compared to Hc and IBS-D patients at both molecular and ultrastructural levels. These previously undescribed data open new perspectives in defining the pathophysiological mechanisms of MC, especially in CC. Given the fundamental role of the brush border in maintaining intestinal homeostasis and even water absorption, further understanding of these mechanisms may have significant diagnostic and therapeutic implications for MC.

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PP0511

VITAMIN DEFICIENCIES IN CROHN'S DISEASE

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Introduction: Crohn's disease (CD) is a chronic inflammatory disease that can affect all segments of the gastrointestinal tract, resulting in deficiencies, particularly of vitamins. They result from a decrease in ingesta, malabsorption or exudative enteropathy and metabolic alterations induced by the inflammation. These deficiencies may alter the course of the disease.

Aims & Methods: The aim of our work is to describe the most frequent deficiencies in patients with CD: they concern in particular iron, vitamin D, vitamin B12, folate and vitamin B1.

This was a single-centre retrospective descriptive study including all patients followed for Crohn's disease in the hepato-gatsroenterology department. Biological assays of iron, vitamins B12, B9, B1 (if called) and vitamin D were performed in all patients at the time of diagnosis.

Results: Among 1045 patients followed for Crohn's disease in our department, 199 or 19.04% of patients had vitamin deficiencies, of which 64.3% (n=128) were women with an average age of 36.4 years.

Vitamin D deficiency was found in 76.7% (n=153) of cases, of which ileocolic deficiency was found in 63.4% (n=97), colonic deficiency in 24.8% (n=38), ileal deficiency in 8.5% (n=13), and greensecolic deficiency in 3.3% (n=5). Iron deficiency in 74.4% (n=148) of which ileo-colic in 58.8% (n=87), colonic in 25.7% (n=38), ileal in 10.8% (n=10) and greacolic in 4.7% (n=7). Vitamin B9 deficiency in 14.6% (n=28) of cases, of which ileocolic deficiency was found in 60.7% (n=17), colonic deficiency in 17.8% (n=5), ileal deficiency in 10.7% (n=3), and greacolic deficiency in 10.7% (n=3) respectively And vitamin B12 deficiency in 6% (n=12); of which the involvement was colonic in 66.8% (n=8), ileo-colic ileal in 16.6% (n=2) respectively. Concerning vitamin B1, 1% (n=2) of the patients had a deficiency; of which one patient presented a neurological complication such as "Wernicke-Korsakoff syndrome" which recovered well after vitamin correction.

Conclusion: Vitamin deficiencies are common in CD and can impact on patient outcomes by increasing morbidity and complications. These deficiencies require systematic screening during follow-up, as well as appropriate management with dietary advice.

Disclosure: Nothing to disclose.

PP0512

THE DEPENDENCE OF THE LEVEL OF GLYCOPROTEIN TYPE 2 ON THE LEVEL OF ZONULIN IN CROHN'S DISEASE

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Introduction: Type 2 glycoprotein (GP2) is a quantitatively predominant membrane protein of excretory granules of pancreatic acinar cells. In a number of studies, it has been demonstrated that this protein is the main antigen for pancreatic antibodies associated with Crohn's disease (CD). Zonulin – a protein that can reversibly increase the permeability of the intestinal wall by changing the structure of tight junctions of the lateral surfaces of intestinal epithelial cells. The determination of fecal zonulin is used for noninvasive assessment of increased intestinal permeability. Normal values of fecal zonulin (≤ 110 ng/ml) indicate the absence of damage to the villous surface of the intestinal mucosa and normal density of intercellular contacts.

Aims & Methods: The aim of the study was to establish the dependence of the level of type 2 glycoprotein on the level of fecal zonulin (FZ) in the feces of CD patients with exacerbation of the disease.

Material and methods. 122 patients with CD in the form of ilekolitis with exacerbation of the disease (Me age — 32 years) were examined. FZ was evaluated by ELISA (IDK ® Zonulin ELISA Kit, Immunodiagnostik AG, Germany) in ng/ml. Reference values: < 83.15 ng/ml is a variant of the norm, 83.15-110 ng/ml is an elevated level, 110 ng/ml is a high level.

The level of IgG and IgA to GP2 (antibodies to glycoprotein) antigen of pancreatic centroacinar cells (Anti-GP2, IgG, IgA) was determined by ELISA. Reference values: IgG GP-2 less than 10 units/ml, Ig and GP-2 less than 5 units/ml – positive values.

Results: In the stool samples of CD patients during the period of exacerbation in 92 (75,4%) patients, an increase in FZ was detected, the average value was 333.4 ±16.9 ng/ml. In the blood samples of 81 (66,4%) patients with CD during the period of exacerbation, an increase in Ig A GP-2 was detected, the average value was 43.4±6.9 units/ml. In the blood samples of 107 CD patients during the period of exacerbation, an increase in Ig G GP-2 was detected, the average value was 17.1 ± 1.3 units/ml. There is a high correlation force between the concentration of FZ and the concentration of Ig A GP-2 (r-0.760) (p=0.010). There is a moderate correlation force (r-0.490) (p=0.023) between the concentration of FZ and the concentration of Ig G GP-2.

Conclusion: An increase in the concentration of FZ in the feces of CD patients during exacerbation significantly correlates with an increase in the concentration of Ig A GP-2 and Ig G GP-2.

Disclosure: Nothing to disclose.

PP0513

ETS1 AND SENESCENCE ASSOCIATED SECRETORY PHENOTYPE INDUCTION IN HUMAN SMALL INTESTINAL FIBROBLASTS

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Introduction: Fibrosis is a complication commonly present in Crohn's disease (CD) patients with a structuring (B2) or penetrating (B3) behaviour, with no available treatment. This process is characterized by an excessive extracellular matrix deposition, mainly associated with a dysregulated function of myofibroblasts.

Aims & Methods: We analyse here, the expression of markers of senescence in human small intestinal fibroblasts (HSIF). HSIF (P10760, Innoprot, Spain) were treated during 48h with 20ng/ml of TNFα, 2ng/ml of IL-1β, 5ng/ml of TGFβ1, and 100ng/ml of PDGF. In some cases, fibroblasts were treated with 20nM of siRNA to ETS1 gene (siETS1) or negative control (NC). Gene expression profiles were analysed by RT-qPCR.

Results: Treatment of fibroblasts with IL-1β, PDGF, and TNF-α significantly increased the mRNA expression of different senescence-associated secretory phenotype (SASP) factors (IL-1α, IL-1β, IL-8, and Serpine1). In addition IL-1β also increase the expression of metalloprotease ADAM12 and the chitinase CHI3L1 and the transcription factor related to senescence ETS proto-oncogene 1 (ETS1) and the antiapoptotic factor MCL1, all compared with vehicle treatment. Furthermore, treatment with PDGF significantly increased the mRNA expression of MCL1, ETS1, P21 and P16. Treatment with TGFβ1 increase extracellular matrix components COL1A1 and COMP and the senescence related factor ETS1 and decrease the expression of IL1B. Treatment with TNFα increase the expression of ETS1 but decrease the expression of ADAM12. Finally, a cellular model of depletion of ETS1 treated with IL1β showed that deficiency of this protein can reduce levels of IL1B, IL1A, and CHI3L1 gene expression that were upregulated with IL-1β treatment. Also, this depletion increases the induction of SERPINE1 and ADAM12 observed after treatment with IL-1β.

Conclusion: In human primary intestinal fibroblasts, treatment with IL1-β, PDGF, and TNF-α increased the expression of senescence associated secretory phenotype while treatment with PDGF increased the expression of markers involved in cell cycle arrest. The induction of ETS1 by both treatments and the involvement of this transcription factor regulating gene expression could suggest that ETS1 functions as a double-edged sword inducing inflammation but also repressing the expression of ECM remodelers in intestinal fibroblasts.

Disclosure: Nothing to disclose.

PP0514

THE NLRP3 INFLAMMASOME IS UPREGULATED ON MRNA EXPRESSION LEVEL AND ACTIVATED ON PROTEIN LEVEL IN INFLAMMATORY BOWEL DISEASE PATIENTS IN A SYSTEMATIC META-ANALYSIS AND IN A NEW OBSERVATIONAL STUDY COHORT

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Introduction: Inflammatory bowel diseases (IBD), including ulcerative colitis (UC) and Crohn's disease (CD), are non-infectious chronic inflammatory disorders of the gastro-intestinal tract. The continuous presence of inflammatory stimuli, such as increased circulation of cytokines and danger-associated molecular patterns (DAMPs), leads to an enhanced immune response in these patients that could explain some types of disease relapse. An important receptor for DAMPS and pathogen-associated molecular patterns (PAMPs) is NLRP3, a cytosolic pattern recognition receptor. The NLRP3 inflammasome is exclusively activated by inflammatory stimuli, like DAMPs and PAMPs, and therefore not expressed without inflammation. It is thought that NLRP3 associates with ASC to recruit pro-Caspase 1 to the NLRP3 inflammasome and cleave it to its active form. In turn, Caspase 1 cleaves pro-interleukin 1 beta (IL-1β) and pro-interleukin 18 (IL-18) to their mature forms. IL-1β is a known elevated pro-inflammatory cytokine in IBD, promoting intestinal inflammation and immune cell recruitment. We hypothesized that the NLRP3 inflammasome pathway is therefore upregulated in IBD patients.

Aims & Methods: We first set out to systematically analyze gene expression of *NLRP3* and *IL1B* in IBD patients by performing a systematic literature review and subsequent meta-analysis according to the PRISMA guidelines and Cochrane Collaboration methods. Subsequently, an observational cohort of 70 active and quiescent patients with CD or UC was sampled for whole blood, to study NLRP3 inflammasome gene regulation, protein production, assembly and secretion. We performed *ex vivo* LPS and ATP challenges of whole blood, with and without NLRP3 inflammasome formation inhibitor MCC950.

Results: Across thirty studies with publicly available mRNA expression data, we found *NLRP3* and *IL1B* expression to be significantly higher in IBD patients than in non-IBD controls. In fresh IBD patient-derived whole blood, LPS and ATP stimulation activated the NLRP3-related genes, protein production and subsequent cytokine secretion. No IL-1β and IL-18 were secreted upon incubation with MCC950, suggesting a crucial role for NLRP3 inflammasome assembly in IL-1β and IL-18 production in immune cells. In patients with active IBD, the inflammasome was transcribed at a higher level than in patients in remission. However, this effect was lost on the protein level. We found a large spread in IL-1β and IL-18 production, suggesting a variation in activation of the NLRP3 inflammasome between individuals which was not related to disease activity.

Conclusion: *NLRP3* and *IL1B* mRNA transcription is significantly increased in IBD patients compared to non-IBD controls, and significantly higher in patients with active disease than in patients in remission. While this fits the inflammatory state of active IBD, we found that the level of IL-1β and IL-18 production by the NLRP3 inflammasome is not significantly different between disease states. This suggests a variance in individual immune response to challenges, that could help identify a subset of IBD patients that would benefit from additional therapies directed at NLRP3 and IL-1β.

Disclosure: Nothing to disclose.

PP0515

ANTI-INFLAMMATORY EFFECTS OF *HERICIUM ERINACEUS*, BERBERINE, QUERCETIN, BIOTIN, AND NIACIN (HBQ-COMPLEX®) IN CROHN'S DISEASE AND ULCERATIVE COLITIS: AN *EX VIVO* TISSUE MODEL STUDY

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Introduction: *Hericium erinaceus* (*H. erinaceus*), berberine and quercetin showed anti-inflammatory potential in mouse models of experimental colitis. *H. erinaceus* (class *Agaricomycetes*, phylum *Basidiomycota*) is a mushroom belonging to traditional Chinese medicine that has been demonstrated in experimental colitis to be able to control pathways induced by Nuclear Factor kappa-light-chain-enhancer of activated B cells in an anti-inflammatory direction by suppressing the production of Tumor Necrosis Factor (TNF) and increasing the expression of Interleukin-10 (IL-10).

Aims & Methods: This *ex vivo* study aimed to evaluate the anti-inflammatory potential of a nutraceutical compound of *H. erinaceus*, berberine, quercetin, biotin and niacin (HBQ-Complex®) in Inflammatory bowel diseases (IBD) tissues obtained from both Normal-Appearing Mucosa (NAM) and Inflamed Mucosa (IM) tracts of patients with Crohn's Disease (CD) and patients with Ulcerative Colitis (CD). NAM tracts were identified from colic segments with Simple Endoscopic Score for CD = 0 or Mayo Endoscopic subscore = 0 (for CD and UC, respectively). NAM and one IM samples were frozen at -70° and then evaluated at T0. Two other IM samples were grown in DMEM medium in a temperature-controlled incubator and exposed to HBQ-Complex® for 120 minutes (T1) and 180 minutes (T2). RT-PCR and Western blot evaluations were performed for TNF, IL-10 and cyclooxygenase 2 (COX-2) at T0, T1, and T2. The HBQ-Complex® consisted of 525 mg of *H. erinaceus* powder (5 % polysaccharides from sporophorum) and 225 mg of *H. erinaceus* as an extract (30 % polysaccharides from sporophorum), 75 mg of quercetin titled to 98 %, 225 µg of biotin, 27 mg of niacin and, finally, 75 mg of Berberis vulgaris titled to 97 %.

Results: 20 IBD treatment-*naïve* patients (50% CD, 50% UC) were enrolled. None of them had other comorbidities or was taking drug therapies within six months of the start of the study. According to the Harvey-Bradshaw index and partial Mayo score, four patients had mild CD and six moderate CD. The same was for UC patients. At T0, both CD and UC samples showed TNF and COX-2 genic expressions higher in IM than NAM ($p < 0.0001$). In IM samples, Incubation with HBQ-Complex® resulted in a progressive decrease in gene and protein COX-2 and TNF expression at T1/T2 in CD ($p=0.002$) and UC ($p=0.003$) samples.

However, IL-10 showed an opposite trend, with a progressive genic expression increase from T0 to T1 ($p=0.054$) and T1 to T2 ($p=0.002$). The same was for UC samples ($p < 0.01$). These variations in PCR expressions of mRNAs were also recalculated from the same protein variations at Western blot analysis.

Conclusion: HBQ-Complex® might possess nutraceutical therapeutic potential in IBD. This could be explored in translational studies evaluating whether HBQ-Complex® can impact IBD's already validated clinical, endoscopic, and histological parameters.

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Disclosure: Nothing to disclose.

PP0516

THE DEPENDENCE OF THE CONCENTRATION OF TYPE 2 GLYCOPROTEIN ON THE CONCENTRATION OF ZONULIN IN CROHN'S DISEASE DURING REMISSION OF THE DISEASE

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Introduction: Type 2 Glycoprotein (GP2) is a quantitatively predominant membrane protein of excretory granules of pancreatic acinar cells. In a number of studies, it has been demonstrated that this protein is the main antigen for pancreatic antibodies associated with Crohn's disease Zonulin – a protein that can reversibly increase the permeability of the intestinal wall by changing the structure of tight junctions of the lateral surfaces of intestinal epithelial cells. The determination of fecal zonulin is used for noninvasive assessment of increased intestinal permeability. Normal values of fecal zonulin (≤ 110 ng/ml) indicate the absence of damage to the villous surface of the intestinal mucosa and normal density of intercellular contacts

Aims & Methods: The aim of the study was to establish the dependence of the level of type 2 glycoprotein on the level of fecal zonulin (FZ) in the feces of CD patients with exacerbation of the disease.

Material and methods. 217 patients with CD in remission of the disease (Me age — 38 years) were examined. FZ was evaluated by ELISA (IDK ® Zonulin ELISA Kit, Immunodiagnostik AG, Germany) in ng/ml. Reference values: < 83.15 ng/ml - a variant of the norm, 83.15-110 ng/ml - an elevated level, 110 ng/ml - a high level.

The level of IgG and IgA to GP2 (antibodies to glycoprotein) antigen of pancreatic centroacinar cells (Anti-GP2, IgG, IgA) was determined by ELISA. Reference values: IgG GP-2 less than 10 units/ml, Ig And GP-2 less than 5 units/ml – positive values.

Results: In the stool samples of CD patients during remission in 76 (35%) patients, an increase in the FZ was detected, the average value was 235.4±11.6 ng/ml. In the blood samples of 59 (27.2%) CD patients during remission, an increase in Ig A GP-2 was detected, the average value was 24.4±1.9 units/ml. In the blood samples of 137 CD patients during remission, an increase in Ig G GP-2 was detected, the average value was 19.7±1.1 units/ml. There is no correlation between the concentration of FZ and the concentration of Ig A GP-2 (r-0.260) ($p>0.05$). There is a moderate correlation force (r-0.310) ($p=0.033$) between the concentration of FZ and the concentration of Ig G GP-2.

Conclusion: There is no correlation between the concentration of FZ in the feces of CD patients during remission with the concentration of Ig A GP-2 and Ig G GP-2 in the blood serum of patients.

Disclosure: Nothing to disclose.

PP0517

THE ROLE AND MECHANISM OF A20 IN INTESTINAL INFLAMMATION BY REGULATING MITOCHONDRIAL DAMAGE/MITOPHAGY

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Introduction: A20 is a protein encoded by tumor necrosis factor alpha-inducible protein 3 (TNFAIP3) that acts as an important negative regulator of inflammation through its cooperative activity as a de-ubiquitinating enzyme and a ubiquitin ligase. Intestinal inflammation is associated with the dysregulation of mitophagy, in which ubiquitination and deubiquitination systems play a key role. However, whether A20 participates in intestinal inflammation by regulating mitophagy remains unclear. This study aimed to investigate whether the A20 protein is involved in mitophagy in intestinal inflammation with its function as a ubiquitin-editing enzyme.

Aims & Methods: WT and *Tnfaip3*$^{+/-}$ mice were fed with 3% Dextran Sulphate Sodium (DSS) for 7 days continuously to induce colitis models. Colon length, DAI, colon histological score, and expression levels of pro-inflammatory cytokines were evaluated among groups. Oxidative stress indicators, the structure of mitochondria, the number of mitochondria and autophagosomes, and mitophagy-associated proteins in the colon were detected by transmission electron microscope and western blot, etc. Co-immunoprecipitation and immunofluorescence were performed to detect the regulatory relationship between A20 and PINK1 and TOM20 in HT-29 cells.

Results: A20 knockdown led to severe colonic inflammation and greater oxidative stress in colon tissue, and this difference was more pronounced in DSS-induced colitis. Mitochondrial damage in the *Tnfaip3*$^{+/-}$ group was more severe with or without DSS treatment, which was specifically manifested as disordered mitochondrial structure, decreased mitochondrial number, increased mitochondrial membrane potential, and decreased mitochondrial ATP content. In addition, more mitophagy was observed in the *Tnfaip3*$^{+/-}$ group, and even more so after DSS treatment. A higher number of lysosomes and autophagosomes, and higher expression levels of PINK1, P62, and LC3BII/I ratio were shown in both mitochondria and cytoplasm. Furthermore, the interaction between PINK1 and A20 is enhanced during mitophagy. Knocking down the expression of PINK1 or A20 both affected the normal mitophagy process. The expression of A20 and phosphorylated A20 protein in mitochondrial components increased and the binding of A20 with mitochondrial outer membrane protein TOM20 was enhanced during mitophagy, these phenomena were attenuated after PINK1 siRNA transfection.

Conclusion: A20 was involved in the regulation of mitophagy by PINK1 phosphorylation and binding to mitochondrial outer membrane protein TOM20 to reduce intestinal inflammation.

Disclosure: Nothing to disclose.

PP0518

PROTEOMIC CHARACTERIZATION OF SERUM EXTRACELLULAR VESICLES FROM NEWLY DIAGNOSED PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: The etiology and pathogenesis of inflammatory bowel disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC) are complex and the mechanisms that lead to the development of these diseases remain unclear.

Extracellular vesicles (EVs) are small particles covered with a cell membrane, originating from the emitting cell, excreted into the extracellular medium, and subsequently captured by receptor cells. EVs have a role in multiple diseases and they could also have a function in IBD pathogenesis. Therefore, the analysis of EVs isolated from the serum of newly diagnosed IBD patients (before starting any treatment) may represent an appropriate experimental approach to elucidate their role in IBD pathogenesis.

Aims & Methods: We aimed to evaluate EVs' composition and potential effects in the pathogenesis of IBD. To assay this, EVs were isolated by size exclusion chromatography from the 500 µl of serum from 100 patients with IBD (50 patients with CD and 50 patients with UC) recently diagnosed and 50 healthy controls (HC). Then, the protein loaded in the EVs was characterized by proteomics and their size and concentration in serum by

Nanoparticle tracking analysis (NTA). The biological function of EVs and alterations in signaling pathways related to IBD were determined using Ingenuity Pathways Analysis (IPA) to analyze the OMICs results.

Results: A total of 1,100 proteins have been identified, of which 105 proteins were differentially expressed by patients with CD versus HC, 111 proteins by patients with UC versus HC, and 32 proteins by patients with UC versus CD. IPA analysis revealed that proteins carried in EVs are involved in the dysregulation of immune pathways such as the acute phase response, LXR/RXR activation pathway, and the complement pathway. These pathways were regulated differentially in IBD patients compared with HC, but also when the CU group was compared with the CD group being upregulated nuclear receptors signaling and cytotoxicity pathways.

Conclusion: EVs carry proteins that can be involved in the dysregulation of the immune system in IBD; this effect would be different in UC and CD since their EVs show a differential profile. Consequently, EVs may play role in IBD pathogenesis and source of strong biomarkers candidates for diagnosis in UC and CD. Further studies on their specific function during IBD are warranted.

Disclosure: Nothing to disclose.

PP0519

REMOVAL OF DIETARY FIBER INCREASES THE SEVERITY AND DELAYS THE RECOVERY OF DSS-INDUCED COLITIS IN MICE, INDEPENDENT OF SHORT-CHAIN FATTY ACID RECEPTOR SIGNALING

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Introduction: Dietary fiber influences the intestinal mucosa and improves intestinal function. The beneficial role of fiber is thought to be mediated by short chain fatty acids (SCFAs) - the main fermentation products of dietary fiber. Glucagon-like peptide-1 (GLP-1) is known to protect against intestinal injury and mice fed a fiber-free (FF) diet have shown loss of intestinal mass and decreased tissue levels of GLP-1. Here, we aimed to 1) investigate how a FF diet might affect the colonic luminal content of SCFAs 2) investigate ability of SCFAs to drive colonic GLP-1 secretion and 3) assess the impact of a low fiber diet on the colonic vulnerability to intestinal injury. We also aimed to investigate the involvement of the free fatty acid receptors 2 (FFAR2) and 3 (FFAR3) and the GLP-1 receptor (GLP-1R) in a model of intestinal injury.

Aims & Methods: Female C57BL/6JRj mice were fed a FF diet (Altromin 1013), or standard chow diet (Altromin C1310) for 21 days and the SCFA concentrations in colonic contents were analyzed by liquid chromatography–mass spectrometry. A SCFA mix (100 mM) was applied luminally in our isolated perfused colon model and GLP-1 levels were measured in the venous effluent. Female C57BL/6JRj mice fed a FF diet or chow were exposed to 3% dextran sulfate sodium (DSS) in drinking water for up to 7 days to induce colitis. Mice were killed at day 13. This was repeated in FFAR2/3 knock out (KO) mice and in GLP-1R KO mice. Wild type (WT) littermates were used as controls. End points were body weight (BW) loss, disease activity index (DAI), colon weight, colon length and histological severity score.

Results: 21 days of FF feeding decreased the concentrations of SCFA in colon content significantly. Overall, the total measured SCFAs were decreased by more than 50% in the FF fed group ($p<0.05$) with specific decreases in acetate ($p<0.05$), propionate ($p<0.05$), and butyrate ($p<0.001$). SCFAs delivered to the isolated perfused colon increased GLP-1 secretion by 40% ($p<0.01$). In the DSS model, the removal of dietary fiber increased the severity of colitis and delayed the recovery. At day 4 FF fed mice had bloody diarrhea and DSS treatment was discontinued. From day 4 to the end of the experiment, FF fed mice had a significantly larger BW loss than chow fed mice (day 7: 25% vs 10%, $p<0.001$). At day 13 all chow fed mice had recovered their BW, but FF fed still showed a significant BW loss of 15% of baseline BW. DAI was significantly increased in the FF fed mice. Only 50% of the FF fed mice survived to day 13 whereas all mice fed chow survived. At day 13 colonic weight was increased ($p<0.001$), colonic length decreased ($p<0.05$) and histological severity score increased ($p<0.001$) in the FF fed mice. GLP-1 KO mice exposed to DSS had a significant larger BW loss from day 10 to day 13 day compared to WT ($p<0.05$). WT mice recovered their BW to normal at the end of experiment, whereas GLP-1R KO mice had a weight loss of 8% of baseline BW. No other parameters in the GLP-1R KO mice differed from WT mice. Colitis severity was independent of FFAR2 and FFAR3 signaling, FFAR2/3 KO mice were comparable to WT littermates in all parameters.

Conclusion: A low intake of dietary fiber reduced the colonic SCFA and reduced the resilience to colitis. Luminal SCFA were able to increase GLP-1 secretion in the isolated perfused colon and GLP-1 receptor signaling showed importance in the maintenance of BW in the diseased mouse. However, the pathway from a low fiber diet to severe colitis seemed to be independent of FFAR2/3 signaling.

References:

A low intake of dietary fiber reduced the colonic SCFA and reduced the resilience to colitis. Luminal SCFA were able to increase GLP-1 secretion in the isolated perfused colon and GLP-1 receptor signaling showed importance in the maintenance of BW in the diseased mouse. However, the pathway from a low fiber diet to severe colitis seemed to be independent of FFAR2/3 signaling.

Disclosure: MY is affiliated with AbbVie A/S, however this work was performed prior to his employment and is not related to AbbVie A/S. MY is still affiliated with UCPH

PP0520

PHOSPHOGLYCERATE DEHYDROGENASE PLAYS A VITAL ROLE IN ER-STRESS-RELATED INTESTINAL INFLAMMATION

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Introduction: Micronutrient deficiency of amino acids display a hitherto underappreciated role in the pathophysiology of IBD. Serine is a nonessential amino acid and directly involved in the cellular redox balance. In the absence of sufficient external supply, serine can be synthesized via glycolysis through the rate-limiting enzyme phosphoglycerate dehydroge-

nase (PHGDH). Serine metabolism is upregulated in cancer and immune cells, maintaining survival and growth. However, its role in coordinating cellular function in the context of IBD is not known.

Aims & Methods: We hypothesized that serine metabolism provides a novel and underappreciated metabolic switch to maintain immunological homeostasis in the intestinal epithelium of IBD patients.We assessed the gene expression of the rate-limiting enzymes of de novo serine synthesis *PHGDH* in two cross-sectional IBD cohorts (1. N=67, 2. N=212 patients) and linked *PHGDH* expression with endoscopic or clinical disease activity. We used murine small intestinal epithelial cells (Mode-K cells) and murine small intestinal and colon organoids to understand the molecular regulator of de novo serine synthesis via PHGDH.

To assess the potential role of PHGDH in coordinating innate immune response, Mode-K cells were treated with LPS or tunicamycin in the presence or absence of the Phgdh inhibitor BI-4916. The impact of proinflammatory cytokines *Cxcl1* and *Il6* was assessed through qPCR and ELISA. Upstream activation of the NFκB signaling pathway was assessed by WB. Seahorse assay was conducted to evaluate the impact of Phgdh on mitochondrial function.

Results: Compared with healthy control, serine metabolic enzyme *PHGDH* was significantly increased in both UC and CD patients. *PHGDH* expression correlated with the degree of inflammation in tissue biopsies of IBD patients correlated with ER stress marker (*HSP90B1*). Chemical induction of ER stress strongly increased the expression of *Phgdh, Psat1,* and *Psph* in Mode-K cells and intestinal organoids. To assess the regulatory role of serine metabolism on innate immune function, Mode-K cells were treated in serine/glycine-deprived medium. PHGDH function was inhibited using the specific inhibitor BI-4916. Treatment with tunicamycin or LPS resulted in strong induction of the proinflammatory cytokines *Cxcl1* and *Il6.* Parallel Seahorse assay displayed significantly disrupted mitochondrial function (basal-, ATP linked- and maximum respiration). As serine feeds into the 1C-metabolism to provide mitochondrial-derived formate, we co-treated cells with glycine and formate to overcome the functional consequences of deprived de novo serine synthesis. We show that co-treatment of glycine and formate rescued mitochondrial dysfunction and inhibited *Cxcl1* overactivation in intestinal epithelial cells.

Conclusion: Our data provide a novel link on how disrupted serine metabolism directly fuels epithelial-derived proinflammatory mechanisms via disruption of mitochondrial function. Our data suggest a so far underappreciated role of cellular serine metabolism on IBD pathophysiology.

Disclosure: Nothing to disclose.

PP0521

LATE PREGNANCY INDUCES GUT MICROBIOME CHANGES IN MICE WITH EPITHELIAL KNOCKOUT OF THE CROHN'S DISEASE RISK GENE *ATG16L1*

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Introduction: Women with IBD have an increased risk of preterm and cesarian delivery and low birth weight infants. Although IBD pathogenesis has been associated with different factors including genetics and dysbiosis in gut microbiome, very little is known about the relationship between IBD, microbiota, and pregnancy. Mutations in the *ATG16L1* gene have been associated with Crohn's disease susceptibility, impaired autophagy, and Paneth cell defect. Here, we explored the gut microbiome composition and functional potential of *Atg16l1* knockout (KO, *Atg16l1*$^{\Delta IEC}$) restricted to intestinal epithelial cells (IEC) and their floxed littermates (WT, *Atg16l1*$^{fl/fl}$) mice during pregnancy.

Aims & Methods: Fecal samples of pregnant mice were collected during trimester three (just before delivery) and after weaning and the isolated DNAs were subjected to 16S rRNA amplicon sequencing and shotgun metagenomics sequencing. 16S data were pre-processed, quality filtered, trimmed, and denoised on established pipelines inside QIIME2. Shotgun reads were processed using an in-house established workflow from our institute that relies on BBtools and bowtie2 for mapping and host decontamination, and bioBakery tools for taxonomic and functional assignments. Taxonomic profiles were assigned by classifying all ASVs on the SILVA 138 rRNA reference database and clade-specific marker genes from MetaPhlAn4. Functional potential profiling (stratified pathways, gene families, and enzyme categories) in the metagenomics samples were captured using HUMAnN 3.6. Longitudinal and pair-wise differences were evaluated using the R package MaAslin2.

Results: Pregnancy resulted in a temporal shift in microbial composition between WT and KO pregnant mice at trimester 3 with partial recovery of microbial composition after the weaning period (b-diversity). Likewise, we observed longitudinal alterations in relative abundances of some IBD-specific microbiota biomarkers genera such as *Lachnospiraceae*, *Roseburia*, *Ruminococcus*, *Colidextribacter* and *Turicibacter*. In addition, we found that the gut microbiota of *Atg16l1*$^{\Delta IEC}$ mice has increased potential to synthesize fatty acids, glutamine, and branched-chain amino acids.

Conclusion: Late stages of pregnancy induce changes in gut microbiota composition and metabolic potential in mice lacking *Atg16l1* specifically in the intestinal epithelium (*Atg16l1*$^{\Delta IEC}$) compared to WT (*Atg16l1*$^{fl/fl}$) mice. Understanding these pregnancy-dependent microbiome changes may constitute the first steps in the identification of bacteria-specific biomarkers that could help maintaining a healthy and successful pregnancy in IBD patients.

Disclosure: Nothing to disclose.

PP0522

EFFECTS OF ANTI-TNF AND ANTI-INTERLEUKINS 12 AND 23 DRUGS ON CIRCULATING DENDRITIC CELLS MIGRATORY CAPACITY IN INFLAMMATORY BOWEL DISEASE

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Introduction: Inflammatory bowel disease (IBD) is an idiopathic and chronic disorder that includes ulcerative colitis (UC) and Crohn's disease (CD). Both diseases are different but show an uncontrolled intestinal immune response that generates tissue inflammation. Dendritic cells (DC) are phagocytic professional antigen presenting cells that link the innate and adaptive immune systems. Indeed, they are the only cell type able to stimulate naïve T cells generating an antigen-specific immune response. In humans, DC can be divided into plasmacytoid (pDC) and c conventional type 1 and 2 (cDC1, cDC2). Although cDC migration towards the GI mucosa is enhanced in IBD, the mechanisms underlying these migrations and whether biological drugs can modulate them are currently unknown.

Aims & Methods: This study aimed to analyze DC migratory capacity towards the GI mucosa, and whether biological drugs with different mechanisms of action can modulate this process in health and IBD.This is a

cross-sectional observational postmarketing study where the modulatory effect of different biological treatments on samples from patients with an endoscopic diagnosis of IBD and healthy controls was studied *ex vivo*. Peripheral blood mononuclear cells (PBMC) were obtained from 15 patients per group and were cultured in presence of golimumab or ustekinumab. Following culture, surface markers expression was determined, assessing the differential effect of biological drugs (if any) over the DC subsets in the different groups. After that, the migratory capacity of circulating DC towards CCL2, CCL25, and MadCam1 from the different study groups was determined. Finally, we evaluated the DC migratory capacities in presence of biological drugs or with culture media alone.

Results: The cDC2 subset showed higher expression levels of β7 and CCR5 compared to cDC1. Golimumab and ustekinumab did not modify the expression of the homing markers in any studied subset in pDC and cDC2.On the contrary, in cDC1 both golimumab and ustekinumab increased CCR6 expression in qCD patients and CCR9 in aUC patients. Regarding to the migratory capacities of the different DC subsets toward intestinal chemoattractants ustekinumab decreased the migratory capacity of cDC2 from CD patients towards a medium supplemented with MadCam1 and increases toward CCL2 in case of cDC1 from CU. In the case of migratory capacities of cDC2 from HC were increased by ustekinumab and golimumab toward CCL2 and CCL25 just in case of golimumab.

Conclusion: cDC2 showed more migratory profile markers than other DC populations. Golimumab and ustekinumab modify the expression of the homing markers just in cDC1 subset. Nevertheless, ustekinumab and golimumab modify the migratory capacities of cDC in IBD patients and HC, but do not exert any effect on pDC. These effects occur in a different manner in CD and UC indicates that the behavior of cDC is different in CD and UC, and that the migration capacity of this subset is not dependent exclusively on homing markers.

Disclosure: Nothing to disclose

PP0523

IMMUNOLOGICAL EFFECTS OF HEPATITIS B VIRUS VACCINATION IN INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction: The response rate to hepatitis B virus (HBV) vaccination in the general population is about 90%. However, the response rate to the vaccine in patients with inflammatory bowel disease (IBD) is significantly lower. IBD is a multifactorial disease so, it is important to study which cell subsets are involved in the failure of the HBV vaccine.

Aims & Methods: Our main objective was to study the differences between the peripheral immune system of responders and not responders to the vaccine. It is an observational clinical practice study on the factors associated with the immunogenicity of the HBV vaccine in patients with IBD. Per clinical practice, 19 IBD patients vaccinated for the first time against HBV were included. Patients were divided according to their vaccination response after three doses of the vaccine at 0, 1, and 6 months as responders (≥ 100 anti-HBV) and non-responders (< 100 anti-HBV). Blood was collected before and after vaccination to characterize the different immune subsets by flow cytometry. Data were analyzed manually and by high dimensional data analysis (UMAP and FlowSOM).

Results: Non-responders displayed a lower percentage of naïve T cells compared with those who responded while responders had a lower percentage of Th2 and CD4 central memory subsets before vaccination. According to the high dimensional data analysis, 22 different T-cell metaclusters were identified. Indeed, the percentage of type 2 conventional dendritic cells was increased following vaccination in both responders and non-responders, allowing us to identify 11 submetacluster.

Finally, The percentage of IgG class switch and IgG plasmablasts were increased following vaccination in the responders group, while the percentage of IgM plasmablast was increased in non-responders. Using the high dimensional data analysis 26 different subpopulations, were identified.

Conclusion: The proportion of circulating T cell subsets can be used as predictor markers of the response to the HBV vaccine in IBD patients: while non-responders showed a lower percentage of naïve T cells, responders presented a lower percentage of Th2 T cells compared with their counterparts. The analysis of the data reveals that high-resolution and high-dimensional data, show several clusters containing events that evade the canonical definition.

Disclosure: Nothing to disclose.

PP0524

EXAMINING MENTAL HEALTH DISEASE BURDEN AMONG CROHN'S DISEASE (CD) PATIENTS IN EUROPE

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Introduction: Mental health is an overlooked aspect of inflammatory bowel disease (IBD) patient care and the most common psychological conditions in patients with IBD are anxiety and depression[1]. The objective of this study was to examine the possible factors that will impact mental health burden of CD patients in Europe.

Aims & Methods: A multi-centre online medical chart review study of patients with CD was conducted between Jul – Sep 2022 among UK, FR, DE, IT & ES gastroenterologists practicing across hospital and private practices. Physicians were screened for practice duration and patient volume. Charts of patients prescribed with advanced therapy were included in the analysis.

Results: 206 sampled physicians collectively reported 1178 CD patients. From the reported CD patients, 190 suffered mental health burden (depression or anxiety) and 988 CD patients did not suffered any mental health burden. Among CD patients suffered mental health burden, a higher proportion of CD patients are female vs those who did not suffered any (55% vs 46%). 'Family history of IBD' was the co-morbidity more likely to experience in reported CD patients suffered mental health burden vs those who did not (11% vs 7%).

When looking at employment status between these two patient groups, reported CD patients suffer mental health burden was less likely to be in full-time employment vs those not suffered mental health burden. A higher proportion of reported CD patients suffered mental health burden were in part-time employment or housewife/househusband.

CD patients	Suffered mental health burden	NOT suffered mental health burden
% full-time employment	47%	62%
% part-time employment	22%	14%
% housewife/ husband	8%	4%

Table 1: Employment status in reported CD patients (% patients)

CD patients with mental health burden had greater CRP level than patients without mental health burden (CRP mean: 16 vs 12). This aligns with reported CD patients with mental health burden had frequent surgery times vs without mental health burden (Mean surgery times: 2 vs 1) and had greater steroid usage (% reported patients currently on steroids – 18% vs 13%).

Conclusion: Comparisons in this study cohort highlight there are other factors could impact CD patients' mental health burden other than IBD itself. This coincided with low full-time employment rate that attributed to financial stress may increase CD patients' mental health burden. Also, higher rate of surgery and steroid usage in CD patients experienced mental health burden might suggest they had more severe or complications with their disease that will impact overall mental health. Further investigation using comparator cohort is warranted.

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Disclosure: Nothing to disclose.

PP0525

EX VIVO EFFECTS OF INFLIXIMAB ON THE LONG NON-CODING RNAS EXPRESSION LEVELS IN CROHN´S DISEASE

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Introduction: In recent years, evidence shows that long non-coding RNAs (lncRNAs) are key regulators of gene transcription and play important roles in the pathogenesis of inflammatory bowel diseases. LncRNAs are involved in the regulation of intestinal epithelial cell apoptosis, cell-cell interactions, and enhancing inflammation, among others. Biological therapies, which are considered the most potent for disease control, only benefit one-third of patients. For this reason, a deeper understanding of the mechanisms by which biological drugs elicit their effect on intestinal mucosal is needed. Hence, we aimed to unravel the *ex vivo* modulator effect of infliximab on the lncRNAs expression in intestinal biopsies from patients with Crohn's Disease (CD).

Aims & Methods: We performed an unbiased transcriptomic analysis of intestinal biopsies from the ileum and colon from 30 patients [active CD = 10, quiescent CD = 10, healthy controls (HC) = 10] to identify lncRNA differentially expressed in the setting of infliximab modulation. Endoscopic biopsies were cultured with or without infliximab and the transcriptome was determined by Illumina gene expression array. We used different databases (Ensembl Biomart, RNAcentral and ToppGene) to search for non-annotated lncRNA information and data on the location (cellular component), biological process and molecular function of differentially expressed lncRNAs.

Results: Transcriptomic results revealed a widespread dysregulation of lncRNAs in ileum biopsies from patients with active CD, quiescent CD and HC compared to the colon at baseline and after infliximab culture. These differentially expressed lncRNAs were enriched in such pathways as proliferation, apoptosis, migration, inflammatory response of fibroblasts, response to wounding, posttranscriptional regulation of inflammatory genes and activation of the mitogen-activated protein kinase signaling pathways. Regarding the effect of infliximab according to intestinal location, presence of disease and activity, no significant lncRNAs were identified in the different study comparatives.

Conclusion: We have characterized the basal transcriptomic landscape of lncRNAs in patients with CD (active and quiescent) and HC both in ileum and left colon. However, we have not found differential lncRNA expression due to the effect of infliximab, suggesting that the location (ileum or colon) is more relevant when analyzing differences in lncRNA expression in the intestinal tissue.

Disclosure: Nothing to disclose.

PP0526

RELATION BETWEEN SERUM INTERLEUKIN 33 CONCENTRATION, DEPRESSIVE SYMPTOMS AND SLEEP QUALITY IN INFLAMMATORY BOWEL DISEASE

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Introduction: Interleukin 33 (IL-33) is a pro-inflammatory cytokine that has been implicated in the pathophysiology of inflammatory bowel disease (IBD), ulcerative colitis (UC) in particular. IL-33 as a cytokine and an alarmin might evoke systemic inflammation, which could have ramifications for the functioning of the central nervous system, contributing to mood and sleep disorders. Disruptions in IL-33 concentration are well known to occur in the course of numerous psychiatric disorders as well as obstructive sleep apnea, a condition characterized by chronic low-grade inflammation and sleep fragmentation. To date, however, this protein has not been studied in relation to insomnia or poor sleep quality, frequently comorbid to chronic inflammatory and psychiatric diseases.

Aims & Methods: The study aimed to compare serum IL-33 concentrations of IBD patients and healthy controls as well as evaluate the association between the expression level of this interleukin, depression, sleep quality, and insomnia. IBD patients (n=81) and healthy controls (HC=44) were recruited. Harvey-Bradshaw index or partial Mayo were applied in the as-

sessment of clinical disease activity for Crohn's disease (CD) or UC respectively. Venous blood samples as well as questionnaires: Beck Depression Inventory (BDI), Epworth sleepiness scale (ESS), Athens Insomnia Scale (AIS), and Pittsburgh Sleep Quality Index (PSQI) were collected. Human IL-33 High Sensitivity Magnetic Luminex Performance Assay was used for the analysis of serum IL-33 protein concentration according to the manufacturer's protocol. Fluorescence measurements were taken with MAGPIX, Luminex. The study has been funded by National Science Centre, Poland (2018/31/N/NZ5/03715).

Results: No differences were noted regarding IL-33 concentrations, sleep, or psychological variables between IBD patients and HC, except for sleep efficiency, which was higher in HC (p=0.004). Only in the IBD group, a positive correlation between IL-33 concentration and BDI, PSQI, and AIS (R=0.521, p=0.003; R=0.458, p=0.01; R=0.40, p=0.03), as well as negative one with sleep efficiency (R=-0.475, p=0.008) was noted. IBD individuals with high scores on ESS or PSQI (ESS>10, PSQI>5) had elevated IL-33 serum level compared to IBD patients without sleep problems (IL-33 concentration [pg/ml]: 53.385 (30.070-313.020) vs 18.795 (11.790-26.175), P=0.01 for PSQI; 270.900 (156.225-438.680) vs 21.840 (11.870-47.720), P=0.006 for ESS). IL-33 concentrations and questionnaire scores were comparable in patients with different disease activity. As for IBD types, in the CD, but not the UC group, IL-33 was positively correlated with the severity of depression symptoms and poor sleep quality (R=0.581, p=0.02; R=0.531, p=0.03) and negatively with sleep efficiency (R=-0.667, p=0.005).

Conclusion: IL-33 might be associated with mood and sleep disorders in IBD. It could exert its effect by promoting systemic and neuroinflammation, thus negatively affecting the well-being of IBD patients. Further research on the subject of changes in mental health of IBD patients in the context of anti-inflammatory or immunosuppressive treatment would be valuable.

Disclosure: Nothing to disclose.

PP0527

ANALYSIS OF INTESTINAL TISSUE FROM NEWLY DIAGNOSED PATIENTS WITH INFLAMMATORY BOWEL DISEASE REVEALS DISTINCT PROTEOMIC PROFILES

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Introduction: Inflammatory bowel disease (IBD) is a complex multi-factorial disease characterized by chronic inflammation of the gastrointestinal tract. Despite significant efforts to understand the pathogenetic *mechanisms* of *IBD,* the elucidation of its etiopathology and progression is far from fully understood. The direct analysis of the intestinal tissue from the endoscopy which lead to IBD diagnosis (before starting any treatment) would the ideal samples to elucidate IBD pathogenesis.

Aims & Methods: High-throughput mass-spectrometry-based quantitative proteomic analysis was performed using formalin-fixed paraffin-embedded human intestinal samples from newly diagnosed patients to elucidate the potential mechanisms responsible for gut inflammation in Crohn's disease (CD) and ulcerative colitis (UC). For this purpose, 193 formalin-fixed paraffin-embedded samples from 40 active UC patients, 67 active CD patients and 46 normal biopsies from healthy controls (HC) were analyzed. Proteins with p-value < 0.05 were considered as significantly dysregulated. Moreover, we used Ingenuity Pathway Analysis (IPA) to analyze the pathways and functions in different locations of the gut (ileum or left colon) that could be related to IBD pathogenesis.

Results: A total of 2,903 proteins were identified, of which 1,010 were differentially expressed between left colon from CD patients and HC. 1,242 proteins were differentially expressed between left colon from UC patients and HC, and 952 differential proteins discriminated between left colon from CD and UC patients. In the comparative study of ileum biopsies from Crohn's disease patients and healthy controls, 956 proteins were differentially expressed. IPA revealed multiple canonical pathways, including

EIF2 signaling, regulation of eIF4 and P7056K signaling, mitochondrial dysfunction, and oxidative phosphorylation altered in ileum biopsies from CD patients compared to HC. Regarding the proteomic study in left colon samples, the main canonical pathways enrichment in the comparison of UC and CD with HC were the following: neutrophil extracellular trap signaling pathways, fatty acid oxidation, sitruin signaling pathway, tRNA charging, and mitochondrial dysfunction.

Conclusion: The proteomic results revealed dysregulated proteins and pathways in ileum and left colon biopsies from patients with active CD and UC compared to HC that may unravel key mechanisms contributing to the pathogenesis of these diseases. The results of the study serve as a starting point for hypotheses to understand the pathogenesis and search for therapeutic targets.

Disclosure: Nothing to disclose.

PP0528

IDENTIFICATION OF URINE AND SERUM DIAGNOSTIC BIOMARKERS OF INFLAMMATORY BOWEL DISEASE USING A PROTEOMIC APPROACH

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Introduction: Inflammatory bowel diseases (IBD) are chronic, heterogeneous, and inflammatory conditions mainly affecting the gastrointestinal tract. Currently, endoscopy is the gold standard test for assessing mucosal activity and healing in clinical practice; however, it is a costly, time-consuming, invasive, and uncomfortable procedure for patients. There is, therefore, a need for sensitive, specific, fast and non-invasive biomarkers for the diagnosis of IBD.

Aims & Methods: Label-free quantification by nanoscale liquid chromatography coupled to tandem mass spectrometry (nLC MS/MS) was performed to profile the urinary and serum proteomes of 100 patients with newly diagnosed IBD, before starting any treatment [50 patients with Crohn´s disease (CD) and 50 patients with ulcerative colitis (UC)] and 50 healthy controls (HC). Data Mining and Pattern Recognition techniques were used to identify hidden relationships that are not detectable by using the classical and most commonly used lineal classifiers; thus, identifying potential markers able to discriminate the studied cohorts. Finally, we applied Ingenuity Pathway Analysis (IPA) to analyze the pathways and functions of differentially expressed proteins.

Results: Serum proteomics results revealed 45 differentially expressed proteins in the comparison between UC and HC groups, 32 proteins significantly expressed in CD versus HC, and 12 proteins in CD compared with UC. In urine samples, 110 proteins were significantly changed in UC versus HC, 50 proteins were differentially expressed between CD and HC, and a total of 31 proteins were significantly changed in CD compared with UC patients. Receiver operating characteristic curve (ROC) analysis found multiple proteins with a high area under the curve values, up to 0.94, indicating that these serum and urine proteins are of value as new non-invasive diagnostic classifiers of IBD patients. For each study comparative, the 5 most significant classifiers were selected. IPA revealed multiple signaling pathways, including prothrombin activation, acute phase response signaling, complement and coagulation system and liver X receptor/retinoid X receptor (LXR/RXR) activation, altered in IBD patients compared to HC (p-value < 0.05).

Conclusion: Our findings indicate that analysis of the urine and serum proteome using nLC MS/MS is a feasible approach for biomarker discovery. We identified several serum and urine proteins that could serve as new non-invasive markers for the diagnosis of IBD patients after further validation. After bioinformatic analyses, we found multiple proteins that may play important roles in the pathogenesis of IBD.

Disclosure: Nothing to disclose.

PP0529

THE ADMINISTRATION OF MM-MIR-378A-3P EXACERBATES CHRONIC INFLAMMATION AND FIBROSIS IN A MURINE INTESTINAL MODEL

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Introduction: Fibrosis constitute an important complication of CD. MicroRNAs (miRNAs), which are small RNA molecules that regulate gene expression, have been shown to participate in the molecular interactions of both inflammation and fibrosis. Lower levels of miR-378a-3p have been reported associated to murine liver fibrosis [1] and we analyze here the relevance of miR-378a-3p on intestinal fibrosis.

Aims & Methods: B57BL/6 mice were intravenously injected with 2,5mg/kg of negative control (NC) or mm-miR-378a-3p mimic, twice a week and received vehicle or Dextran Sulfate Sodium (DSS) for 2 cycles (7 days drinking DSS 2% in water solution followed by 10 days drinking water). Body weight and DAI score was obtained every day and the colon was collected after sacrifice. Sirius and hematoxylin-eosin dyes were employed to determine the fibrosis and structural state in 5µm slides of intestinal tissue. Gene expression and miRNA profiles were analyzed by RT-qPCR. Human small intestinal fibroblasts (HSIF; P10760, Innoprot, Spain) were transfected with 20nM of NC or hsa-miR-378a-3p mimic during 24h.

Results: No significant changes in body weight, DAI score, and colon length were detected between mice receiving NC and those receiving mimic, all along the two DSS cycles. Colon of mice treated with DSS, exhib-

ited a significant diminution in the mRNA expression of mm-miR-378a-3p compared with naïve samples. In DSS-treated mice, the iv administration of the mimic compared with the NC:
a. significantly increased levels of miR-378a-3p in the colon;
b. increased the number of neutrophils, and heightened changes in the glandular epithelia and architectural distortion
c. decreased the number of lymphoid follicles;
d. slightly increased collagen deposition, as analyzed by sirius red and;
e. significantly increased the mRNA expression of Tgfb1, Il1b, and Mmp2.
Treatment of human intestinal fibroblasts with hsa-miR-378a-3p mimic did not significant modify the mRNA expression of markers of fibrosis but it significantly increased the mRNA expression of two antiapoptotic molecules *BCL2* and *MCL1*.
Conclusion: Levels of mm-miR-378a-3p are diminished in a murine model of intestinal fibrosis; The exogenous administration of miR-378a-3p, increased the acute inflammatory response and the expression of fibrosis markers in murine fibrotic colon and the expression of antiapoptotic molecules in human intestinal fibroblasts.
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Disclosure: Nothing to disclose.

PP0530

PREDICTIVE FACTORS FOR RECOURSE TO SURGERY IN CROHN'S DISEASE

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Introduction: Crohn's disease (CD) is associated with a high risk of complications, stenosis and fistula frequently requiring surgery.
The aim of our work is to study the epidemiological profile of patients operated on for CD, to compare operated and non-operated patient and to determine the predictive factors for recourse to surgery.
Aims & Methods: This is a retrospective descriptive, comparative and analytical monocentric study over 40 years from January 1983 to april 2023 in a gastroenterology department including all patients followed for CD and operated on. Data was collected from patient registers.
We compared the operated and non-operated group, then we studied the factors associated with surgery in univariate and then multivariate analysis.
Results: Of 1103 patients followed for CD, 31.82%(351) were operated, including 86%(302) operated once, 12%(43) operated twice and 1.4%(5) operated 3 times. The median age of diagnosis was 31[22.5-40]years and the sex-ratio F/M=1.1.
A history of appendectomy was found in 17.2%(60) of patients. Smoking is found in 26.9%(94) of patients.
Patients operated on have an ileocolic location in 68.5%(237), colonic in 14.7%(52), ileal in 12.7%(44) of cases, and upper location in 3.8%(13).
The stenosing phenotype is observed in 38.4%(131) of patients, fistulizing in 35.2%(120) and inflammatory in 26.4%(90). Anoperineal manifestations were associated in 38.8%(122).
Recourse to corticosteroid is observed in 44.2%(155) of operated patients, 40.5%(142) who received immunosuppressive treatment and 26.6%(93) who had benefited from biotherapy.
19.9% (70%) were operated on following a complication of their disease, including 11.4%(8) of those operated on for severe acute colitis, 51.4%(36) for an occlusion, 22.8%(16) for an intestinal perforation, 17.1% (12) for a deep abscess and 4.2% (3) following degeneration.
By comparing the group of operated and non-operated patients, the diagnosis age <40 years was found at a higher rate in the operated p <0.001. In these patients, there is a higher frequency of ileocolic localization, fistulizing and stenosing forms and associated MAP (p<0.001/0.009). We noted a higher rate of patients who were under immunosuppressant p<0.001 and under biotherapy p=0.03 in operated patients.
In multivariate analysis, a history of appendectomy is associated with a high risk of surgery (OR=1.8, 95%CI:0.06-1.2, p=0.02) as well as the fistulizing phenotype (OR=6.5, 95%CI:1.4-2.3 , P<0.001) and the stenosing phenotype (OR=5.3, 95% CI:1.2-2, P<0.001). The occurrence of a complication (OR=9, IC95%=1.5-2.8, p<0.001) as well as the use of immunosuppressants (OR=1.6, IC95%: 0.1-0.8, p=0.001) are associated with a risk surgery high.
The use of corticosteroid therapy is associated with a lower risk of surgery (OR=0.6, 95%CI: -0.8;-0.1, p=0.006).
Other factors such as sex, smoking, location, anoperineal manifestations and biotherapy are not factors associated with surgery.
Conclusion: Despite the revolution in medical treatment, surgery remains a fundamental treatment in the management of CD. In our series, the history of appendectomy, the fistulizing and stenosing character of the disease, the treatment with immunosuppressant and the occurrence of complications are associated with an increased risk of recourse to surgery.
Corticosteroid therapy is associated with a low risk of surgery.
Sex, smoking, location and anoperineal manifestations are not associated with the risk of surgery.
Disclosure: Nothing to disclose.

PP0531

ENTERIC GLIAL CELLS IN COORDINATED REGULATION OF DUAL INTESTINAL BARRIER FUNCTION DURING ULCERATIVE COLITIS DEVELOPMENT

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Introduction: Rarely is it mentioned how the synergistic disruption of the gut vascular barrier (GVB) and intestinal epithelial barrier (IEB) contributes to the pathophysiology of ulcerative colitis (UC). Enteric glial cells (EGCs) play a vital role in intestinal homeostasis maintenance, but their possible interactions with dual intestinal barrier function are unknown.
Aims & Methods: We aimed to investigate the role of EGCs in regulating dual intestinal barrier function in the pathogenesis of UC and the underlying mechanisms. This study was performed on the mouse models of DSS-induced colitis and biopsies from UC patients. Impaired dual intestinal barrier function was examined by permeability assays and electron microscopy. The phenotype and function of EGCs were assessed by Western Blot, Immunofluorescence, and Flow Cytometry. Dihydroartemisinin (DHA) was used to reduce inflammation in vivo and in vitro.
Results: Mice with chronic colitis had impaired IEB and GVB such as increased double intestinal barrier permeability, reduced intestinal tight junction protein expression, and increased blood circulating endotoxin

levels have been observed in the chronic colitis mice model. EGCs, mainly the subgroup of GFAP$^+$/S100$^+$-EGCs, have been activated and proliferated when the dual intestinal barrier function is compromised. And the content of GFAP$^+$/S100$^+$-EGCs corresponds to the damage severity of the barrier. Both proliferation and activation of GFAP$^+$/S100$^+$-EGCs were markedly reduced by the DHA treatment. In addition to alleviating weight loss and colonic shortening in the model mice, DHA treatment considerably ameliorates intestinal epithelial and vascular endothelial barrier function, thus significantly reducing intestinal permeability.

Moreover, DHA treatment reduced the proliferative activity of GFAP$^+$/S100$^+$-EGCs in vitro, and restricted the recruitment of monocytes to EGCs by inhibiting the production of CCL2, thereby alleviating intestinal inflammatory response.

Conclusion: EGCs are essential for coordinated regulation of the double intestinal barrier efficient operation, and the proliferation and activation of GFAP$^+$/S100$^+$-EGCs speed up UC development. Those findings will contribute to identifying novel UC treatment targets and practical neurological markers.

Disclosure: Nothing to disclose.

PP0532

RENAL AMYLOIDOSIS: STILL A COMPLICATION EVEN IN THE ERA OF BIOTHERAPY

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Introduction: The occurrence of AA amyloidosis can intersperse the evolution of various chronic inflammatory diseases, in particular inflammatory bowel disease (IBD). Renal amyloidosis during IBD is a rare extra digestive manifestation occurring in 0.6 to 6% of cases that can be life-threatening in these patients.

Aims & Methods: This is a retrospective descriptive monocentric study of cases of renal amyloidosis developed in patients followed for IBD, conducted in a hepato-gastroenterology department over a period of 40 years from January 1983 to April 2023. Data was collected from the department's Crohn's and RCH registers.

Results: Out of 1664 patients followed for IBD (1103 Crohn's disease and 561 ulcerative colitis), only 5 patients followed for Crohn's disease (CD) developed renal amyloidosis.

They were 4 men and 1 woman, all followed for CD with a sex ratio M/F=4. The average age of diagnosis of CD was 45.2 years (28-67). Chronic smoking was noted in 80%(4) of our patients. A family history of IBD was noted in 40%(2) cases.

Topographically, 3 (60%) patients had an ileocecal location, compared to 20%(1) with an ileal location (20%) and 20%(1) patient with a colonic location. The disease was inflammatory in 40%(2) patients and stenotic in 60%(3) cases. An anoperineal manifestation such as an anal fistula was associated in 40%(2) of the patients.

Extra-digestive manifestations such as polyarthralgia were noted in 40%(2) of the patients and one case of skin involvement. Ankylosing spondylitis was diagnosed in 20%(1) cases and viral hepatitis b in 20%(1).

Therapeutically, 60%(3) were operated on: ileocecal resection with anastomosis. The treatment was based on an immunosuppressant of the azathioprine type in 80%(4) patients, then 60%(3) patients benefited from biotherapy, including 2 based on adalimumab and 1 case on infliximab.

Renal amyloidosis was diagnosed on average 6 years (1-9) after the diagnosis of Crohn's disease. The average age at diagnosis was 46 years (29-76). Renal failure was the discovery circumstance in 3 cases (60%) against 2 cases of nephrotic syndrome (40%). 60%(3) of patients received colchicine treatment (60%) and 20%(1) received a kidney transplant and 20%(1) was on hemodialysis. The evolution was marked by deterioration of renal function in 60%(3) of cases. 60%(3) had died, including 1 patient in an array of myocarditis and 1 case for septic shock. 1 patient is currently on hemodialysis.

Conclusion: Renal amyloidosis is a systemic manifestation of IBD that is rare but potentially serious despite the use of biotherapy. Its diagnosis in time would remain the only guarantor for a better prognosis.

Disclosure: Nothing to disclose.

PP0533

COMPARISON OF THE PRODUCTION OF SHORT CHAIN FATTY ACIDS (SCFA) BETWEEN PATIENTS WITH INFLAMMATORY BOWEL DISEASE AND HEALTHY INDIVIDUALS

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Introduction: Inflammatory bowel diseases (IBD) are mainly represented by Crohn's Disease (CD) and Ulcerative Colitis (UC). Among several factors related to these diseases, dysbiosis is considered an immediate environmental factor for the development of IBD. Dysbiosis is related to the imbalance of the intestinal microbiota, which affects the existing symbiotic relationship between the intestinal microbiota and its host that provides a nutrient-rich environment for intestinal bacteria, while the microbiota plays a fundamental role in maintaining the intestinal function of its host. Among these functions, the microbiota has its participation in the digestion of complex polysaccharides present in the host diet, important for the formation of monosaccharides and short-chain fatty acids (SCFA), such as acetate, propionate, and butyrate.

These SCFA are important in maintaining the intestinal barrier and intestinal homeostasis, in proliferation, differentiation and modulation of gene expression of intestinal cells, in the production of essential vitamins in the intestinal lumen, in addition to acting in regulation of the mechanisms that provide balance between the intestinal mucosa and its immune system, resulting in the tolerance of harmless bacteria and immune responses against pathogenic bacteria.

There are several studies on the intestinal microbiota in patients with IBD, however, there are still few studies on the SCFA profile in these patients. Therefore, the present study aimed to evaluate and compare the SFCA profile in patients with IBD and healthy individuals.

Aims & Methods: 94 patients from a public outpatient healthcare service in Brazil and 63 healthy individuals were included in the study. Exclusion criteria: diagnosis of other chronic diseases, use of antibiotics, prebiotics, probiotics or symbiotics in the last 4 weeks. Participants were divided into two groups, IBD group and control group (healthy), fecal samples from all participants were collected for qualitative and quantitative analysis of SCFA, which was performed by gas chromatography technique coupled

with mass spectrometry (GC/MS). Statistical analysis: descriptive statistics and association tests. Values of $p \leq 0.05$ were considered significant. Data presented in mean (SD).

Results: The SCFA profiles were different in IBD patients compared to healthy individuals, with higher SCFA values in the IBD group when compared to the control group: acetic acid (0.32 ± 0.18 vs 0.12 ± 0.11, with $p< 0.0001$), propionic acid (0.24 ± 0.10 vs 0.15 ± 0.09, with $p< 0.0001$), butyric acid (0.19 ± 0.11 vs 0.39 ± 0.25, with $p< 0.0001$) and sum of SCFA (0.75 ± 0.32 vs 0.39 ± 0.25, with $p< 0.0001$) concentration.

Conclusion: The SFCA profile in patients with IBD showed a difference when compared to healthy individuals, where the values of SFCA fecal were higher in patients with IBD compared to healthy individuals. Such a difference may occur because the IBD group, due to the inflammatory process characteristic of the disease, may have greater difficulty in absorbing the SCFA produced in the intestine, releasing more SCFA in the feces, since most of the SCFAs produced in the colonic lumen (90-95%) are absorbed by the intestinal mucosa and only 5 to 10% are excreted in the feces. However, to confirm this hypothesis, further studies would be needed to evaluate and compare the SFCA systemic between these groups, through blood test, and thus determine the SFCA profile of these individuals, being able to propose therapies that help in the modulation of the microbiota of these patients and in the development of new treatment targets in the future.

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Disclosure: Nothing to disclose.

PP0534

SKELETAL MUSCLE DUPD1 LINKS COLITIS WITH OBESITY-ASSOCIATED METABOLIC DISEASES

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Introduction: Inflammatory bowel disease (IBD), comprising of Crohn's disease and Ulcerative Colitis (UC), is a debilitating inflammatory disease of the gastrointestinal tract with no known cause. Although extensive work has linked numerous genetic loci to IBD, most of these associations remain poorly understood. In addition, some studies have associated IBD to metabolic diseases such as diabetes and non-alcoholic fatty liver disease (NAFLD), although the precise molecular and pathophysiological mechanisms underlying these associations are unknown.

Aims & Methods: The central objective of this study was to understand the molecular mechanisms underlying the associations between IBD and obesity related metabolic diseases. To address this research question, we used multiple mouse models of colitis (dextran sodium sulfate or DSS), DSS and Azoxymethane induced colitis associated colon cancer and *Helicobacter hepaticus* infection induced colitis in *Il-10-/-* mice) and high fat diet (HFD) and genetic models of obesity and obesity associated metabolic diseases. In addition, for mechanistic studies, we used chimeric mice generated through bone marrow transplantation as well as conditional knockout mouse models. Lastly, we employed CRISPR/Cas9 edited cells *in vitro* to understand the molecular mechanism.

Results: Employing multiple murine models of colitis, colitis-associated colon cancer (CAC) and obesity associated metabolic diseases, we have identified DUPD1, a phosphatase of unknown function, that links IBD with metabolic diseases.

Specifically, *Dupd1*$^{-/-}$ mice are protected from dextran sodium sulfate (DSS) and *Helicobacter hepaticus* induced colitis, and DSS/azoxymethane (AOM) induced CAC. *Dupd1*$^{-/-}$ mice also exhibited protection against high fat diet (HFD) induced obesity and fatty liver disease and glucose intolerance. DUPD1 is highly expressed in the skeletal muscle.

Indeed, using skeletal muscle specific conditional DUPD1 knockout mice (*Dupd1*$^{fl/fl}$*Myf6*^{Cre}), we show that DUPD1 exerts its colitogenic effects from the skeletal muscle through modulation of autophagy, a pathway whose dysfunction is known to play a role in IBD.

Importantly, a dual specificity phosphatase inhibitor (NSC-663284) inhibited DUPD1 enzyme activity and reduced DSS-induced colitis in wild type mice but not in *Dupd1*$^{-/-}$ mice.

Conclusion: Our study identifies *Dupd1* as a central gene that links IBD and obesity-associated metabolic diseases and suggests that it is a new therapeutic target in IBD, and obesity associated metabolic diseases.

Disclosure: Nothing to declare.

PP0535

TRYPTOPHAN METABOLITES DYNAMICALLY ASSOCIATE WITH FATIGUE ALLEVIATION IN IBD

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Introduction: Chronic fatigue is a debilitating symptom and has major impacts on the quality of life of patients with chronic inflammatory conditions. In IBD, an estimated 50% of patients suffer from persistent fatigue despite successful treatment of intestinal inflammation. During active disease flares, this number jumps to 80% (Borren et al. 2018). Tryptophan metabolites are not only associated with disease activity in UC and CD, but also with chronic fatigue (Kavyani et al. 2022). Thus, our aims are (1) to characterize the relationship between fatigue and tryptophan derivatives and (2) to understand the metabolic dynamics arising when fatigue symptoms improve following therapeutic intervention.

Aims & Methods: In a prospective open label cohort of patients with moderate-to-severe Crohn's disease (CD, $n = 71$) and ulcerative colitis (UC, $n = 94$) assigned to biologics therapy or JAK inhibitors, fatigue was assessed by the fatigue subscale of the Functional Assessment of the Chronic Illness Therapy – Fatigue (FACIT-F) questionnaire at therapy induction and 2 and 14 weeks thereafter. A FACIT-F score of <30.1 was considered severe fatigue while a score of >40 was considered no relevant fatigue. Clinical response at week 14 was defined as Crohn's Disease Activity Index (CDAI) <150 and reduction of Partial Mayo Clinical Score (PMCS) >50% vs. baseline, respectively. We used targeted mass spectrometry to quantify the levels of 13 tryptophan derivatives and neopterin in a subset of patient serum in the weeks following therapy induction (at 0, 2, and 14 weeks, $n = 120$ individuals).

Results: Half of the recruited patients had severe fatigue at baseline (50.3%). Of the 120 patients who reached week 14 and had FACIT-F scores available, severe fatigue was experienced by 45.9% of the patients who

did not respond to therapy and the rate was reduced to 13.2% in therapy responders. We found 8 metabolites positively associated with FACIT-F: tryptophan, kynurenic acid, kynurenine, picolinic acid, xanthurenic acid, serotonin, indole-3-proprionic acid, and quinaldic acid, while neopterin was negatively associated (FDR < 0.05).

Four of these metabolites changed dynamically as a function of the extent of fatigue improvement: tryptophan, kynurenine, xanthurenic acid, and serotonin (FDR < 0.05). In all cases, the rate of change of these metabolites increased as a function of fatigue improvement.

Conclusion: Fatigue is linked to a diverse array of tryptophan metabolites. Notably, all of the significantly associated tryptophan derivatives were positively associated with FACIT-F, meaning that as fatigue symptoms improve, tryptophan metabolite levels increase.

Many of these metabolites have previously been linked to symptom severity in IBD: for example, tryptophan, kynurenic acid and xanthurenic acid all tend to increase with symptom alleviation (Nikolaus et al. 2017, Michaudel et al. 2022). While the kynurenine-to-tryptophan ratio is elevated in active IBD (Nikolaus et al. 2017), this ratio did not convey a specific, fatigue-related signature.

Considering that some patients continue to suffer from persistent fatigue even during disease quiescence, further work is needed to disentangle the impact of tryptophan metabolism on therapy response from its role on fatigue improvement.

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PP0536

PREVALENCE OF CMV INFECTION IN IBD PATIENTS: DEFINING PREVALENCE, CLINICAL PROFILE AND OUTCOMES IN OUR CLINICAL PRACTICE

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Introduction: Cytomegalovirus (CMV) belongs to herpesvirus family. While common and mostly asymptomatic in general population, CMV infection can lead to serious condition in immunocompromised patients. Many definitions of CMV infection or intestinal disease are found in literature, which explains the different prevalence rates reported. (1)

Aims & Methods: To describe prevalence, and the clinical and prognosis outcomes of CMV infection in our IBD patients.

Methods : A retrospective study conducted from 01/2015 to 09/2022 including 505 patients with IBD diagnosis including ulcerative colitis and Crohn's disease. Clinical, biological, endoscopic and histological data were collected from patient's hospitalisations and follow-up reports. Parameters were analyzed using Microsoft Excel.

Results: 505 patients were included. We considered CMV positive infection or intestinal disease in patients with the presence of inclusions on biopsies or a positive CMV PCR. 5 patients had an intestinal CMV infection (0,9%), with a sex ratio M/F at 0,8. Mean age was 44,8 Y.O (26-69 YO). 4 patients were already followed-up for ulcerative colitis for an average of 3,3 years and were all under immunomodulators (thiopurines or methotrexate), while it was inaugural for the diagnosis in the other one. CMV intestinal disease was discovered during a severe acute colitis episode in 3 patients and moderate colitis in the remaining ones. Severe endoscopic lesions were found in 2 patients, while Mayo score was at 3 for all of them. Anatomopathology showed the presence of CMV inclusions in 40% (2 patients). Average CRP before treatment was 94 mg/l (22-169mg/l). Labtests showed positive CMV IgM antibodies in 4 patients. All patients were treated during 21 days using gemciclovir in consultation with infectious diseases physicians. For patients in acute severe colitis episode, mean Lichtiger at the end of the treatment was at 3, the other patients also had a good clinical outcome, such as the decrease of the number of stools and an improvement in the general state. Average CRP at the end of the treatment was at 20 mg/l(14-32).

Conclusion: Our study shows a low prevalence of CMV intestinal disease or infection, including the different definitions found in literature (1). Prevalence seems underestimated, and could be higher if diagnosis tools were more accessible. Even in our immunocompromised patients, CMV infection or intestinal disease had a good clinical and biological outcome in all of them after treatment.

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Disclosure: Nothing to disclose.

PP0537 WITHDRAWN

PP0538

ARYL HYDROCARBON RECEPTOR AMELIORATES EXPERIMENTAL COLITIS BY MODULATING TOLEROGENIC DENDRITIC CELLS AND TH17/TREG BALANCE

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Introduction: Intestinal immune dysfunction plays a vital role in inflammatory bowel disease (IBD). Dendritic cells (DCs) function as key regulators in the maintenance of intestinal immune homeostasis, which are able to induce both regulatory and effector T cell responses. Aryl hydrocarbon receptor (AhR), a ligand-activated transcription factor, is widely expressed in immune cells, including DCs. Although AhR plays an important role in differentiation of tolerogenic DC (TolDC), its role in the TolDC remains vague.

Aims & Methods: This study aimed to evaluate the effect and mechanism of AhR in TolDC and experimental colitis.Wild-type (WT) and $AhR^{-/-}$ mice were induced colitis by drinking dextran sulphate sodium (DSS) with or without intraperitoneal injection of 6-formylindolo[3,2-b] carbazole (FICZ). Bone marrow-derived cells (BMDCs) derived from WT or $AhR^{-/-}$ mice were cultured under TolDCs polarization condition and adoptively transferred to DSS-induced WT mice. WT and $AhR^{-/-}$ BMDCs were cultured under

TolDCs polarization condition in vitro. Ratios of DCs surface markers such as CD80, CD86 were evaluated by flow cytometry. Cutokines, like IL-1β, TGF-β and IL-10 were detected by ELISA.

Results: AhR$^{-/-}$ mice developed more severe colitis compared with WT mice. TolDCs and Tregs were both decresed in the colon of AhR$^{-/-}$ mice. WT mice, which transferred with AhR$^{-/-}$ TolDCs, developed more severe colitis than those receiving WT TolDCs, as evidenced by decreased Treg cells and incresed Th17 cells. In vitro, AhR deficiency in the DCs resulted in less TolDC formation confirmed by a higher expression of surface markers such as CD80 and CD86, increased secretion of pro-inflammatory cytokines (IL-1β) and lower anti-inflammatory production (TGF-β, IL-10) compared to the WT DCs.

Conclusion: AhR activation ameliorates experimental colitis by modulating TolDCs and Th17/Treg balance. Thus, our data suggest that AhR-TolDCs may be a potential therapeutic target for IBD.

Disclosure: Nothing to disclose.

PP0539

THE POTENTIAL OVERLAP BETWEEN CANNABINOID AND NOCICEPTIN SIGNALING AND ITS ROLE IN INTESTINAL INFLAMMATION IN A MOUSE MODEL AND HUMAN SAMPLES

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Introduction: The pathogenesis of inflammatory bowel diseases has been linked to both the endognous cannabinoid system and its receptors (CB1, CB2) and nociceptin receptor (NOP). Considering the functional similarities between the CB and NOP systems along with the anti-inflammatory effects exerted by their ligands, we hypothesize that there is an interaction between CB1 and CB2 and NOP receptors during colitis.

Aims & Methods: Colitis was induced in mice by dextran sodium sulfate (DSS). NOP agonist (SCH 221510. 3 mg/kg), CB1 antagonist (AM 6545, 3mg/kg) or CB2 antagonist (AM 630, 5mg/kg) were given intraperitoneally, twice daily, alone or in combination. On day 8th the mice were sacrificed, macroscopic scoring was performed and colonic samples were taken. The levels of IL-6, pERK and STAT3 was quantified using Western blot.

The expression of genes encoding CB1 and CB2 receptors was determined in the mouse and human colonic samples collected from patients suffering from Crohn's disease (CD) and ulcerative colitis (UC) and from healthy controls (HC) using real time RT-PCR. One-way ANOVA followed by the Tukey's post-hoc test was used for analyses of multiple treatment means. Pearson correlation coefficient was used to evaluate the correlation between the CB1, CB2 and NOP receptors expression in healthy and inflamed colon.

Results: We observed increase in total colon damage score in DSS-treated mice as compared to control group (6.40±1.52 vs. 1.20±0.46), which decreased after treatment with SCH 221510 (4.10±0.50). Interestingly, addition of AM 6545, AM 630 or combination of both drugs significantly increased the total damage score as compared to mice treated with SCH 221510 alone (11.83±0.44 vs. 4.10±0.50, (P<0.01) for AM 6545, 9.12±1.54 vs. 4.10±0.50 (P<0.05) for AM 630 and 8.57±0.86 vs. 4.10±0.50 (P<0.05) for combination of both).

Similar trend was found in comparison of myeloperoxidase activity in colon tissues (14.69±5.84 vs. 13.96±3.67, 18.97±2.40 vs. 13.96±3.67, and 17.60±3.31 vs. 13.96±3.67, respectively). We found a significant reduction in relative protein expression of IL-6 in the colon collected from SCH221510-treated mice, CB1 or CB2 antagonists-treated mice and SCH 221510- and both antagonists-treated mice as compared to DSS-treated group 7160471±3267620 (P<0.0001), 3675987±772660 (P<0.0001), 3379473±642716 (P<0.0001), and 25433153±11477866 (P<0.005) vs. 78758951±21976725 respectively. The relative protein levels of pERK and STAT3 tended to be elevated in groups treated with any ligand as compared to DSS-treated group and no difference between treated groups was noted. Real time RT-PCR analyses showed that combination of SCH 221510 and CB1 and CB2- antagonists increased the relative expression of CB1 and CB2 receptors as compared to mice treated with each drug solely. For CB1: 10819±4625, 20769±6775, 22558±8771 vs. 15044±6033, 3349±753.7 and 2660±546.4. For CB2: 15536±6860, 17696±7221, 16929±5452 vs. 9960±4043, 4406±2090, 3085±981.3.

The relative expression of CB1 receptor in human samples was significantly lower in patients with CD and UC, as compared to HC 2284±1074 (P<0.01) and 1348±446.8 (P <0.05) vs. 6621±2935 respectively. Noteworthy, we discovered a strong, statistically significant positive correlation between the relative expression of CB1 and NOP receptors in CD (r= 0.71, P <0.05). These trends were not observed in UC patients, nor HC.

Conclusion: We obtained promising results suggesting the existence of cross-talk between the CB and NOP receptors. Fully elucidating this phenomenon could aid in developing novel treatment options for IBD patients.

Disclosure: Nothing to disclose.

PP0540

METABOLOMIC BIOMARKERS OF INFLAMMATORY BOWEL DISEASE AND ITS DAMP HEAT SYNDROME IN COMPARING WITH FUNCTIONAL DIARRHEA OF CHINESE PATIENTS AND HEALTHY CONTROLS - PRELIMINARY FINDINGS

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Introduction: The specific and sensitive biomarkers of inflammatory bowel disease (IBD) had not been found.

Aims & Methods: The aim of this study was to observe the metabolic characteristics of IBD patients and its damp heat syndrome (IBD-DH).

From May 2020 to July 2021 at Affiliated Hospital of Nanjing University of Chinese Medicine, patients with active inflammatory bowel disease (IBD), including damp heat syndrome (IBD-DH) and spleen-deficiency syndrome (IBD-SD), functional diarrhea patients (FD), and healthy volunteers (Con) were recruited. Fasting venous plasma and 2nd urine were collected from all patients and healthy volunteers; Using pseudotargeted metabolomics based on ultra-high performance liquid chromatography-high-resolution mass spectrometry (UHPLC-HRMS) and triple-quadrupole mass spectrometry (TQMS).

Results: A total of 60 patients with IBD (30 each in damp heat and spleen deficiency syndrome group), 23 patients with functional diarrhea, and 30 healthy volunteers were recruited in this study. A total of 60 plasma samples (30 IBD-DH and 30 IBD-SD) and 30 urine samples (15 each in IBD-DH and IBD-SD) were collected for IBD patients; 23 plasma samples and 20 urine samples from FD patients; 30 plasma samples and 15 urine samples from healthy volunteers.

In the IBD group compared with the Con group, 73 and 98 differential metabolites were screened in plasma and urine, respectively. The differential metabolites mainly included acylcarnitine, aromatic amino acid metabolites, glycerophospholipids, amino acids, and glucose metabolism intermediates. Abundance of ACar 16:1, ACar 18:1, ACar 20:4, LPC P-18:0 and malate increased significantly; abundance of PC 33:3, glycocholic acid, hippuric acid, p-cresol and p-cresol sulfate decreased significantly. Differential metabolite ROC analysis suggested L-glutamic acid, ACar 18:1, and Lactic acid as potential diagnostic biomarkers for IBD.

Forty-eight plasma differential metabolites and 69 urinary differential metabolites were obtained in the IBD group compared with the FD group. The differential metabolites mainly included fatty acids, acylcarnitine, aromatic amino acid metabolites, bile acids, and glycerophospholipids. The abundance of ACar 6:0, PC 24:0, 5b-cholestane-3a,7a,12a,24,25-pentanol, and 3-methoxybenzenediol in plasma was significantly decreased; the abundance of glycocholicacid and glycochenodeoxycholic was increased. The abundance of corticosterone, 5-hydroxy-N-formyl-kynurenine and other substances in the urine was significantly decreased. By ROC analysis, ACar 6:0, 5b-cholestane-3a,7a,12a,24,25-pentanol were found to be potential diagnostic markers to differentiate IBD from FD.

28 differential metabolites in plasma and 15 differential metabolites in urine were found .The abundance of 25 substances, including PC 16:1_20:4, PC 18:0_20:4, LPC 16:0-2, LPC 3:1, L-tryptophan, tyramine, and 3-hydroxybutyrate, increased in plasma; the abundance of indolelactic acid was decreased. By ROC analysis, indolelactate, tyramine, L-tryptophan, LPC 16:0-2, PC 38:7-sn1, and itaconic acid were found to distinguish IBD-SD and IBD-DH and were expected to be potential diagnostic biomarkers for IBD-DH.

Conclusion: As an organic lesion closely related to inflammation and immunity, IBD had prominent changes in the abundance of plasma ACar 6:0, 5b-cholestane-3a,7a,12a,24,25-pentanol in comparing with FD, a functional disease of the intestine. In terms of different syndromes, The differential metabolites mainly include aromatic amino acids and glycerophospholipids could be used to distinguish damp heat syndrome from spleen deficiency syndrome.

Disclosure: No Conflict of Interest to be declared

PP0541

THE SOLUTE TRANSPORTER OCTN1/SLC22A4 AFFECTS DISEASE SEVERITY AND RESPONSE TO INFLIXIMAB IN EXPERIMENTAL COLITIS: ROLE OF GUT MICROBIOTA AND IMMUNE MODULATION

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Introduction: Inflammatory bowel diseases are chronic disabling conditions with a complex and multifactorial aetiology, which is still not completely understood. OCTN1, an organic cation transporter could have a role in modulating the inflammatory response, whose genetic polymorphisms were associated to increased risk of inflammatory bowel diseases. Up to now, limited information exists on its role in predicting/modulating response to therapies.

Aims & Methods: The aim of this study was to evaluate the role of OCTN1 in modifying gut microbiota and immune composition to Infliximab therapy in murine colitis. Dextran sodium sulphate model of colitis on C57BL/6 mice and *ocnt1* gene knockout mice was used to assess clinical efficacy of infliximab administered intravenously. Stool, colon and mesenteric lymph node samples were collected to assess differences in gut microbiota composition, histology for Rachmilewitz score and T cell populations respectively.

Results: *Octn1*$^{-/-}$ influences microbiota profile and is associated with a worse dysbiosis in colitis mice. Infliximab treatment attenuates colitis-associated dysbiosis with increase of bacterial richness and evenness in both strains. In comparison with wild type, *octn1*$^{-/-}$ mice have a higher baseline percentage of Treg, Tmemory, Th2 and Th17.

Conclusion: Our data support murine model to study OCTN1 genetic asset in inflammatory bowel diseases. This could be the first step to consider this membrane transporter as a biomarker in inflammatory conditions and as a predictor of response to therapies.

Disclosure: Nothing to disclose.

PP0542

SARCOPENIA AND IBD: MOLECULAR AND MICROBIAL PATHWAYS AND POTENTIAL PHARMACOLOGICAL MODULATORS IN EXPERIMENTAL MODELS OF CHRONIC INFLAMMATORY BOWEL DISEASE

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Introduction: Sarcopenia is a syndrome characterized by the progressive and generalized loss of skeletal muscle mass. Primary sarcopenia is associated with the aging process, while the secondary one is caused by several factors including inflammatory conditions, such as inflammatory bowel disease (IBD). Since there is a complex interaction between inflammation, intestinal dysbiosis and malnutrition which lead to muscle degeneration in IBD patients, it is referred to as the gut-muscle axis. In particular, the high level of cytokines and the gut dysbiosis which characterizes IBD is responsible for the activation of pathways that cause an imbalance in muscle protein synthesis. However, the involvement of molecular and microbial mechanisms of sarcopenia, at present, has not been extensively studied in IBD.

Aims & Methods: In order to identify the mechanisms that are potentially involved in the onset of sarcopenia, a DSS-induced colitis mouse model has been created. To ensure that the model developed sarcopenia, we performed physical performance assessment at rotarod. On this well-characterized model, we studied the muscle by immunohistochemistry, by fiber count per field and by Cross Sectional Area. Next, we evaluated the gut microbiota and serum LPS detection. *In vitro*, with the aim to create a situation of intestinal inflammation and to assess the activation of pathways of muscle atrophy, we used the immortalized murine myoblast cell line C2C12 at different time points, 30'-2h-6h. Treatments performed included pro-inflammatory cytokines (TNF-α, IFN-γ, IL-6), LPS and drugs (Infliximab, Upadacitinib, Tofacitinib) in order to assess cellular response to the most promising drugs used in the treatment of IBD.

Results: The mouse model showed a reduction in body weight and muscle performance, probably associated with quantitative and qualitative alterations in muscle fibers. In addition, increased expression of markers of muscle atrophy (myostatin and Murf-1) was found in colitic mouse muscle. Also we observed increasing expression of the pathway STAT3-pSTAT3 involved in muscle wasting and decreasing pAKT, which is associated with muscle growth. Most relevant, a condition of dysbiosis was found in the colitic model, as well as increased LPS in the serum of mice.

In vitro, Upadacitinib and Tofacitinib in the presence of inflammatory cytokines decrease the expression of muscle atrophy-associated pathways (STAT3, its active form pSTAT3, and the transcriptional factor NFkB) and increase the expression of pAKT, a protein associated with muscle synthesis. When cells were treated with LPS, NFkB expression did not decrease with drug addition, suggesting that LPS is able to activate NFkB independently of the JAK/STAT pathway.

Conclusion: These data open new scenario for the gut-muscle axis as a promising area of research for the management of sarcopenia in IBD. Therefore, we might also consider the role of microbiota and LPS in addition to inflammatory cytokines in the pathogenesis of sarcopenia in IBD, since LPS-induced signaling is only partially controlled by drugs.

Disclosure: Nothing to disclose.

PP0543

THE *CAUDOVIRALES* CLASS OF VIRUSES IS ASSOCIATED WITH DENDRITIC CELL IMPAIRMENT IN CD PATIENTS

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Introduction: The gut virome has been established to hold a key role in the pathogenesis of Crohn's disease (CD), belonging to the Inflammatory Bowel Disease (IBD) class. Indeed, some years ago Norman and colleagues described the expansion of *Caudovirales* as associated with CD pathogenesis and coupled with decreased bacterial diversity[1].

Aims & Methods: Therefore, to further explore this aspect we exploited the IBD TaMMA framework[2], to find which viral family was highly abundant in the CD colon by comparison with the healthy control. Moreover, to investigate the role of this family in the different mucosal cell compartments, CD- and healthy-derived intestinal biopsies were digested to obtain a cell suspension undergoing flow cytometry cell sorting (FACS) to isolate immune and non-immune cells according to cell population-specific markers. Specifically, CD8 and CD4 T cells, B cells, macrophages, dendritic cells, epithelium, endothelium, and fibroblasts were obtained and underwent transcriptomics and metatranscriptomics.

Results: We found that the *Autographiviridae*, belonging to the class of *Caudovirales* was highly abundant in the CD colon by comparison with the healthy control, confirming Norman study. Interestingly, the gene ontology (GO) revealed that the sole CD cell populations showing impaired biological response to viral insults by comparison with the healthy were the dendritic cells, fibroblasts, and epithelial cells suggesting that in CD mucosa only specific cell compartments were impacted by viral entities. Furthermore, by metatranscriptomics analysis we identified the CD dendritic cells and endothelial cells to retain a higher abundance of the *Autographiviridae* family by comparison with the healthy, indicating that the virome dysbiosis in these cells may underlie CD pathogenesis by altering their biological functions. Consistently, the heatmap of differentially regulated genes in CD versus healthy dendritic cells displayed downregulation of the transcripts key for dendritic cell-directed immune response.

Conclusion: Similar results have been recently proposed by our group to explain ulcerative colitis (UC) pathogenesis, where we identified a virome-derived protein, belonging to the *Hepadnaviridae* family, to directly disrupt the epithelial barrier and guide the development of intestinal inflammation[3]. Therefore, given the growing evidence of the viral entities as triggers for IBD, these data are promising and may pave the way to the discovery of viruses directly involved in CD pathogenesis that can represent a target for the development of novel strategies of intervention, ultimately ameliorating the CD management.

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Disclosure: Nothing to disclose.

PP0544

ASSOCIATION OF MICRONUTRIENTS AND SERUM IMMUNOPROTEINS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE - A PRELIMINARY STUDY

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Introduction:

Inflammatory bowel disease (IBD) is a chronic inflammatory process closely linked to diet and nutrition. Diet and nutrition have been proposed to be significantly involved in the pathogenesis of IBD, although their specific propagation and attenuation of gut inflammation remains unclear.

Aims & Methods: Using paired dietary history and serum immunoproteins, we sought to investigate the association of various nutritional components in multi-ethnic Asian IBD patients from a single-center academic hospital in Singapore. Participants completed a self-administered validated 163-item semi-quantitative food frequency questionnaire to determine dietary intake. Adequate micronutrient intake was determined by the recommended dietary allowance (RDA) as stipulated by the Singapore Health Promotion Board. Participants also had 88 paired serum immunoproteins profiled using the Olink Target 96 Inflammation assay. Spearman correlation analysis, with false discovery rate, was used to identify significant diet-immune associations.

Results: Our study cohort included 40 (55.6%) patients with Crohn's disease and 32 (44.4%) patients with ulcerative colitis, with a median age of 40 years (range 30.5 - 57.0). More than two-thirds (n=51, 70.8%) were male. The median body mass index was 23.4kg/m2 (range 20.0 - 26.3). In our study, IBD patients self-reported to be taking insufficient dietary fiber and vitamin A, whereby 86.1% and 58.3% of IBD patients, were taking lower than the RDA for dietary fibre (n=62, median 15.9g/day) and vitamin A (n=42, median 706mcg/day), respectively.

Using spearman correlation, we identified 192 significant ($p<0.05$) diet-immune associations from only 39 (44%) of the 88 immunoproteins screened. Of note, 8 immunoproteins (4E-BP1, CASP-8, CDCP1, FGF-23, IL-17A, IL-20RA, IL-22 RA1, STAMBP) accounted for almost half (n=92/192) of all the significant diet-inmune associations. Only beta carotene and vitamin A were negatively associated with pro-inflammatory immunoproteins, such as Interleukin-18, Interleukin 10-receptor subunit beta, C-C motif chemokine 19, Vascular endothelial growth factor A, and and Urokinase-type plasminogen activator.

Table 1. List of immunoproteins and their key molecular functions and micronutrient-immunoprotein associations. Eight immunoproteins (4E-BP1, CASP-8, CDCP1, FGF-23, IL-17A, IL-20RA, IL-22 RA1, STAMBP) were identified to have the most diet-immune associations, accounting for almost half (n=92/192) of all significant associations identified.

Protein Name	Function	Count of diet-immune associations	Specific dietary associations
Eukaryotic translation initiation factor 4E-binding protein 1 (4E-BP1)	Enables protein binding (GO:0005515) Enables eukaryotic initiation factor 4E binding (GO:0008190) Enables translation repressor activity (GO:0030371)	11	Iron Calcium Riboflavin MUFA Protein Zinc CHO Starch Energy SFA Total fat
Caspase-8 (CASP-8)	Enables cysteine-type endopeptidase activity (GO:0004197) Enables death receptor binding (GO:0005123) Enables tumor necrosis factor receptor binding (GO:0005164) Enables protein binding (GO:0005515) Enables peptidase activity (GO:0008233)	13	Vitamin AIron Thiamine Potassium Calcium Riboflavin MUFA Protein Zinc CHO Energy PUFA SFA Total fat
CUB domain containing protein 1 (CDCP-1)	Enables protein binding (GO:0005515)	10	BCarotene Vitamin A Vitamin C Potassium Riboflavin MUFA Protein Zinc SFA Total fat
Fibroblast growth factor 23 (FGF-23)	Positive regulation of protein kinase B signalling (GO:0051897) MAPK cascade (GO:0000165) Fibroblast growth factor receptor binding (GO:0005104) Enables type 1 fibroblast growth factor receptor binding (GO:0005105) Enables protein binding (GO:0005515) Enables growth factor activity (GO:0008083)	11	Iron Thiamine Potassium Calcium Riboflavin Zinc Energy PUFA SFA Total fat Dietary fiber
Interleukin-17A (IL-17A)	Positive regulation of antimicrobial peptide production (GO:0002225) Adaptive immune response (GO:0002250) immune system process (GO:0002376) Apoptotic process (GO:0006915) Inflammatory response (GO:0006954)	11	Iron Potassium MUFA Protein Zinc CHO Starch Energy PUFA SFA Total fat
Interleukin-20 receptor subunit alpha (IL-20RA)	Cytokine receptor activity (GO:0004896) Enables protein binding (GO:0005515) Enables interleukin-20 binding (GO:0042015)	11	Thiamine Potassium Calcium Riboflavin MUFA Protein Zinc Energy PUFA SFA Total fat
Interleukin-22 receptor subunit alpha-1 (IL-22RA1)	Cytokine receptor activity (GO:0004896) Enables interferon receptor activity (GO:0004904) Enables protein binding (GO:0005515) Enables interleukin-20 binding (GO:0042015)	13	BCarotene Vitamin C Iron Potassium Calcium Riboflavin MUFA Energy PUFA SFA Total fat Dietary fiber Sugar
STAM-binding protein (STAMBP)	Enables protein binding (GO:0005515) Peptidase activity (GO:0008233) Metallopeptidase activity (GO:0008237) Hydrolase activity (GO:0016787) Enables protein domain specific binding (GO:0019904)	16	Vitamin A Iron Thiamine Potassium Calcium Riboflavin Protein Zinc CHO Starch Energy PUFA SFA Total fat Dietary fiber Sugar

Conclusion: Our study found specific components of the diet, such as carbohydrates, starch, fiber to be positively associated with inflammatory immunoproteins. Only vitamin A and beta-carotene were negatively associated with circulating immunoproteins.

We hope our findings assist in the development of specific dietary therapies to provide IBD patients with specific nutrient requirements and yet limit specific dietary substrates that may propagate gastrointestinal inflammation.

Further studies are required to investigate the mechanisms of these nutritional factors involved in inflammation and to evaluate the application of specific diets during the course of IBD.

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Disclosure: Nothing to disclose.

PP0545

THE DISAPPEARANCE OF CELL DEATH BRAKES: A NEW MOLECULAR DEFECT IN INFLAMMATORY BOWEL DISEASE (IBD)

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Introduction: The precise aetiology of inflammatory bowel disease (IBD) remains unclear with excess intestinal cell death implicated yet vastly understudied. Necroptosis, a recently described lytic cell death pathway, is emerging as a key player in intestinal inflammation in mouse models of colitis (1, 2), however clinical data are sparse. This non-apoptotic regulated cell death can be initiated by tumour necrosis factor (TNF) receptor activation and is executed by a core axis of proteins, including receptor-interacting protein kinase (RIPK) -1 and -3, and mixed lineage domain-like pseudokinase (MLKL) independent of caspases (3). The pathway is usually repressed by cellular inhibitor of apoptosis protein (cIAP) -1 and -2, and cellular FLICE-like inhibitory ($cFLIP_L$).

This project proposes the first study to comprehensively assess programmed cell death in intestinal tissue of adult patients with IBD using a novel toolbox of affinity reagents (4). By comparing this with non-inflamed control tissue, we have uncovered a new molecular defect in IBD: loss of essential cellular death brakes, even in tissue with apparent mucosal and histologic healing. This novel finding may underpin the vicious cycle of remission and disease relapse and poses a step towards molecular healing through restoration of these brakes.

Aims & Methods: Aims:

1. Assess cell death prevalence in IBD
2. Determine why cell death brakes disappear in intestinal IBD tissue, regardless of inflammatory status
3. Determine whether IBD phenotypes can be uniquely profiled according to cell death signals

Methods: Matched intestinal biopsies are retrieved endoscopically from patients without IBD (healthy controls) and those with IBD. Patients requiring endoscopy as part of standard of care are screened for eligibility: exclusion criteria comprise active malignancy, non-IBD inflammation, infection, use of non-steroidal anti-inflammatory drugs, and polyposis syndromes. Biopsies from participants with IBD are taken from macroscopically non-inflamed, margin and inflamed areas. Control specimen are taken from healthy-appearing bowel. Specimen are collected fresh for investigation of pertinent targets (*Table 1*). Clinical/endoscopy activity indices, biochemical markers (C-reactive protein, faecal calprotectin) and blinded histologic (Robarts Histopathology Index) scoring are correlated with laboratory data in a multi-parametric manner.

MEDIUM	TECHNIQUE	PURPOSE
Phosphate buffer system + protease + phosphatase inhibitors	Immunoblotting	Protein quantification of 26 cell death-related proteins
10% formalin	Immunohistochemistry	Visualisation of 12 cell death-related markers
Methanol + 5% acetic acid	Immunofluorescence	Optic microscopy of necroptosis hot-spots
RNA later	RNA sequencing	Shotgun transcriptomics of host microbiome, immune and inflammatory infiltrates
Dulbecco's Modified Eagle Medium: Nutrient Mixture F12 (DMEM F12) + Primocin	Organoid development	Gut organoid challenges to identify factors impacting cell death

Results: Intestinal biopsies from 28 healthy controls and 52 patients with IBD: 25 UC; 25 CD; and 2 pouchitis have been collected. Interim analysis demonstrates suppression of cell death inhibitory proteins- cIAP-1, -2 and $cFLIP_L$ even in non-inflamed tissue in patients with IBD, unleashing apoptosis (hallmarked by a statistically significant increase in cleaved caspase-3) and/or necroptosis (hallmarked by statistically significant increases in phosphorylated RIPK-3) in nearby tissue.

Conclusion: For the first time, we demonstrate that cellular death brakes are removed in intestinal tissue in IBD, despite histologic remission. Our findings challenge current dogma that necroptosis occurs in the absence of apoptosis and that necroptosis is universally increased in all forms of IBD. Disinhibition of programmed cell death is likely intrinsic to the inflammatory sequence underlying disease recurrence and progression.

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PP0546

IL-33 ACTIVATES CD73-EXPRESSING CELLS PROMOTING TUMORIGENESIS DURING COLITIS-ASSOCIATED COLORECTAL CANCER

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Introduction: Colorectal cancer associated to chronic colitis (CAC) has a different pathogenesis compared to sporadic or familial colorectal cancer (CRC) and represents the major complication of inflammatory bowel disease (IBD). It is now well-established that IL-33 and its receptor, ST2, are important factors in the pathogenesis of IBD. Emerging evidence also suggests its critical role in epithelial proliferation and the potential contribution to inflammation-driven tumorigenesis that can lead to CRC.

Aims & Methods: The aim of our study was to characterize the precise contribution of IL-33/ST2 axis in the azoxymethane (AOM)/dextran sodium sulfate (DSS) model of colitis-associated CRC. C57/BL6 wild-type (WT), *Il33*

$^{-/-}$, T1/*St2*$^{-/-}$ and *Nt5e*$^{-/-}$ mice were given a single dose of AOM (10 mg/kg) followed by two cycles of 3% DSS for 7d in drinking water. Vehicle-treated WT mice served as controls and were sacrificed at the same time points. Another group of WT followed the same protocol and received CD73 inhibitor i.p. treatment or vehicle. Disease Activity Index (DAI), as well as endoscopic, stereomicroscopic and histological evaluations of colons were performed. IHC, immunofluorescence (IF), qPCR, and ELISA were done on full-thickness colons of WT for IL-33 and ST2 localization and identification, as well as mRNA and protein expression, respectively. RNA-Seq was performed on whole tissues from AOM/DSS treated WT, *Il33*$^{-/-}$ and T1/*St2*$^{-/-}$. qPCR analysis was done on isolated polyps from WT, *Il33*$^{-/-}$ and *T1/St2*$^{-/-}$ for *Nt5e* (CD73) and adenosine pathway targets.

Results: *Il33*, *Ilrl1*(ST2L), and *Ilrl1*(sST2) mRNA transcripts, as well as IL-33 and total ST2 proteins were dramatically elevated in AOM/DSS-treated WT mice vs. controls. IHC and IF of treated WT mice revealed localization of IL-33 to the colonic epithelium and to cells within the polyp LP morphologically consistent with stromal and mast cells. Little to no staining for IL-33 was present in controls. Using IF, IL-33 co-localized with sub-epithelial myofibroblast markers Actin and Vimentin, or with mast cell markers Tryptase and MCPT1. AOM/DSS treatment in *Il33*$^{-/-}$ and T1/*St2*$^{-/-}$ mice resulted in a significant decreased polyp number and size *vs.* WT, with colonoscopy revealing the development of protruding lesions with abnormal vascular patterns, suggesting tumorous lesions in WT mice, while all deficient mice showed their absence with a more impressive mucosal inflammation, likely due to reduced epithelial proliferation and repair caused by the deficiency of IL-33 signaling. RNA-Seq identified a significant reduction of *Nt5e* and adenosine pathway targets in *Il33*$^{-/-}$ and T1/*St2*$^{-/-}$ *vs.* WT. qPCR on isolated polyps confirmed this observation. AOM/DSS-treated *Nt5e*$^{-/-}$ showed a significant decreased polyp number and size *vs.* controls. Therapeutic inhibition of CD73 produced similar results.

Conclusion: Our results suggest that the IL-33/ST2 axis promotes tumorigenesis in colitis-associated CRC through the activation of CD73. Further studies are underway to determine mechanisms of action that support these findings.

Disclosure: Nothing to disclose.

PP0547

IMMUNE AND NON IMMUNE CHANGES FOLLOWING FMT IN EXPERIMENTAL COLITIS: EMERGING PATHWAYS OF FMT-DERIVED MUCOSAL HEALING

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Introduction: Inflammatory bowel diseases (IBDs), primarily ulcerative colitis (UC) and Crohn's disease, are complex chronic immune-mediated disorders. Although etiopathogenesis of UC is still unknown, several studies suggest a clear association to altered gut microbiota, impaired mucous layer and epithelial barrier disfunction. Fecal microbial transplantation (FMT) emerged as a promising therapeutic approach aimed at repopulating gut microbiota with beneficial taxa from a healthy donor, and indirectly influencing the recipient's immune system. At present, FMT represents a well-established effective therapy for patients suffering from recurrent C. difficile infections. Promising data suggest FMT efficacy in patients with mild to moderate UC, but mechanism of actions are still yet to be fully understood.

Aims & Methods: Our study aims to evaluate the impact that FMT, using feces from UC patients with active and inactive disease, on microbiota composition and mucosal integrity in a murine model of colitis. We used mice (n=40) that were pre-conditioned for a week with a cocktail of broad spectrum antibiotics to deplete most of the intestinal microbiota, then a 7-day DSS 3% treatment was carried out to induce the colitis and, during those days, two FMT infusion were performed. The mice were sacrificed at the end of seven days of recovery, and feces, colon and whole blood were collected.

Results: The use of antibiotics allowed the engraftment of FMT colitis in mice. Disease activity index of murine colitis was ameliorated by the infusion of feces from inactive UC patients, associated with the decrease of LPS in serum, lower levels of pro inflammatory cytokines (such as IF-Ngamma, TNFalpha, IL17), an increase of FOXP3 and MUC2 as a marker of intestinal integrity. A modulation of gut microbiota was assessed after each phase of treatment.

Our study suggests the infusion of fecal suspension from inactive UC patients is able to induce an anti-inflammatory response at mucosal level and to induce proliferation of those bacterial families associated with remission.

Conclusion: These data open new scenario about the use of autologous FMT in UC. Autologous FMT reduces the potential for donor-recipient microbial-interactions/incompatibilities which have been shown to influence strain engraftment outcomes.

Disclosure: Nothing to disclose.

PP0548

NOTCH PATHWAY: THERAPEUTIC TARGET IN INTESTINAL FIBROSIS ASSOCIATED WITH CROHN'S DISEASE

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Introduction: The Notch signaling pathway and senescence are both complex processes that play important roles in a wide range of biological processes, including tissue repair and regeneration, as well as the development of age-related diseases. Studies have suggested that the Notch pathway may be involved in the regulation of senescence and in the development of fibrosis. Senescence is a normal physiological process that plays a role in tissue repair and regeneration, however the accumulation of senescent cells has been implicated in the development of fibrosis. Fibrosis represent the main complications related to Crohn´s disease (CD). Previous studies carried out by our group have shown a high expression of NOTCH pathway in CD samples (Rodriguez-Antequera, et al., 2019).

Aims & Methods: The general aim of the present study is to determine the possible potential of Notch pathway as a therapeutic target in intestinal fibrosis associated with Crohn's disease. Specifically, we pretend: to analyze the localization of the receptors of NOTCH3/4 and the expression of NOTCH markers in the intestinal tissue of patients with complicated CD, and to study the relevance of the Notch pathway in the senescence of intestinal fibroblasts. We have analyzed in intestinal samples from CD patients with complicated lesions: the localization of NOTCH3/4 receptors by

IH, the protein expression of senescence/apoptotic markers (BCL2, P16, MCL1 and P53) and NOTCH markers (NOTCH3/4, DLL3/4 and HES1) by WB. We correlated the expression of NOTCH pathway markers with senescence markers of each patient. We carry out in vitro studies and analyze: the protein expression of HES1 (effector Notch pathway) and the protein expression of senescence/apoptotic proteins in HSIF fibroblasts treated with DLL4 or DLL3. Results are expressed as fold induction (mean±SEM). Statistical analysis was performed with one-way ANOVA followed by Newman-Keuls test or by unpaired Student's t test.

Results: NOTCH4 is found more specifically in the crypts of the mucosa, as well as in cells of the lamina *propria*. NOTCH3 was located preferentially in muscular areas -muscularis mucosa, endothelium and muscularis externa. The expression of DLL4/3, NOTCH4 and HES1 were significantly higher in the affected tissue compared to the ileal samples of control patients. BCL2, MCL1, P16 and P53 showed significantly elevated levels in the affected CD tissue, compared to the ileal sample of control patients. P16, the main marker of senescence, correlates positively and significantly with DLL3/4, NOTCH3 and HES1 in intestinal tissue (Table). DLL3, and not DLL4, produced in intestinal fibroblasts a significant increase in the protein expression levels of BCL2 and P53, compared to the vehicle.

	DLL3	DLL4	NOTCH3	NOTCH4	HES1
MCL1	r=0,885***	r=-0,242	r=0,763***	r=0,388	r=-0,138
BCL2	r=-0,0183	r=0,559**	r=-0,101	r=0,4383	r=0,445*
P53	r=-0,099	r=0,828***	r=-0,236	r=0,397	r=0,668***
P16	r=0,473*	r=0,428*	r=0,428*	r=0,311	r=0,487*

Table. Protein correlation of NOTCH markers with senescence/apoptotic markers in intestinal mucosa. The table show the Pearson r. The results of applying the Spearman's correlation analysis were considered significant at P < 0.05, P < 0.01** and P < 0.001***.*

Conclusion: NOTCH pathway is involved in the regulation of key cellular functions and processes essential for the pathogenesis of intestinal fibrosis in CD patients. DLL3 seems to have a relevant role in activation of senescence in fibroblasts.

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Disclosure: Nothing to disclose.

PP0549

DISTINCTIVE MICROBIOTA AND DENDRITIC CELL ACTIVATION CHARACTERIZE THE APPENDIX OF ULCERATIVE COLITIS PATIENTS

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Introduction: Recent evidence suggests that appendectomy is associated with a reduced risk of developing ulcerative colitis (UC) or even the risk of flare after UC is diagnosed, thus suggesting a potential involvement of the appendix in UC pathogenesis. Interestingly, several studies support the role of the appendix in the maintenance of the intestinal microbiome and gut immunity1. We hypothesize that the appendix in UC may function as a reservoir for dysbiotic microbiota capable of promoting and re-establishing dysbiosis that could fuel inflammation in the colon in patients with UC.

Aims & Methods: The current study aimed to define the tissue-associated microbiota of the UC appendix, and investigate the changes compared to non-UC appendix. Thirty-seven patients operated on for UC or acute appendicitis were recruited. Appendicular wall tissue samples were obtained, inflammatory cells were isolated and analyzed by flow cytometry, and total DNA was extracted from the whole tissue. The V3-V4 region of the 16S rRNA gene was sequenced utilizing a MiSeq Platform (Illumina, USA). Sequences were processed using the QIIME22 pipeline, the taxonomy was assigned using the Greengenes3 database, and statistical analysis was performed in R.

Results: Twenty-seven samples were analyzed from 37 patients, 19 from UC, and 8 from acute appendicitis patients. Analyses revealed Firmicutes was the most proportionally abundant bacterial phylum in the UC appendix (mean=72.6%), followed by Proteobacteria (16%). Analysis of alpha diversity revealed no significant difference in terms of species richness, Shannon, and Pielou indices between UC and non-UC appendix (p=0.9;p=0.087;p=0.26). The PERMANOVA test revealed that UC appendix communities were significantly different from non-UC appendix communities (p=0.015). We identified 5 differentially abundant species in the study's samples, all of these significantly decreased in UC appendix vs. non-UC appendix: *Fusobacterium* unknown species (p=4.36x10-4), *Pseudoramibacter* unknown species (p=4.46x10-3), *Streptococcus anginosus* (p=2.67x10-2), *Mogibacterium* unknown species (p=2.67x10-2) and *Actinomyces hyovaginalis* (p=3.64x10-2). Fusobacterium, Pseudoramibacter, and Mogibacterium were also differentially abundant at the genus level (p=3.10x10-4; p=3.17x10-3; p=2.53x10-2).

The expression of CD86 on activated dendritic cells (CD1a+HLAdr+CD86+) was significantly higher in UC patients than in appendicitis patients (p=0.049) and in UC patients CD1a+HLAdr+CD86+ cells rate directly correlated with disease activity as expressed by Harvey Bradshaw Index (rho=-0.513, p=0.025). The abundance of *Fusobacterium* unknown species inversely correlated with CD1a+HLAdr+CD86+ mean fluorescence intensity (rho=-0.466, p=0.047).

Conclusion: These preliminary data showed that specific taxa are significantly less present in the UC appendix compared to the non-UC appendix, suggesting that a distinctive UC appendix microbiota exists. Taxa with altered abundance may contribute to UC pathogenesis. These data may provide microbial signatures useful for guiding both the treatment and diagnosis of UC.

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PP0550

DOUBLE-EDGED SWORD EFFECT OF GLUCOCORTICOIDS IN EXPERIMENTAL COLITIS – IS THERE A ROLE OF RAPAMYCIN?

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Introduction: Glucocorticoids (GC) are important antiinflammatory and immunosuppresive agents in the management of inflammatory bowel disease and many other conditions. However, GC also display deleterious effects on the intestinal barrier which may limit their clinical benefit. These effects may be ascribed partly to actions on the epithelium [1]. In this regard, mice carrying a deletion of the GC receptor in intestinal epithelial cells are protected against experimental colitis [2]. It may be therefore beneficial to limit GC epithelial actions in the inflamed intestine. On the other hand, recent evidence shows that dexamethasone-treated mice aggravate acute experimental colitis due to the activation of mTOR pathway in intestinal epithelial cells [3].

Aims & Methods: Our aim is to limit harmful GC effects in intestinal epithelium in experimental colitis, with the ultimate goal of improving the management of inflammatory bowel disease with GC.

This study features two experiments. First, experimental colitis was induced by administration of 2.5% dextran sulfate sodium (DSS) for 7 days to C57BL/6J mice and treated with prednisolone 200 µg/day by either the oral or parenteral route (as prednisolone phosphate). Secondly, effects of glucocorticoid-dependent mTOR pathway activation were assessed by administering prednisolone at the same dose in combination with rapamycin 60 µg/day, a specific mTOR signal inhibitor, both by the oral route, to DSS-induced colitic C57BL/6J mice, in the same conditions as the first experiment.

Results: Prednisolone ameliorated colitis, based on downregulated expression of inflammatory markers (*S100a8, S100a9, Cxcl1*, *Il6*) and lower colon thickening. However, oral (but not intraperitoneal) prednisolone augmented 4 kDa FITC-dextran permeability. This correlated with plasma lipopolysaccharide (LPS) levels, which were higher with oral prednisolone. In addition, colonic hemorrhage was enhanced by prednisolone treatment, particularly when given orally, as it both accelerated and enhanced blood loss. Besides, mice treated with oral prednisolone showed an increased disease activity index (DAI, based on body weight loss, feces consistency and rectal bleeding). On the other hand, GC administration suppressed *Cyp11a1* expression in the colonic mucosa and also in jejunal organoids, suggesting inhibition of colonic steroidogenesis by exogenous treatment. These findings were largely reproduced using 6 µg/day of budesonide but, in this case, body weight loss was also augmented by glucocorticoid treatment. In the second experiment, rapamycin reduced DAI compared to prednisolone-only treatment, and additionally decreased bacterial adherence to colonic mucosa. This is consistent with previous findings with dexamethasone [3].

Conclusion: Our data are consistent with GC weakening of the mucosal barrier coexisting with an antiinflammatory response, which may be enhanced by oral administration. Addition of rapamycin appears to limit this detrimental effect of prednisolone, thus improving its benefit:risk ratio in this model.

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PP0551

MIG (CXCL9) CHEMOKINE IS A KEY BIOMARKER THAT DISCRIMINATES BETWEEN PEDIATRIC IBD PATIENTS AND NON-IBD PATIENTS IN A NOVEL BIOMARKER MODEL

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Introduction: The current gold standard for diagnosis of Inflammatory bowel disease (IBD) is based on clinical and endoscopic evaluation as well as histologic and radiologic evaluation. However, endoscopic evaluation can be uncomfortable and carry some risks, especially in the pediatric population that requires general anesthesia in order to perform the procedure.

Aims & Methods: Our aim was to investigate whether serum biomarkers can differentiate between pediatric patients with and without IBD. Secondary aims were to determine whether there are biomarkers that can differentiate between Crohn's disease (CD) and Ulcerative colitis (UC), and whether we can predict progression to biologic treatment within one year from diagnosis using these biomarkers.

Pediatric patients undergoing a first diagnostic colonoscopy at British Columbia Children's Hospital (BCCH) between December 2019 and June 2022 were invited to participate in the study. A 2 ml blood sample was taken from each participant at the time of colonoscopy. Demographic and clinical data were collected from each patient. Blood samples were analyzed using the Legendplex™ flow cytometry kits investigating which included 50 different inflammatory cytokines and chemokines associated with IBD. A prediction model was built via a supervised learning method to determine how well we can predict the different groups.

Results: One hundred pediatric patients participated in the initial study. Five were excluded from the analysis due to uncertain diagnosis. Median age was 13.36 years, 39 were females (41%) and 54 (56.84%) were diagnosed with IBD, with 35 (64.81%) diagnosed with Crohn's disease. On a univariate analysis and Volcano plot 6 biomarkers were found to be

strongly associated with the diagnosis of IBD: IL22, IL8, TARC, GROA, MIG, and IL18. The cross-validated AUROC was 0.70. Using SPLS-DA the classification accuracy was improved to 0.84, and MIG was found to be the key biomarker to discriminate between pediatric IBD patients and non-IBD patients.

On a univariate analysis only TSLP was found statistically significant as a predictor of CD, and RANTES and TARC were found as negative predictors for initiating biologic treatment within one year of diagnosis. However, the prediction model did not predict well the subclasses nor progression to biologic treatment.

Conclusion: Using serum biomarkers can predict the diagnosis of Pediatric IBD. MIG was found to be the key biomarker in the prediction model.

Disclosure: Nothing to disclose.

PP0552

IL-33/ST2 AND GUT MICROBIOTA AXIS CAN MODULATE THE INFLAMMATORY PROCESS OF ULCERATIVE COLITIS PATIENTS WITH ILEAL POUCH-ANAL ANASTOMOSIS

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Introduction: IL-33/ST2 axis and gut microbiota are important factors in the pathogenesis of IBD with a potential reciprocal influence. IL-33/ST2 axis controls the mucosal healing process during intestinal inflammation. Restorative proctocolectomy with ileal pouch-anal anastomosis is a surgical procedure in patients with ulcerative colitis (UC) refractory to medical therapies. Pouchitis, the most common complication, is the inflammation of the pouch with a controversial etiology.

Aims & Methods: We aimed to explore the potential role of IL-33/ST2 and gut microbiota axis in the inflammatory process of pouchitis.

30 UC patients with ileal pouch-anal anastomosis were enrolled. After clinical, endoscopic and histological assessment 18 showed pouchitis and 12 a normal pouch. Mucosal samples were collected from the afferent ileal loop and from the pouch and processed for cytokines assessment, histological evaluation and gut microbiota analyses. Multiplex analysis for inflammatory and regulatory cytokines was performed. ELISA and western blot were run to assess IL-33/ST2 protein levels and to evaluate protein isoforms, respectively. IHC was done to evaluate mucosal IL-33/ST2 expression and localization. Microbiota was analyzed by 16S ribosomal RNA gene amplicon pyrosequencing. Pouchitis Disease Activity Index and Pouchitis Histological Score were calculated, and CRP and fecal calprotectin were obtained for each patient. Multivariate analyses were run to generate transcriptional interaction networks and identify biomarkers for patients with inflamed pouches.

Results: IL-1Ra, IL-6, IL-8, IL-17, IP-10, MCP-1, MIP-1a, MIP-1b resulted increased in inflamed pouch vs. normal pouch. No differences were registered between samples obtained from the afferent ileal loop. In pouchitis, IL-7 resulted reduced in the inflamed pouch vs. the afferent ileal loop. In pouchitis, IL-33 and ST2 protein levels were reduced in the pouch vs. the afferent ileal loop and resulted overall decreased vs. patients with normal pouch indicating a potential IL-33/ST2-mediated defective healing process. Full-length, bioactive IL33, ST2L and sST2 were expressed in all experimental groups; the cleaved, less active form of IL33 was increased in only patients with pouchitis. IHC confirmed these observations. IL-33 and ST2 staining was less intense within the inflamed and ulcerated mucosa of pouchitis patients compared to normal pouch, and in close proximity to areas of re-epithelialization. An overall decreased biodiversity in patients with pouchitis vs. patients with normal pouch (both at pouch and afferent ileal loop level) was shown. Lower levels of Verrucomicrobia and increased abundance of Actinobacteria were recorded in inflamed pouch vs normal pouch. In pouchitis, the afferent ileal loop and the pouch showed significantly decreased levels of Akkermansia muciniphila and augmented abundance of Collinsella vs. samples obtained from patients with normal pouch. In pouchitis, multivariate analyses evidenced a significant inverse correlation between Collinsella e Collinsella aereofaciens abundance and ST2 levels.

Conclusion: In patients with pouchitis vs patients with normal pouch divergent inflammatory molecular pathways and microbial populations distinctly characterize the pouch and the afferent ileal loop. Overall, our results suggest a potential role for IL-33/ST2 and gut microbiota axis in driving the gut mucosal wound healing in patients with ileal pouch-anal anastomosis. Further studies are underway to determine mechanisms of action that support these findings.

Disclosure: Nothing to disclose.

PP0553

RATIONAL SELECTION OF COMBINATION THERAPY FOR INFLAMMATORY BOWEL DISEASE TREATMENT USING AN ESTABLISHED PRECLINICAL MODEL

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Introduction: The advent of biologics and small molecule inhibitors targeting immunologic mechanisms has revolutionized the landscape of inflammatory bowel diseases (IBD) treatment. However, a significant proportion of patients remain primary non-responders and initial responders can relapse over time. Combining treatments with different mechanisms of action holds potential to increase the clinical response rates in IBD patients. The aim of this study was to examine the potential utility of combining distinct anti-inflammatory mechanism(s) with α4β7 integrin inhibition in IBD. We utilized the clinically relevant $CD4^{+}CD45RB^{hi}$ T cell transfer (TCT) colitis mouse model, which has been used to validate the preclinical monotherapy efficacy of these agents for IBD.

Aims & Methods: At initiation of TCT colitis, *Rag2*$^{-/-}$ mice received anti-α4β7 monoclonal antibody (mAb) alone, or in combination with subtherapeutic doses of an anti-IL12p40 mAb, an anti-IL23p19 mAb, or a small molecule inhibitor (SMi) of TYK2 (deucravacitinib, BMS-986165) for 7 weeks. Colitis development was evaluated via readouts including body weights, gross colon weight by length ratios, transcriptomic analysis of the colonic tissue, and histopathological scores.

Results: In monotherapy settings, treatment with anti-α4β7 significantly inhibited the development of moderate to severe colitis in mice. This was reflected by improved body weights, gross colon weight/length ratios, and histopathology scores (sum of inflammation, erosion, hyperplasia, and gland loss scores) compared to vehicle controls. The combination treatment of anti-α4β7/IL12p40 was the most robust, indicated in part by a highly consistent therapeutic response across study animals, surpassing the therapeutic efficacy of both anti-α4β7 monotherapy and other combination treatments with anti-IL23p19 or TYK2 SMi. On the other hand, anti-α4β7/IL23p19 and anti-α4β7/Tyk2 SMi showed only moderately improved efficacy, compared to anti-α4β7 monotherapy. Finally, tissue transcriptomic analysis revealed involvement of mechanistic pathways related to efficacy, including T cell activation/differentiation for all groups with inhibitors but to different degrees. Additionally, combination treatments showed differences focused within cytokine signaling, innate immune receptor signaling, and antigen presentation pathways.

Conclusion: Inhibition of cytokines IL12/IL23, which drive effector Th1 and Th17 responses, and regulate innate and Jak-STAT signaling, in combination with blockade of the cell trafficking integrin α4β7, resulted in significantly increased protection from colitis compared to monotherapy groups. Combining these agents with different mechanisms of action offers a rational approach to test these combinations for potential increased therapeutic activity in patients with IBD.

Disclosure: All authors are employees and shareholders of Morphic Therapeutic, Waltham, MA, USA.

PP0554

CRYPT-VILLUS DYNAMICS POST-DSS EXPOSURE IN MURINE COLITIS MODEL OF INFLAMMATORY BOWEL DISEASE

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory disease characterized by mucosa barrier damage, accumulation of neutrophils, formation of crypt abscesses, crypt distortion, loss of goblet cells and in severe cases presence of broad-based ulcers. During the clinical remission phase of the disease mucosa regeneration may occur. Physiological and abortive mucosa healing processes are the focus of pharmaceutical research in attempt to support mucosal regeneration, prevent excessive proliferation accompanied with aberrant differentiation of crypt epithelial cells that can cause development of colorectal carcinoma in latter stages of the disease. In different phases of ulcerative colitis, there is epithelial cell differentiation disorder in the stem cell zone of the crypt base, so the ratio of absorptive and secretory epithelial cells shifts. The aim of this study was to investigate crypt-villus axis dynamics in colon epithelium of regenerative mucosa during recovery phase of DSS-induced colitis mouse model.

Aims & Methods: C57BL/6 mice were exposed to 2% DSS in water for 6 days followed by 6 days recovery phase without DSS consumption. Colon tissue was formalin fixed, paraffin embedded and double stained on: IHC transcription repressor hairy and enhancer of split (HES1) as a marker for absorptive progenitor cells and Alcian-blue Periodic-acid Schiff (AB-PAS) as a marker for secretory goblet cells. Colon mucosa samples from both groups were analysed using digital pathology software (Visiopharm, Denmark). Regions of interest were: regenerative zone next to ulcer and not-inflamed colon mucosa.

Results: In comparison to animals exposed to water only, DSS exposed animals post 6 days recovery period, HES1 expressing absorptive type of epithelial cells within crypts of regenerative mucosa significantly increased. At the same time, goblet cell population in those crypts decreased. Statistically significant difference in presence of goblet cells between regenerative and non-inflamed mucosa in DSS group was observed. Proportion of goblet cells within non-inflamed mucosa of DSS-treated animals remained unchanged compared to negative control, while proportion of HES1 positive cells increased.

Conclusion: In this study we showed changes in stem cell zone niche and crypt-villus axis, in terms of changing cell differentiation from secretory to absorptive lineage within crypts in regenerative colon mucosal layer. This may alter protective role of colon epithelium due to lack of goblet cells that produce mucus thus contributing to the severity of the disease. Results of this study evoke pathological changes within colon crypts observed in human disease and indicate translational value of data obtained by exploration of recovery phase in animal colitis model.

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PP0555

MUCOSA-ASSOCIATED COLLAGENOUS COLITIS MICROBIOTA IN-DEPTH ANALYSIS IDENTIFIES POTENTIAL DISEASE TRIGGERS

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Introduction: Collagenous colitis (CC) is a debilitating, non-destructive inflammatory bowel disease (IBD) that causes intense watery, non-bloody diarrhoea. The abnormal immune response is thought to be initiated by deficient tolerance to commensal gut microbiota, and fecal sample analyses indicate similarities with classic IBD forms as ulcerative colitis and Crohn's disease. Yet, the exact members of the microbiome that might trigger and maintain the disease remain unknown.

Aims & Methods: To identify primary microbial triggers of CC pathogenesis that could directly interact with intestinal epithelial and submucosal cells, we isolated subepithelial mucosa from CC and healthy control (Hc) formalin-fixed paraffin-embedded samples (n=7-10) by using a laser microdissection microscope (PALM MicroBeam LCM, Zeiss, Germany). Isolated nucleic acids were sequenced using shotgun metagenomics in a NovaSeq 6000 platform (Illumina, USA). Microbial communities were identified using MetaPhlan3/4, and microbial metabolic and molecular function pathways using Humann3.2 algorithms.

Results: Bray-Curtis and Jaccard similarity coefficients showed that CC subepithelial microbiome was similar to that from Hc samples. Still, further analyses indicated that microbial metabolic pathways and molecular functions could differ. Microbiota that was associated with CC included Anoxybacillus and Barnesiella, whereas microbiota associated with Hc comprised Bacteroides, Leuconostoc and Lactobacillus.

Conclusion: Mucosa-associated microbiota in CC did not significantly differ from healthy microbiota. However, our results point to a relation of CC with bacteria that form biofilms (Anoxybacillus) and affect the variability of colitis development (Barnesiella). Thus, validation and further follow-up of these results could help us identify CC triggers in the future.

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PP0556

NONINVASIVE TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION MODULATES PRO-APOPTOTIC AND PRO-SURVIVAL MOLECULES AND ANTI-INFLAMMATORY CYTOKINES IN A PRECLINICAL MODEL OF ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) involves inappropriate apoptosis of intestinal epithelial cells and an imbalance between pro-apoptotic and pro-survival molecules, leading to intestinal damage (1). Vagus nerve stimulation (VNS) is of interest for UC treatment due to its anti-inflammatory and protective effects (2). Noninvasive transcutaneous auricular VNS (NitaVNS) can exert protective effects without invasive VNS-associated side effects (3), making it a promising option for UC treatment. Recently, we showed a beneficial correlation between NitaVNS and inflammatory markers in a preclinical model of UC (4).

Aims & Methods: We assessed the effectiveness of NitaVNS in regulating apoptosis in acute UC colitis in mice. Colitis was induced in C57BL/6 male mice (11–12 weeks old) by administering 5% dextran sodium sulfate (DSS) for five days, while the control mice received regular water. NitaVNS (10 V voltage, 10 min stimulation, 500 µS pulse width, and 20 Hz frequency) or sham stimulation started one day before colitis induction and lasted six days. The disease activity index (DAI) was evaluated daily, and macro- and histological scores were evaluated at sacrifice. Colonic and splenic tumor necrosis factor (TNF)-α, interleukin (IL)-1β, IL-6, tumor growth factor (TGF)-β, IL-10, pro-apoptotic markers Bcl-2-associated X protein (BAX), Bcl-2 homologous antagonist killer (BAK1), caspase-8, and pro-survival BCL2 associated agonist of cell death (BAD) were assessed using qRT-PCR and ELISA.

Results: NitaVNS significantly reduced DAI, the severity of colitis associated with rectal bleeding, stool consistency, weight loss, the decrease of colon length, and the macroscopic score. In addition, NitaVNS decreased histological scores, as indicated by mucosal damage, crypt loss, and immune cell infiltration. NitaVNS colitic mice demonstrated unaltered IL-10 protein levels in the colon. However, NitaVNS increased the mRNA expression of IL-10 in both colitic and non-colitic mice and the expression of TGF-β in non-colitic mice. NitaVNS significantly downregulated the mRNA expression of BAX, BAK1, and caspase-8 in colitic mice. Conversely, NitaVNS upregulated BAD mRNA expression in non-colitic conditions. Although the splenic protein levels of IL-1β and IL-6 were not modified under all conditions, NitaVNS decreased TNF-α levels in non-colitic mice. NitaVNS did not alter splenic protein levels of IL-10 but significantly increased TGF-β levels in colitic and non-colitic mice.

Conclusion: These findings suggest that NitaVNS can attenuate the severity of experimental colitis and the inflammatory process by modulating pro-apoptotic, pro-survival molecules and anti-inflammatory cytokines. The use of NitaVNS may lead to novel therapeutic strategies in ulcerative colitis.

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PP0557

INTERROGATION OF DIET-INDUCED CHANGES IN THE MICROBIOME USING METAPROTEOMIC ANALYSIS OF CROHN'S DISEASE PATIENTS RECEIVING A CATERED HIGH FIBER, LOW FAT DIET INTERVENTION

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Introduction: Crohn's disease (CD) is characterized by chronic intestinal inflammation due to genetic and environmental factors. Microbiome studies have consistently shown dysbiosis in patients with CD. Diet is an important risk factor in the development of CD and may contribute to changes in the gut microbiota (GM). We conducted a prospective diet intervention study in CD patients and compared one time diet counseling versus catered meals that were high fiber (17g/1000 calories) and low fat (20-25% calories from fat) for 8 weeks (w) and followed for a total of 36w.

Aims & Methods: We hypothesized that metaproteomic characterization of the GM in CD in the context of dietary manipulation could edify response to diet intervention therapy. Patients chose to receive diet coun-

seling alone (group 1), catered food for 8 weeks (group 2), or catered food for a patient (group 3P) and a household control (HHC) (group 3C) as well as participate in Dyadic Psychosocial Support (DPS) sessions (group 3P and 3C). A total of 70 patients and 22 HHC were followed prospectively and collected stool at baseline, week 8, and week 36. Samples were processed with a proven pipeline to isolate and digest bacterial proteins to perform LC-MS analysis.[1] Samples with bacterial protein groups lower than 1800 were not included for further analysis. The resulting dataset was processed with the MetaLab 2.3 application to build a sample specific database (SS-DB) from the integrated gene catalog (IGC)-DB.[2] Taxonomic assignment to identify peptides was performed using the Unipept desktop version.[3]

Results: The average taxon-specific peptide distribution in the GM, especially at less specific taxonomic levels, did not show a striking difference between the groups at baseline. At the species level, after 8 weeks of a catered diet there was a general reduction of Collinsella aerofaciens that was more marked in groups 2 and 3P than in the HHC in group 3C. Collinsella aerofaciens has been linked to TLR2 activation, pro-inflammatory responses, and CD.[4] We also observed a continuous increase in Prevotella copri over time in CD patients ultimately resulting in similar patterns as seen in the household controls. P. copri has recently been recognized as an important biomarker for diet improvements in dysbiosis[5]. In particular, there was an increase of proteins associated with carbohydrate metabolic processes in P. copri in the CD patients over time. Large scale annotation of the metaproteins and their related functions is ongoing.

Conclusion: Evidence suggests that a catered high fiber, low fat diet induces a change in the GM of CD patients more than in healthy subjects. The ability to compare the effect of a diet intervention in CD patients versus matched household controls will give additional power to understanding how diet can be used to manipulate the microbiome in the context of dysbiosis.

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PP0558

THROMBOEMBOLIC EVENTS IN CROHN'S DISEASE: AN EXTRA-DIGESTIVE COMPLICATION TO BE FEARED

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Introduction: The complications of Crohn's disease (CD) are many and varied. Among them are thromboembolic complications that can occur during the course of the disease or reveal it. The aim of our work is to study the epidemiological, clinical and evolutionary aspects of these complications.

Aims & Methods: This is a monocentric retrospective study spread over a period of 23 years (January 1998 to October 2021). It focused on patients hospitalized for CD and presenting with a venous thrombosis confirmed by imaging.

Results: Out of 1084 cases of Crohn's disease, 17 cases of venous thrombosis were recorded, representing a prevalence of 1.7%. The median age was 35 years [28-41] with a M/F sex ratio of 1.

According to the Montreal classification, 7 cases (41.2%) were L2, 6 cases (35.3%) were L3, 3 cases (17.6%) were L1 and 1 case (5.9%) was L4. Four patients (28.6%) had ano-perineal manifestations. The phenotypic profile was B1 in 10 cases (58.8%), B2 in 5 cases (29.4%) and B3 in 2 cases (11.8%).

Apart from 2 cases of deep vein thrombosis (DVT) that revealed CD, the other 15 cases occurred during a relapse of the intestinal disease after an average evolution of 40 months, of which two cases (11.8%) were already under heparinoprophylaxis.

These were 12 cases (70.6%) of DVT of the lower limbs associated in one case with pulmonary embolism, 2 cases of cerebral venous thrombosis (11.8%) associated in one case with pulmonary embolism, one case of ovarian vein thrombosis, one case of superior mesenteric vein thrombosis, and one case of port-sinusoidal thrombosis (porto-sinusoidal vascular disease).

Associated risk factors were identified: 4 cases (23.5%) of recent surgery associated in two cases with smoking, and in one case with diabetes, one case of pregnancy, one case of prolonged immobilisation and one case of hypertension.

Biologically, there was one case of protein S deficiency and one case of vitamin B12 deficiency. It should be noted that hypoalbuminemia was found in 13 cases (76.5%) and that homocysteinemia measured in 3 cases was normal.

Apart from one death, the evolution under specific treatment was favourable in 94.1% of cases.

Conclusion: Thromboembolic complications in CD are potentially serious and dominated by DVT of the lower limbs. They usually occur during the active phase of the disease, highlighting the importance of preventive treatment.

Disclosure: Nothing to disclose.

PP0559

COMPARATIVE MULTI-OMICS ANALYSIS IN PERIPHERAL BLOOD IDENTIFIES UNIQUE AND SHARED CORE MOLECULAR SIGNATURES IN IBD, PSORIASIS, RHEUMATOID ARTHRITIS AND SLE

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Introduction: Inflammatory bowel disease (IBD) shares many features with other chronic inflammatory diseases (CIDs), such as rheumatoid arthritis and psoriasis, which are characterized by dysregulated immune responses and systemic manifestations. While IBD is primarily associated with inflammation in the gut, it can also lead to extra-intestinal symptoms, including joint pain and skin lesions, which are commonly observed in these other diseases. Understanding commonalities and differences

among these chronic inflammatory conditions is important for developing more effective therapies that can target the underlying immune dysregulation and improve patients' overall quality of life.

Aims & Methods: We aim to identify both the common disease signatures shared between IBD and other CIDs, as well as the disease-specific signatures unique to each condition. A cross-sectional cohort of 650 patients with CIDs, including Crohn's disease, ulcerative colitis, rheumatoid arthritis, psoriatic arthritis, psoriasis, and systemic lupus erythematosus (SLE), were recruited from the University Hospital Kiel. Peripheral blood samples were collected from this cohort, along with samples from 202 healthy controls, and subjected to RNA sequencing and methylation profiling. At the time of sample collection, the patients in the cohort underwent detailed clinical phenotyping including assessments of disease activity and symptoms. Additionally, these patients were followed up for up to 5 years to record any potential future complications that may arise.

Results: We performed differential expression and methylation analysis between each CID diagnosis and the healthy control group to identify shared molecular signatures. Our analysis showed that IBD shared the most differential signatures with rheumatoid arthritis, indicating common pathways in their pathogenesis. Psoriatic diseases also shared a significant proportion of differentially expressed and methylated patterns, while SLE had the least in common with other CIDs, suggesting distinct molecular pathways driving its pathogenesis. Interestingly, we were able to identify core transcriptomic changes that persisted even during inactive disease by separating the analysis by disease activity. These signatures were shared across different CIDs and were correlated with DNA methylation changes, reflecting the molecular mechanism of chronicity. Commonly upregulated genes across all CIDs were enriched in pathways related to inflammatory response, cytokine signaling, neutrophil chemotaxis, and humoral immune response. Disease-specific pathways included interferon-beta production in SLE, several metabolic processes in psoriasis, and complement activation in ulcerative colitis. Disease-specific methylation signatures were mainly located in CpG islands, while methylation signatures in enhancers were shared among most diseases. Our large cohort design enabled us to identify subgroup of patients across CIDs that share molecular characteristics, including a cluster of genes related to interleukin and interferon signaling upregulated in 71 samples belonging to different CIDs.

Conclusion: In conclusion, our study identified common and disease-specific molecular signatures in CIDs. Our findings suggest shared immune dysregulation pathways underlying the pathogenesis of IBD and rheumatoid arthritis, as well as potential commonalities between psoriatic diseases. We show the clear presence of core signatures of disease regardless of disease activity, which could represent insights into actionable targets for causative treatments and better disease control of CIDs.

Disclosure: Nothing to disclose.

PP0560

LOW-INTENSITY PULSED ULTRASOUND AS A NEW APPROACH OF GUT DISRUPTIVE LIQUID BIOPSY TO BOOST THE RELEASE OF MIRNA CARGO PACKAGED IN MUCOSAL EXTRACELLULAR VESICLES IN ULCERATIVE COLITIS

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Introduction: Ulcerative Colitis (UC) is a chronic, idiopathic intestinal inflammatory disease whose diagnosis requires colonoscopy with biopsy. There is an unmet need for sensitive, and easy-to-detect biomarkers helping a rapid and non-invasive diagnosis, and suitable for following disease progression. Extracellular vesicles (EVs) have been proposed as promising carriers of biomarkers. Nevertheless, their plasma levels remain very low and thus difficult to detect.

Aims & Methods: We explored Low-Intensity Pulsed Ultrasound (LIPUS) as a novel and safe approach to enhance the mucosal release of EVs in experimental models of UC. LIPUS was applied at a frequency of 38 kHz and at an intensity of 150 mW/cm^2 for 3 min, using devices dedicated to *in vitro* or *in vivo* studies. Primary intestinal fibroblasts, Human Intestinal microvasculature endothelial cells (HIMEC) and peripheral blood mononuclear cells (PBMC) were isolated from UC patients and healthy volunteers (n=6). Cell viability was tested in Caco-2 and all primary cells using MTT assay. Computer acoustic simulations, allowing a reliable control of the energy dose in the colon, were carried out using k-Wave software to translate in vivo the LIPUS. Acute and chronic colitis models were induced in C57BL/6N mice by administration of dextran sodium sulfate (DSS) respectively 2 and 2.5% *ad libitum* in their drinking water for seven days for the acute and three cycles of DDS for the chronic. Mice were monitored daily for body weight loss, bleeding and stool consistency. EVs were characterized in supernatants, plasma and mucosa at NanoSight and inflammatory mediators detected 1, 2 and 24 h after LIPUS by ELISA assay. A profile of miRNAs was performed by using next generation sequencing. Apoptosis and cell proliferation were evaluated by TUNEL and Ki67 stainings.

Results: After LIPUS, all cells appeared 100% viable and no pro-inflammatory changes were observed. In Caco-2 cells, fibroblasts and HIMEC, LIPUS significantly decreased the levels of IL-8. The maximum release of EVs, range in size from 100 to 120 nm, was recorded after 60 min in resident cells from both UC and healthy-derived cells. Conversely, PBMC displayed a progressive decrease.

In both acute and chronic models, the physiological cellular turnover of the mucosa resulted unchanged after LIPUS. A significative increase of EVs was observed after 2 h of stimulation, and dropped down after 24 h. The

levels of EVs were higher (p<0.01) in the chronic rather than acute phase of colitis. 2 clusters of miRNAs each characterized by 3 and 6 genes were significantly up-regulated by LIPUS after 2 hours in acute and chronic phases respectively.

Conclusion: LIPUS proved to be a safe and non pro-inflammatory approach to boost the release of miRNA cargo packaged in EVs accumulated into the mucosa increasing their levels in the bloodstream. This feature is transient and more evident in the short term. Overall, the LIPUS could pave the way to a new era of a gut disruptive liquid biopsy.

Disclosure: Nothing to disclose.

PP0561

IN A PRECLINICAL MOUSE MODEL OF ULCERATIVE COLITIS, PANCREASTATIN INHIBITION REGULATES COLONIC MUCOSAL BARRIER FUNCTION IN A SEX-DEPENDENT MANNER

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Introduction: Ulcerative colitis (UC) is an inflammatory disorder of the colon of unknown aetiology characterised by intestinal barrier dysfunction associated with colonic epithelial goblet cell depletion and a shift in intestinal stem cell retention and function[1,2]. Pancreastatin (PST), an intestinal epithelial cells-derived peptide highly expressed in colonic tissues of patients with active UC, positively correlates with UC early onset, disease severity, and inflammatory markers[3]. However, the effect of PST inhibition on colonic epithelial barrier function remains undetermined.

Aims & Methods: This study aimed to investigate the impact of pancreastatin inhibitor 8 (PSTI8) on colonic epithelial barrier function in a preclinical mouse model of UC. Male and female C57BL/6 mice were treated intrarectally with PSTi8 (2.5mg/mL/kg) or PBS for six days and received 5% dextran sulfate sodium (DSS) to induce colitis or water (control) for five days. The disease activity index (DAI) was assessed daily. ELISA quantified inflammatory cytokines, interleukin (IL)-6, IL-18 and IL-22. Markers to characterise differentiated goblet cells (Mucin, MUC2), transcription factors for goblets' lineage commitment (growth factor independent, GFI1 and Kruppel-like factor, KLF1), and colonic stem cells plasticity (fast-cycling Lgr5, fetal-like Ly6a, and reserve Hopx cells) were quantified via RT-PCR and immunofluorescence.

Results: PSTi8 treatment increased stool consistency (p<0.01) and delayed the onset of bleeding in colitic male mice compared to PBS-treated mice (2-4 days). Conversely, no differences in the DAI were noted between colitic PSTi8 and PBS-treated female mice. In non-colitic conditions, PSTi8 treatment increased (p<0.03) IL-22 in males and decreased (p<0.01) its level in female mice with no effect of IL-6. In colitic conditions, although IL-22 levels were decreased (p<0.01) in female mice and IL-6 levels were increased (p<0.001) in male mice, PSTi8 treatment did not show any effect. Conversely, in colitic females, IL-18 was significantly increased (p<0.02), and PSTi8 abolished that increase. The mRNA expression level of MUC2 remains unaltered in male and female non-colitic and colitic mice treated or not with PSTi8. Yet, immunofluorescence staining in non-colitic and colitic conditions demonstrated a decrease of MUC2 in PSTi8-treated female mice. In concordance, transcription factors KLF1 and GFI1 were significantly increased (p<0.001 and p<0.02, respectively) in colitic female mice, and PSTi8 treatment abolished that increase. No differences were seen in male mice except for a significant increase of KLF1 in PSTi8-treated colitic mice. In colitic conditions, fast-cycling cells marker Lgr5 expression in both sexes was significantly decreased (p<0.0001), and treatment with PSTi8 did not show any effect. However, in colitic male mice, fetal-like stem cells makers Ly6a expression was significantly increased (p<0.007), and PSTi8 treatment significantly decreased (p<0.02) that expression. Although a significant decrease (p<0.0001) of reserve cells marker Hopx was only seen in colitic female mice, PSTi8 treatment did not regulate that marker in male and female mice.

Conclusion: PST inhibition protects male mice from DSS-mediated colitis while exacerbating susceptibility to colitis in female mice. PST inhibition regulates the expansion of goblet and intestinal stem cells in a sex-dependent manner. Further investigation is needed to delineate the signalling pathways involved in PST action on the mucosa in both sexes. Targeting PST may lead to novel therapeutic strategies in UC.

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PP0562

THE EFFECT OF COMMONLY PRESCRIBED MEDICATIONS ON THE TRANSCRIPTOME OF PATIENTS SUFFERING FROM IBD AND OTHER CHRONIC INFLAMMATORY DISEASES

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Introduction: Transcriptomics is a fast-evolving field with translational applications and is broadly used in research. However, gene expression (GE) can be affected by many environmental and biological factors. The effect of commonly prescribed medications on GE is still understudied, especially in the context of a large cohort of chronic inflammatory disease (CIDs) patients. The unravelling of transcriptomic changes induced by therapies used by CIDs patients can further aid in the minimization of disease-unspecific signals and contribute to insights into medications' mechanisms of action and repurposing.

Aims & Methods: The study aimed at the identification of prednisolone (PRED), azathioprine (AZA), and anti-TNF biologics signatures on the transcriptome of patients with inflammatory bowel disease (IBD) and other CIDs. RNA-seq was performed in peripheral blood samples of 625 CIDs patients included in a cross-sectional cohort. CIDs comprised IBD, rheumatoid arthritis, psoriasis, psoriatic arthritis, systemic lupus erythematosus, and arthrosis. Patients using the systemic therapies PRED and AZA, and anti-TNF biologics were compared against patients using no systemic therapies or no biologics, respectively. Linear mixed models were used with sex, age, body mass index (BMI), diagnosis, and C-reactive protein (CRP) as covariates. Differentially expressed genes (DEGs) (q-value < 0.05)

were compared to the overall top 2000 varying genes (TVGs) to investigate how much the medication DEGs contribute to the general variation in gene expression.

Results: PRED investigation with low clinical disease activity patients revealed 224 down and 602 upregulated genes that were among the TVGs. Significantly enriched gene ontology (GO) terms of downregulated genes included adaptive immune response, immunoglobulin production, and B cell proliferation, whereas upregulated genes were related to acute inflammation, innate immune response, and positive NF-κB regulation. The AZA investigation comprised 24 IBD patients using AZA and 103 IBD patients using no systemic therapies, all with low clinical disease activity. Significant GO terms from the 144 downregulated genes part of the TVGs were related to cytokine production, cell proliferation, and T, B, and NK cell activity, whereas GO terms from the 301 upregulated genes included platelet aggregation and erythrocyte development. IBD, T-helper cell differentiation and NK cell-mediated toxicity were among suppressed enriched pathways. Variance partition analysis revealed that 151 genes have AZA as the driver of at least 25% of variation and 70 of those were part of the TVGs. GO terms of the upregulated DEGs in common with TVGs from the anti-TNF analysis were related to B cell and innate immune response activities, whereas the downregulated DEGs terms showed no direct relation to immune processes.

Conclusion: Transcriptomics analysis revealed that AZA and PRED, two commonly prescribed therapies to treat CID, modulate the expression of genes that contribute to the overall variation in gene expression and are potentially involved in other gene expression analyses. We suggest that the use of these medications should be considered when performing other transcriptomic analysis on blood samples from CID patients.

Disclosure: Nothing to disclose.

PP0563

BENEFICIAL EFFECT OF INTESTINAL ALKALINE PHOSPHATASE IN THE MECHANISM OF MODULATION OF THE GENE EXPRESSION OF PROINFLAMMATORY BIOMARKERS IN THE ADIPOSE TISSUE, LIVER AND SKELETAL MUSCLE OF TREADMILL EXERCISING OBESE MICE WITH COLITIS

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Introduction: Inflammatory bowel disease (IBD) constitutes a group of chronic and relapsing idiopathic inflammatory disorder of the intestine that includes Crohn's disease (CD) and ulcerative colitis (UC). Both diseases characterized by a cyclical nature alternating between active and quiescent states, that markedly diminish physical functioning and quality of life in patients.

Our previous study have indicated that exercise of moderate intensity can be recommended as the alternative therapy in prevention and healing of experimental colitis in obese mice.

Aims & Methods: The intestinal alkaline phosphatase (IAP) is an important apical brush border enzyme, released from cells walls during stressful events maintains tight junction and barrier integrity It remains unknown, whether IAP treatment besides its protective action against colitis, can influence the gene expression of proinflammatory genes in adipose tissue, liver and skeletal muscle of obese mice forced to exercise on treadmill. In this study two major series of C57BL/6 male mice were fed ad libitum high fat diet (HFD, 70% energy from fat, series A) or standard diet (SD,10% energy from fat, series B) (Altromin, Lage, Germany) for 12 weeks and subjected to forced treadmill exercise (15 min/day, 6 wks., Panlab, Harvard Apparatus, MA, USA) with or without the intragastric treatment with AP (200 U/day) and trinitrobenzene sulfonic acid (TNBS) colitis was induced. Following colitis, the colonic blood flow (CBF) was examined by Laser Doppler flowmetry, the disease activity index (DAI) as well as histology of intestinal mucosa were determined. The biopsy samples of abdominal fat, liver and skeletal muscle were excised, and shock frozen in liquid nitrogen for determination of the gene expression of antioxidative enzymes SOD, GPx and fat biomarkers leptin and adiponectin as well as proinflammatory biomarkers IL-1β, IL-6, TNF-α, HIF-1α and iNOS by qPCR.

Results: In obese mice the DAI was significantly increased and a significant fall in CBF as compared with sedentary SD fed mice ($P<0.05$). Treadmill exercise exacerbated the DAI activity in obese mice and decreased CBF vs. SD fed mice ($P< 0.05$), and this effect was significantly inhibited by treatment with IAP ($P< 0.05$). In fat tissue and liver of obese mice, the adiponectin mRNA expression was downregulated, while the mRNA leptin expression being upregulated ($p<0.05$), and this ratio in expression of these factors was restored by IAP. In the skeletal muscle, the mRNA expression ratio of adiponectin to leptin remained unchanged. The SOD and GPx mRNA expression was unchanged in the liver, while the mRNA expression of proinflammatory markers HIF-1α, TNF-α and IL-1β was significantly increased ($P< 0.05$) in all tissues collected from the high fat diet fed mice forced to exercise as compared to SD animals. The treatment with IAP significantly reduced the expression of these markers in liver, skeletal muscle, and adipose abdominal tissue.($p<0.05$).

Conclusion: We conclude that forced treadmill exercise not only exacerbates the severity of colonic damage and diminishes the colonic blood flow in obese mice but also exerts deleterious effect as manifested by the increased expression of local proinflammatory biomarkers in fat, liver, and skeletal muscle. IAP downregulates gene expression of proinflammatory biomarkers and deserves an attention as may exert the multi-organ protective activity in the treatment of IBD in humans.

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PP0564

LACTOBACILLUS REUTERI ALLEVIATES GUT INFLAMMATION-INDUCED BONE LOSS IN INFLAMMATORY BOWEL DISEASE THROUGH MODULATING EPITHELIAL BARRIER AND OSTEOCLAST FUNCTION

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Introduction: The inflammatory bowel disease (IBD) can affect the systemic metabolism of patients, and the majority of patients also suffer from bone loss and osteoporosis[1·2].

However, research into the pathogenesis and treatment of bone diseases associated with IBD is sluggish. The gut microbe-bone axis has emerged as a key regulator of bone homeostasis, and mucosal damage-induced bone loss is closely linked to an altered microbiome[3·4].

However, the underlying mechanisms continue to be unknown.

Aims & Methods: This study examined the effects of gut microbes on bone loss associated with IBD in mice, delineating the underlying mechanisms responsible for the beneficial effects, with a focus on the gut barrier and osteoclast reprogramming.

16s rDNA sequencing was conducted on fecal samples collected from IBD patients with osteoporosis (IBDO) and those with normal bone mass (IBDN). Then, using a chronic colitis mouse model induced by dextran sulfate sodium (DSS), we performed fecal microbiota transplantation (FMT) and *Lactobacillus reuteri* (L.reuteri) gavage colonization. The micro-CT was used to assess the bone mass and microarchitecture of mice. *In-vivo* imaging, immunofluorescence, histological examination, flow cytometry, scRNA-seq and western blot were used to determine intestinal permeability, pro-osteoclastic cytokine expression, osteogenic and osteoclastic activity. Furthermore, RAW264.7 was used to induce osteoclast differentiation under various conditions.

Results: According to 16S rDNA gene sequencing, gut microbiota in the IBDO group had a considerably lower amount of the genus Lactobacillus than that in the IBDN group. In animal experiments, mice in the DSS-induced chronic IBD model group lost significantly more weight and had a higher disease activity index, as well as lower bone mass, as evidenced by lower bone volume fraction, trabecular number and thickness, and higher trabecular separation, bone surface/bone volume ratio. The detrimental effects of IBDO-derived FMT on epithelial barrier damage, excessive osteoclastogenesis and bone loss were reversed by IBDN-derived FMT and L.reuteri gavage. As for the mechanism, high fluorescent signals detected in the femur and tibia of mice orally or intravenously administered with the DIL-labeled extracellular vesicles secreted from L.reuteri (LREVs) revealed that LREVs could translocate into the mice bone tissues, inhibiting local pro-inflammatory responses and osteoclast activity. Moreover, LREVs-treated colitis mice kept their bone volume relatively higher than controls. *In vitro*, LREVs surpressed RANKL-induced osteoclastogenesis in a concentration-dependent approach. And the results of an investigation on the transmission of signals within cells showed that LREVs inhibited ERK/JNK signaling, which led to a reduction in the formation of osteoclasts. The protective effects of L.reuteri and LREVs on bone mass were also linked to their control of intestinal permeability and up-regulation of tight junction protein expression (ZO-1,claudin-1 and Occludin).

Conclusion: Through the gut microbiota-bone axis, L. reuteri and LREVs may act as a safe and effective therapeutic agent or target for IBD-related bone diseases.

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PP0565

ELECTROMYOGRAPHY IN THE DIAGNOSIS OF ULCERATIVE COLITIS WITH IBS-LIKE DISORDERS

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Introduction: Diagnosis of ulcerative colitis with IBS-like disorders presents significant difficulties for practitioners.

Aims & Methods: Objective - to study the possibilities of electromyography (EMG) for the diagnosis of ulcerative colitis (UC) with IBS-like disorders.

Materials and methods. 134 patients were examined and divided into three groups: group 1 - 56 patients with IBS-diarrhea (IBS-D). The diagnosis met the Rome IV criteria.

group 2 - 48 patients with UC in remission, confirmed by laboratory, endoscopic and morphological methods of research were on maintenance therapy with mesalazine preparations. Clinically noted diarrhea up to 4±1 times a day, without pathological impurities, pain before defecation, Mayo index 0 ;

Group 3 comparison - 30 volunteers without diseases of the digestive system. Colon electromyography (EMG) was used as a research method, which was recorded on a Nihon Kohen polygraph (Japan). Statistical analysis was performed using the Statistica 12 program (StatSoft Inc., USA), the significance level was $p < 0.05$.

Results: Results. With EMG in patients of the first group (IBS-D), the frequency of slow waves was 12.2 ± 2.7 / min (103.3%, $p < 0.001$), the frequency of spikes was 5.0 ± 0.2 / 100 slow waves (400 .1%, $p < 0.001$) and propulsive activity 18.4 ± 1.8/min (206.6% $p < 0.001$), which corresponded to the presence of hypermotor dyskinesia with a pronounced spastic component, which indicated a pronounced excitation of the neurons of the Meisner and Auerbach nerve plexuses.

In patients of the second group with UC in remission, the frequency of slow waves was 9.0 ± 0.3 / min (50.%, $P < 0.05$) and the spike frequency was 1.8 ± 0.3 / 100 slow waves (80%, $P < 0.05$), propulsive activity 15 ± 1./ min (150%, $p < 0.002$), which corresponds to the presence of hypermotor dyskinesia with a spastic component.

In patients of the third group (volunteers), the motility of the left sections of the colon corresponds to normal values, the frequency of slow waves was 6 ± 0.3 / min ($p > 0.1$), the frequency of spikes was 1.0 ± 0.1/100 slow waves ($p > 0.1$, propulsive activity -6, ± 0.1 ($P > 0.1$).

Conclusion: Conclusion. In all patients with UC in remission and with IBS-like disorders, the identified violation of the motor activity of the left sections of the colon corresponded to the disorders observed in functional bowel diseases. The data obtained served as the basis for the appointment of myotropic antispasmodics, EMG is an additional method for diagnosing UC with IBS-like disorders. IBS-like syndrome in UC is characterized by mild hypermotor dyskinesia with moderate spastic activity of the colon.

Disclosure: No conflict of interest in the text

PP0566

CHARACTERISTICS AND MANAGEMENT OF PYODERMA GANGRENOSUM AND ERYTHEMA NODOSUM IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: PIONOSO MULTICENTER STUDY

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Introduction: Inflammatory bowel disease (IBD) is a chronic condition of the gastrointestinal tract. Around 20% of patients develop at least one extraintestinal manifestation, the most frequent being articular, followed by cutaneous, ocular and hepatobiliary. Among those involving the skin, erythema nodosum (EN) and pyoderma gangrenosum (PG) are frequently observed.

Aims & Methods: Our aim was to describe the characteristics of PG and EN in both ulcerative colitis (UC) and Crohn's disease (CD), and provide a detailed description of their treatment, prognosis and their impact on IBD management. This was a retrospective, multicenter study including all patients with a diagnosis of EN or PG between January 2013 and February 2023. Patients were identified from the ENEIDA registry, a prospectively-maintained database supported by GETECCU. Demographic and clinical characteristics (subtype, date of diagnosis, number of cutaneous lesions, distribution, and location), along with therapeutic requirements and prognosis were registered. Descriptive statistics were used, followed by non-parametric comparisons by chi-square tests.

Results: A total of 542 patients (401 with EN and 141 with PG) fulfilled the inclusion criteria among 52,555 IBD patients included in the ENEIDA registry at the time of data extraction.

EN was predominantly observed in women (77%), with a mean age of 47 years (SD 15) and CD (76%). It was mostly located in the lower limbs (97%), followed by upper limbs (9%); lesions were frequently multiple (75%) and bilateral (65%). EN modified the management of IBD in 18% of cases. Steroids were the most frequently used drugs (73% oral, 17% topical, 13% iv); 18% of patients were treated with biologicals, mostly anti-TNF agents. After 8 weeks of diagnosis, partial response was observed in 19% of patients, and remission in 77%. Recurrence rate of EN was 21%, with 60% of patients developing multiple episodes.

PG was mainly seen in women (60%), with a mean age 52 years (SD 14) and UC (52%). It was usually located in the lower limbs (75%), but it was also observed in arms, thorax or periostomal (12-13%). The most common type was classic (77%), followed by pustular (19%). Multiple lesions were observed in 56% of patients and unilateral distribution in 62%. PG modified the management of IBD in 29% of cases. Oral steroids were commonly used (54%), followed by biological agents (38%), oral antibiotics (27%), and cyclosporin (18%). PG modified the management of IBD in 29% of cases. After 8 weeks of diagnosis, 49% of patients showed partial response and 43% achieved complete remission. Recurrence rate of PG was 21%, with 55% of them developing multiple episodes.

Conclusion: Up to 1% of patients in the ENEIDA registry developed EN and/or PG. They are usually located in the lower limbs and with multiple lesions. Steroids are the mainstay of their treatment, being anti-TNF the main biological agents. These cutaneous manifestations modify the clinical management of IBD in 21% of cases. Clinical remission rates are higher in EN than in PG, although recurrence occurs in one fifth of patients.
Disclosure: Nothing to disclose.

PP0567

TIME TRENDS OF ENVIRONMENTAL AND SOCIOECONOMIC RISK FACTORS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE OVER 40 YEARS OF DIFFERENT THERAPEUTIC ERAS: A POPULATION-BASED COHORT BETWEEN 1977-2020

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Introduction: The pathogenesis of IBD is precipitated by a complex interaction of genetic and environmental factors.[1] Changes in genetic susceptibility in the population alone cannot explain the sharp increase in the incidence of IBD during the last decades, and interaction with environmental factors is suggested to play an important role in the development of IBD.[2,3] Data from population-based studies investigating trends in environmental factors associated with inflammatory bowel disease (IBD) is lacking.
Aims & Methods: We aimed to assess long-term time trends of environmental and socioeconomic factors in IBD patients from a well-defined population-based cohort from Veszprem, Hungary.
Patients were included between January 1, 1977, and December 31, 2020. Trends of environmental and socioeconomic factors were evaluated in three periods based on the decade of diagnosis, representing different therapeutic eras: cohort-A,1977-1995; cohort-B,1996-2008(immunomodulator era); and cohort-C,2009-2020 (biological era).
Results: A total of 2,240 incident patients with IBD were included [UC 61.2%, male 51.2%, the median age at diagnosis: 35 years (IQR29-49)]. There was no significant difference in the proportion of patients with a positive familial anamnesis of IBD amongst the three cohorts in both UC (p=0.584) and CD (p=0.246). Rates of active smoking significantly decreased over time in CD;60.2%,49.9%, and 38.6% in cohorts A/B/C (p<0.001). In UC, the rates were low and stable;15.4%,15.4%, and 14.5% in cohorts A/B/C(p=0.981). Oral contraceptive use was more common in CD compared to UC (25.0% vs. 11.6%,p<0.001). In UC, the prevalence of appendectomy before diagnosis decreased over time;6.4%,5.5%, and 2.3% in cohorts A/B/C(p=0.013). No significant changes were found in the socio-geographic characteristics of the IBD population [urban living: UC;59.8%/64.8%/62.5% (p=0.309) and CD; 62.5%/62.0%/59.0%(p=0.636), in cohorts A/B/C]. A greater percentage of patients had completed secondary school as the highest education level in the latter cohorts in both UC(42.9%/50.2%51.6%,p<0.001) and CD (49.2%/51.7%/59.5%,p=0.002) and a higher percentage of skilled workers (34.4%/36.2%/38.9%,p=0.027) were found in UC, but not CD(p=0.454). (Table 1)
Conclusion: The association between trends of known environmental factors and IBD is complex. Smoking has become less prevalent in CD, but no other major changes occurred in socioeconomic factors over the last four decades that could explain the sharp increase in IBD incidence.
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Disclosure: Nothing to disclose.

Factors	Ulcerative colitis (n=1,370)				Crohn's disease (n=870)			
	Cohort-A, 1977-1995 (n=331)	Cohort-B, 1996-2008 (n=605)	Cohort-C, 2009-2020 (n=434)	p-value	Cohort-A, 1977-1995 (n=128)	Cohort-B, 1996-2008 (n=379)	Cohort-C, 2009-2020 (n=363)	p-value
Smoking at diagnosis								
Non-smoking	219 (66.2%)	395 (65.3%)	291 (67.1%)	0.839	43 (33.6%)	154 (40.6%)	160 (44.1%)	0.114
Current smoking	51 (15.4%)	93 (15.4%)	63 (14.5%)	0.916	77 (60.2%)	189 (49.9%)	140 (38.5%)	<0.001
Ex-smoking	61 (18.4%)	117 (19.3%)	80 (18.4%)	0.913	8 (6.2%)	36 (9.5%)	63 (17.4%)	<0.001
Appendectomy before diagnosis UC	21 (6.3%)	33 (5.5%)	10 (2.3%)	0.015	35 (27.3%)	54 (14.2%)	25 (6.9%)	<0.001
Oral contraceptive use								
Current use	15/165 (9.1%)	40/281(14.2%)	21/211(10.0%)	0.175	18/75 (24.0%)	53/193 (27.5%)	40/165 (24.2%)	0.774
Previous use	42/165(25.5%)	86/281(30.6%)	62/211(29.4%)	0.503	24/75 (32.0%)	56/193 (29.0%)	52/165 (31.5%)	0.798
*%counted only in female								
Area of living								
Urban area	198 (59.8%)	391(64.8%)	270 (62.5%)	0.309	80 (62.5%)	235 (62.0%)	214 (59.0%)	0.636
Rural area	133 (40.2%)	212 (35.2%)	162 (37.5%)	0.309	48 (37.5%)	144 (38.0%)	149 (41.0%)	0.636
Highest education level								
Primary school	112 (33.9%)	148 (24.5%)	60 (13.8%)	<0.001	36 (28.1%)	68 (17.9%)	33 (9.1%)	<0.001
High school/college	142 (42.9%)	304 (50.3%)	224 (51.6%)	<0.001	63 (49.2%)	196 (51.7%)	216 (59.5%)	0.002
University	59 (17.8%)	109 (18.1%)	62 (14.3%)	0.852	26 (20.3%)	67 (17.7%)	58 (16.0%)	0.887
No data	18 (5.4%)	43 (7.1%)	88 (20.3%)	NA	3 (2.4%)	48 (12.7%)	56 (15.4%)	NA
Type of employment								
Skilled worker	114 (34.4%)	219 (36.2%)	169 (38.9%)	0.027	45 (35.2%)	150 (39.6%)	125 (34.4%)	0.454
Physical worker	168 (50.8%)	320 (53.0%)	175 (40.3%)	0.027	73 (57.0%)	185 (48.8%)	163 (44.9%)	0.454
Unemployed/no data	49 (14.8%)	65 (10.8%)	90 (20.8%)	NA	10 (7.8%)	44 (11.6%)	75 (20.7%)	NA

PP0567 Table 1. Trend environmental factors of 2,240 incident IBD patients stratified by the eras of diagnosis.

PP0568

BURDEN OF PERIANAL DISEASE AND PERIANAL SURGERY IN CROHN'S DISEASE OVER DIFFERENT THERAPEUTIC ERAS – A POPULATION-BASED STUDY FROM WESTERN HUNGARY BETWEEN 1977–2020, DATA FROM THE VESZPREM COUNTY COHORT

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Introduction: Few population-based studies have investigated rates and management of perianal disease and long-term perianal surgery rates in Crohn's disease (CD). The present study is a continuation of the Veszprem IBD population based cohort with a follow-up osince 1977.

Aims & Methods: Our aim was to analyze the long-term rates of perianal surgical procedures over different therapeutic eras in a prospective population-based database from Veszprem Province, including incident CD patients. Patient inclusion was between January 1, 1977 and December 31, 2018; follow-up ended December 31, 2020. Both in-hospital and outpatient records were collected. Perianal surgical procedure was defined as any perianal surgical procedure including fistulotomy, abscess drainage or seton placement. Surgery rates were examined in three different eras based on time of diagnosis: cohort-A, 1977-1995; cohort-B, 1996-2008; and cohort-C, 2009-2018.

Results: Data of 946 incident CD patients were analyzed (male/female: 496/450; median age at diagnosis: 28 years(y) [IQR: 22-40]). Median follow-up time for the entire cohort was 15 years (IQR: 9-21). Perianal disease at diagnosis was present in 17.4% (n=165) of the total cohort, and in 24.7%/ 18.5%/ 13.2% in cohorts A/B/C, respectively. By the end of follow-up, an additional 9.3% (n=88) of the total cohort developed perianal disease.

Cumulative immunosuppressive and biologic therapy exposure increased by time. Cumulative probability of biological therapy after diagnosis in patients with perianal disease was 0.0±0% / 15.1±3.2% / 42.5±6.2% at 5 years after diagnosis between cohorts A/B/C. Biologic use was higher in patients with perianal disease compared to the overall population. [pLogRank<0.001]. The overall rate of perianal surgical procedures was 44.7% (113/253) in patients with perianal disease during the total follow-up.

The cumulative probability of perianal surgical procedure in patients with perianal disease was 28.3±2.9% after 10 years, 41.0±3.5% after 20 years, and 64.1±5.1% after 30 years. No statistically significant differences have been observed in the cumulative probability of perianal intervention between cohorts A/B/C: 24.2±5.4%/ 19.9±3.5%/ 29.4±5.8% after 5 years; 33.9±6.0%/ 23.6±3.8%/ 31.7±6.1% after 10 years; [pLogRank=0.594]. Cox-regression multivariate analysis showed that stenosing or penetrating disease (B2/B3) behavior (HR 1.81; 95%CI 1.19-2.75; p=0.005) was independent predictor of perianal surgical procedure. *Table 1.*

Conclusion: The burden of perianal disease and perianal surgical interventions was high in this cohort. Patients with perianal CD had higher exposure to biologicals.

No difference was observed in perianal surgical intervention rates despite the increasing use of immunosuppressives and biologicals over time, however these procedures may partly represent a medical decision and the complex management of perianal disease.

Disclosure: Nothing to disclose.

Factor variable	Multivariate HR	(95% CI)	p-valve
Era of diagnosis (cohort A / B / C)	-	-	0.357
Male gender	1.17	0.81-1.71	0.405
Complex (B2 or B3) behavior at diagnosis	1.81	1.19-2.75	0.005
Ileal (L1) location at diagnosis	1.19	0.75-1.89	0.451
Elderly (A3) patient	1.38	0.82-2.30	0.225
Smoking history	1.13	0.76-1.67	0.561

Table 1. Predictive factors for first perianal surgical procedure in incident CD patients diagnosed between 1977 and 2018 – Cox-regression analysis

PP0569

DECLINING TRENDS OF REOPERATIONS AND DISEASE BEHAVIOR PROGRESSION BUT NOT FIRST RESECTIVE SURGERY IN CROHN'S DISEASE OVER DIFFERENT THERAPEUTIC ERAS – A PROSPECTIVE POPULATION-BASED STUDY FROM WESTERN HUNGARY BETWEEN 1977–2020, DATA FROM THE VESZPREM COHORT

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Introduction: Few population-based studies have investigated the long-term surgery rates of Crohn's disease (CD). The present study is a continuation of the Veszprem IBD population based cohort with a follow-up since 1977.

Aims & Methods: Our aim was to analyze the long-term disease course and surgery rates over different therapeutic eras in a prospective population-based database from Veszprem Province, including incident CD patients. Patient inclusion was between January 1, 1977 and December 31, 2018; follow-up ended December 31, 2020. Both in-hospital and outpatient records were collected and comprehensively reviewed at diagnosis and during clinical follow-up. Immunomodulators became widespread in Hungary from the mid-1990s, while biological therapies have been covered by the National Health Insurance Fund since 2008. Surgery rates were examined in three different eras based on time of diagnosis: cohort-A, 1977-1995; cohort-B, 1996-2008; and cohort-C, 2009-2018.

Results: Data of 946 incident CD patients were analyzed (male/female: 496/450; median age at diagnosis:28 years(y) [IQR: 22-40]), with a median of 15y(IQR 9-21) follow-up. Overall immunosuppressive therapy use was increasing by time (48.0%/62.4%/65.5%), as well as the probability of biological therapy initiation within 5 years of diagnosis (0.0±0%/7.3±1.2%/22.7±2.2%) in cohorts A/B/C. The probability of disease behavior progression from luminal (B1) disease to stenosing or penetrating phenotype (B2/B3) was significantly decreasing (27.1±SD5.3%/ 21.5±2.5%/11.3±2.2% in cohorts A/B/C after 5 years [pLogRank<0.001]). The probability of first resective surgery between cohorts A/B/C were 33.3±3.8%/26.5±2.1%/28.1±2.4% after 5 years; 46.1±4.1%/32.6±2.2%/33.0±2.7% after 10 years; and 59.1±4.0%/41.4±2.6% (cohorts A/B) after 20 years. There was a significant decrease in surgery risk between cohorts A and B [pLog Rank=0.002]. Surgery risk remained similar between cohorts B and C [pLog Rank=0.665]. The cumulative probability of re-resection in cohorts A/B/C was also decreasing (17.3±4.1%/12.6±2.6%/4.7±2.0% after 5 years [pLog Rank=0.001]). A cox-regression multivariate analysis showed that stenosing or penetrating

disease (B2/B3) behavior (HR 4.52; 95%CI 3.60-5.68; p<0.001) and ileal (L1) location at diagnosis (HR 1.30; 95%CI 1.05-1.61; p=0.016) were independent predictors of resective surgery. *Table 1.*

Factor variable	Multivariate HR	(95% CI)	p-valve
Resective surgery			
Era of diagnosis (cohort A / B / C)	-	-	0.889
Male gender	1.09	0.89-1.33	0.414
Complex (B2 or B3) behavior at diagnosis	4.52	3.60-5.68	<0.001
Ileal (L1) location at diagnosis	1.30	1.05-1.61	0.016
Perianal manifestation at diagnosis	1.24	0.96-1.59	0.099
Smoking history	1.11	0.90-1.36	0.326

Table 1. Predictive factors for first resective surgery in incident CD patients diagnosed between 1977 and 2018 – Cox-regression analysis.

Conclusion: We report a gradual decline in reoperation rates and disease behavior progression in CD over time with the lowest values in the biological era. In contrast, there was no further decrease in the probability of first major resective surgery after the immunosuppressive era.
Disclosure: Nothing to disclose.

PP0570

INCIDENCE, EVOLUTION OF DISEASE PHENOTYPE, TIME TO BIOLOGICAL THERAPY AND MEDIUM-, LONG-TERM SURGERY RATES IN IBD-U PATIENTS IN WESTERN HUNGARY – A POPULATION-BASED STUDY BETWEEN 1977–2020, DATA FROM THE VESZPREM COUNTY COHORT

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Introduction: The number of epidemiological population-based studies on unclassified inflammatory bowel disease (IBD-U) patients are very limited. The present study is a continuation of the Veszprem IBD population based cohort with a follow-up of the incidence and disease course of IBD-U since 1977.
Aims & Methods: Our aim was to evaluate incidence, prevalence, disease course, time to biological therapy and surgery rates in a prospective population-based database of incident IBD-U patients diagnosed between 1977 and 2018, with follow-up until 2020. Both in-hospital and outpatient records were collected. The source of age- and gender-specific demographic data was derived from the Hungarian Central Statistical Office. Medical therapy, time to first biological therapy, disease progression, and colectomy was registered.
Results: Data of 119 incident IBD-U patients were analyzed (male/female: 55/64; median age at diagnosis: 34 years(y) (IQR: 24-47)). Adjusted mean incidence rate was 0.76 (CI95%: 0.63-0.9) /10^5 person-years in the total study period, and 0.96 (CI95%: 0.79-1.16) /10^5 person-years between 1990-2018. Disease extent at diagnosis was proctitis in 7.6%, one-sided colitis (left-sided colitis, or isolated right-sided colitis) in 36.1%, and extensive (pancolitis) in 56.3%. The probability of progression in colonic disease extent was 6.7% (SE:2.3) at 3 years, 10.3% (SE:2.8) at 5 years and 15.3% (SE:3.4) at 10 years. The probability of developing terminal ileitis, thus disease classification change – Crohn's disease was 2.6% (SE:1.5) at 5 years and 3.5% (SE:1.7) at 10 years. Perianal disease developed in 5% (n=6) of all patients during the total follow-up. The probability of receiving biological therapy in patients diagnosed after the year 2000 (n=62), was 15.5% (SE:4.8) at 5 years, and 19.4% (SE:5.3) at 10 years. The overall resective surgery rate was 16.8% at the end of follow-up. Segment resection was performed in 5.0% of the patients, and 11.8% underwent subtotal- or total colectomy. The cumulative probability of resective surgery was 7.6% (SE:2.4) at 1 year, 9.3% (SE:2.7) at 5 years, 13.5% (SE:3.3) at 10 years, and 18.5% (SE:3.9) at 20 years.
Conclusion: Initial disease phenotype was severe in most cases of IBD-U and colonic progression is substantial over time. Disease classification change to Crohn's disease with development of terminal ileitis or perianal disease was low. High rates of biological therapy and surgery are suggestive of a severe disease course of IBD-U.
Disclosure: Nothing to disclose.

PP0571

PREVALENCE OF MULTIPLE SCLEROSIS IS NOT HIGHER IN INFLAMMATORY BOWEL DISEASE POPULATION: A CASE CONTROL STUDY

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Introduction: Being two immune-mediated diseases (IMIDs), the association between multiple sclerosis (MS) and inflammatory bowel disease (IBD) is plausible, but data in the literature are conflicting.
Aims & Methods: The aim of our study was to evaluate the possible association between IBD and MS in a cohort of patients with IBD.
Results: In a retrospective study, we examined the medical records of 5,739 patients with a confirmed diagnosis of IBD followed in our clinic between 1978 and 2022.
Among these patients, we identified 14 with MS, with a prevalence of 0.24%. The reported prevalence of MS in general population in northern Italy in 2021 was 0.18% (P = 0.24). For each of the patients with MS identified, more than ten patients without MS were analyzed. The 14 MS cases were then compared with 342 controls. From the 14 MS patients, 12 (85.7%) were female and 2 (14.3%) were male, while in the control group, 158 (46.2%) were female and 184 (53.8%) were male (P = 0.004). As for therapy, significant differences were found on mesalazine (5 (41.7%) cases vs. 317 (92.7%) controls, P < 0.0001) and anti-TNF treatment (0% cases vs 26.6% controls, P = 0.03, respectively) at the time of MS diagnosis. Moreover, Kaplan-Meier curve analysis showed that the 20-year survival probability was 98.4% for patients with IBD, while for patients diagnosed with MS and IBD it was 82.1% (P = 0.02).
Conclusion: In conclusion, patients with IBD have a similar risk of developing MS compared to the general population, but female sex appears to increase the risk. Indeed, life expectancy at 20 years for patients with IBD and MS is lower than for patients with IBD alone.
Disclosure: Nothing to disclose.

PP0572

SKIN LESIONS AMONG INFLAMMATORY BOWEL DISEASE PATIENTS IN UNIVERSITY HOSPITAL

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Introduction: It is well known that cutaneous lesions may be frequent extraintestinal manifestations of inflammatory bowel diseases (IBD) [1,2]. During literature analysis we found out that there is an obvious lack of epidemiological data regarding this issue.

Aims & Methods: Aim: To establish the prevalence of cutaneous lesions among IBD patients in the university hospital.

Methods: Prospective study included patients with IBD who were managed in the hospital of Lithuanian University of Health Sciences. Patients completed questionnaires including the demographic and IBD data and history or present state of cutaneous lesions. Cutaneous lesions were considered as related to IBD if they were diagnosed following the diagnosis of IBD. Skin lesions which were reported before the diagnosis of IBD were considered as not related to IBD.

Results: 162 patients were included in the study, mean age (MA) – 42.5±14.2 years. There were 93 (57.4%) males and 69 (42.6%) females. MA of men – 42.1±14.4, women – 42.9±14.0 years, p>0.05. Ulcerative colitis (UC) was diagnosed in 117 (72.2%) patients, Crohn's disease (CD) – in 45 (27.8%) patients. MA of UC patients was 43.1±14.0, CD – 40.9±14.9, p>0.05. In total, skin lesions were indicated by 66 (40.7%) subjects. According to our criteria, in 47 (29%; 95% CI: 22.0-36.1%) cases, cutaneous lesions were considered as obviously related to IBD. We further analyzed the latter cases.

Among UC patients, 35 (29.9%; 95% CI: 21.5-38.3%) had skin lesions related to IBD, among CD patients – 12 (26.7%; 95% CI: 13.2-40.1%), p>0.05. Erythema nodosum was reported by 6 (3.7%) patients, pyoderma gangrenosum – 6 (3.7%), acne – 2 (1.2%), psoriasis – 10 (6.2%), vitiligo – 2 (1.2%), epidermolysis bullosa acquisita – 1 (0.6%), hemorrhagic vasculitis – 1 (0.6%), eczema – 11 (6.8%), allergic rash – 5 (3.1%), other (unspecified) – 8 (4.9%).

The detailed comparison of different skin lesions among UC and CD patients is presented in table 1.

Cutaneous lesions	Ulcerative colitis (N=117) n (%)	Crohn's disease (N=45) n (%)	p-value
Erythema nodosum	3 (2.6%)	3 (6.7%)	>0.05
Pyoderma gangrenosum	5 (4.3%)	1 (2.2%)	>0.05
Acne	1 (0.9%)	1 (2.2%)	>0.05
Psoriasis	8 (6.8%)	2 (4.4%)	>0.05
Vitiligo	2 (1.7%)	0 (0%)	>0.05
Epidermolysis bullosa acquisita	1 (0.9%)	0 (0%)	>0.05
Vasculitis	1 (0.9%)	0 (0%)	>0.05
Eczema	9 (7.7%)	2 (4.4%)	>0.05
Allergic rash	4 (3.4%)	1 (2.2%)	>0.05

Table 1. Prevalence of cutaneous lesions among patients with ulcerative colitis and Crohn's disease.

Among UC patients, cutaneous lesions were reported by 2 out of 17 (11.8%) subjects with proctitis, 7 out of 30 (23.3%) subjects with left-sided colitis and 27 out of 70 (38.6%) subjects with pancolitis, p<0.05 between proctitis and pancolitis.

Comparing different types of CD, skin lesions were indicated by 2 out of 17 (11.8%) patients with ileitis, 4 out of 11 (36.4%) patients with colitis and 6 out of 17 (35.3%) patients with ileocolitis; p>0.05.

Conclusion: In our study the prevalence of cutaneous lesions among IBD patients is 29%. There were no differences in the prevalence of skin lesions between the UC and CD patients. The most common cutaneous lesions in UC were skin eczema and psoriasis, in CD – erythema nodosum, psoriasis and eczema. We observed the obvious trend of more frequent skin lesions in patients with more extensive UC. There is also the trend for more frequent skin lesions in Crohn's disease patients with colonic damage.

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Disclosure: Nothing to disclose.

PP0573

CLINICAL PHENOTYPE AND DISEASE COURSE OF INFLAMMATORY BOWEL DISEASE IN IRAN: THE FIRST NATIONAL STUDY FROM MIDDLE EAST

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Introduction: Most of the data concerning the epidemiology of inflammatory bowel disease (IBD) in Asia originated from the Eastern population and there are limited studies conducted in the Middle East. We aimed to describe the clinical phenotype, disease course, and medication usage of IBD cases from Iran in the middle east.

Aims & Methods: We conducted a cross-sectional study of registered IBD patients in the Iranian Registry of Crohn's and Colitis (IRCC) recruited from 2017 until 2022. IRCC is a nationwide registry with at least one center in every province of Iran.[1] More than 400 gastroenterologists collaborated with IRCC, which was reported as approximately 87% of total gastroenterologists working in Iran. Demographics characteristics, past medical history, family history of IBD, disease extent and location, clinical behavior, extraintestinal manifestations, IBD medications, IBD activity using the IBD-control-8 questionnaire and the Manitoba IBD index, admissions in the past 3 months, emergency visits in the past 12 months, history of colon cancer, and IBD-related surgeries were gathered.

Results: Overall, 9746 patients with confirmed IBD, including 7793 patients with ulcerative colitis (UC) and 1953 patients with Crohn's disease (CD) were reported. The ratio of UC to CD patients was 3.99. The median age at diagnosis was 29.2 (IQR: 22.6,37.6) and 27.6 (IQR: 20.6,37.6) for patients with UC and CD, respectively. 17.9% of patients with UC had a positive family history. Majority of patients with UC had pancolitis (47%). The most common treatment received by patients was 5-ASA (93.5%) followed by immunomodulator, prednisolone, and anti-TNF. Among patients who received immunomodulators, 96.2% was azathioprine followed by 6-mercaptopurine (2.8%) and methotrexate (1%). Of patients who used anti-TNF, 68.8% were adalimumab and 31.2% were infliximab. Among patients with CD, only one peak was observed in the distribution of age at diagnosis at 30-40 years. Male to female ratio was 1.28 in patients with CD. Patients with CD most commonly had ileocolonic involvement (43.7%) and stricturing behavior prevalence was 4.6%. Moreover, 38.4% of patients with CD had been treated with anti-TNF. Among patients who received immunomodulators, 90.4% was azathioprine followed by 6-mercaptopurine (4.6%) and methotrexate (5%). Of patients who used anti-TNF, 71.9% were adalimumab and 28.1% were infliximab.

Variables	IBD	
	UC (N=7793)	CD (N=1953)
Extra Intestinal Manifestations, n (%)	408(5.2)	70(3.6)
Active disease during the past 2 weeks, n (%)	4966(63.7)	1088(55.7)
Active disease during 6 months, n (%)	1359(17.4)	493(25.2)
ER visits in the past 12 months, n (%)	986(12.7)	276(13.1)
Admissions in the past 3 months, n (%)	778(10.0)	299(15.3)
History of colon cancer, n (%)	21(0.3)	10(0.5)
IBD-related surgeries, n (%)	209(2.7)	278(14.2)

Conclusion: This first report of IBD behavior, clinical outcome, and medication usage from the Iranian Registry of Crohn's and Colitis as a representative population of the Middle East highlights the differences in IBD characteristics based on geographical location.

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Disclosure: Nothing to disclose.

PP0574

EXPLAINABLE ARTIFICIAL INTELLIGENCE PREDICTING REFRACTORY ULCERATIVE COLITIS AT FIRST VISIT: ANALYSIS OF A JAPANESE NATIONAL DATABASE FROM BEFORE THE SPREAD OF BIOLOGICS

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Introduction: In Japan, the Ministry of Health, Labor, and Welfare (MHLW) registered all patients with ulcerative colitis (UC) from 2003 to 2014, and real-world data (RWD) are available in a national database. Deep learning models have been used to analyse RWD, but visualising the relationship between outcomes and explanatory variables is difficult.

Aims & Methods: Therefore, in this study, we used explainable artificial intelligence (AI) to calculate the regression coefficient for each parameter to determine the explanatory variables involved in steroid-resistant UC and constructed a model to predict steroid-resistant UC at the time of a patient's first visit. We obtained data on all patients with UC newly registered in the MHLW database between 2003 and 2011 (before the spread of biologics in Japan). Of the 79,096 patients identified, 4,003 who had three years of data, a Mayo score of 3 or higher at the first visit, and who had been using steroids from the time of the first visit were included in the analysis. For explainable AI, a point-wise linear model (PWL) was used to generate a custom-made logistic regression model for each case. Clustering analysis was performed based on the similarity of the coefficients (weights) of these logistic regression models. Finally, the association with outcomes was evaluated by analysing the weights of factors with a significant difference ($p<0.01$) between the clusters.

Results: The area under the curve (AUC) of the PWL model was 0.628 for the training set and 0.627 for the test set. The likelihood ratio was 1.36. By clustering, the analysed population was classified into two groups (S group, predicted to be in remission after three years: 2,040 cases; R group, predicted not to be in remission: 1,963 cases). In both groups, female sex (R group: median weight 0.0027), positive stool culture (R group: median weight 0.0041), and colonic mucosal abnormalities (R group: median weight 0.0113) had a strong relationship with steroid resistance. The R group tended to have significantly higher frequencies than the S group. In the R group, pseudopolyposis (median weight = 0.0351), caecal lesions (median weight = 0.024), CRP (median weight = 0.0163), ascending colon lesions (median weight = 0.0133), and transverse colon lesions (median weight = 0.0107) were observed. Conversely, the white blood cell count (S -0.0021 vs R -0.0037), frequency of defecation (S -0.0053 vs R -0.0055), bloody stool (S -0.0021 vs R -0.0016), stool form (S -0.0347 vs R -0.0367), and abdominal pain (S -0.0291 vs R -0.0383) were not significantly related to steroid resistance in both groups.

Conclusion: Explainable AI in a national database with three years of records allowed us to build a predictive model for refractory UC. Female sex, positive faecal bacterial cultures, colonic mucosal abnormalities, and lesions extending into the right colon were important predictors of steroid resistance. Understanding the predictors of steroid resistance and dependence at the time of steroid introduction, based on national data before the spread of biologics, can facilitate prompt and timely treatment plans for patients with UC.

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PP0575

OBSTRUCTIVE LUNG DISEASE IN INFLAMMATORY BOWEL DISEASE: A NATIONWIDE COHORT STUDY

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Introduction: Prior research has established an association between inflammatory bowel disease (IBD) and obstructive lung diseases (OLD), such as asthma, bronchitis, COPD (chronic obstructive pulmonary disease), and bronchiectasis. Studies have suggested that there may be a bidirectional relationship between IBD and OLD, with patients diagnosed with either condition being more likely to develop the other.[1] While previous studies

have mainly examined the prevalence of this association,[2–4] only two incidence studies have been conducted, both of which focused on the risk of IBD in individuals who were already diagnosed with asthma or COPD.[5,6] Consequently, there is a need for further investigation to determine the risk of disease development in people with IBD.

Aims & Methods: The aim was twofold: firstly, to determine the likelihood of OLD prior to the onset of IBD; and secondly, to evaluate the risk of OLD after the onset of IBD.

The present study employed data from the Danish National Patient Registry and the Danish National Prescription Registry, from January 1, 1999, to December 31, 2018.[7,8] Incident cases of IBD in Denmark from 2003 to 2013 were identified based on relevant International Classification of Diseases, 10th revision (ICD-10) diagnosis codes.[9] A matched population without IBD was included for comparison in a 1:10 ratio. Individuals with OLD were identified based on relevant ICD-10 codes or ATC codes (two on different dates within a year). Additionally, a sensitivity analysis was performed using only ICD-10 codes to estimate the risk of obstructive lung disease.

Logistic regression was applied to estimate the prevalence odds ratio for OLD up to four years before IBD diagnosis/index date. Time-to-event analysis (Cox proportional regression) was then used to explore the risk of OLD. In the sensitivity analyses, the time-to-event analysis was repeated based solely on ICD-10 diagnosis codes.

Results: The total study population consisted of 266,618 individuals: 24,238 with IBD and 242,380 without IBD. Individuals with IBD had a 60% higher likelihood (adjusted odds ratio [aOR]: 1.60, 95% CI: 1.53-1.67) of OLD before diagnosis compared to non-IBD individuals, whereas the risk was over 40% higher after IBD diagnosis. A sensitivity analysis confirmed the elevated risk after IBD diagnosis, with a higher adjusted hazard ratio (aHR) of 1.63 (95% CI: 1.53-1.73).

Conclusion: Our findings suggest a significant bidirectional association between IBD and OLD. We demonstrate in an unprecedented nationwide cohort study, an increased risk of OLD among individuals diagnosed with IBD. Further studies concerning the gut-lung axis are warranted to explore the mechanisms underlying this association.

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Disclosure: Nothing to disclose.

PP0576

VACCINATION STATUS AND ATTITUDES TOWARDS VACCINES IN A NATIONAL COHORT OF PATIENTS WITH INFLAMMATORY BOWEL DISEASES

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Introduction: Patients with inflammatory bowel diseases (IBD) often require immunosuppressive therapies which may increase the risk of opportunistic infections.[1]

Patients' vaccination status should be investigated at diagnosis and/or before starting any new treatment, and vaccinations against vaccine preventable diseases (VPDs) performed when required.[2]

Nevertheless, vaccination rates in IBD patients are known to be suboptimal and may also be lower than in the general population.[3]

Aims & Methods: The aim of this study was to investigate the vaccination coverage, attitude towards vaccinations, and its possible determinants among a national cohort of IBD patients.

An anonymous web-based questionnaire was sent by the Italian IBD patients' association (AMICI Italia) in February 2021.

The questionnaire consisted of an adapted version of a previously validated questionnaire on vaccine hesitancy [10] and was divided into 2 sections seeking information on: (1) sociodemographic characteristics, lifestyle, and IBD characteristics, (2) attitude towards vaccinations. Patients were asked to self-report their previous vaccinations and their attitudes towards them (with a multiple-choice test), which were defined as opposed to vaccinations, indifferent, or in favor of vaccinations.

The study was approved by the Ethics Committee of AMICI and patients signed a digital informed consent.

Previous vaccination status and patients attitude towards vaccinations were recorded. The factors influencing their attitudes were examined using crude and adjusted odds ratios (AdjORs) with 95% confidence intervals (CIs).

Results: The questionnaire was sent to 4720 patients and had a response rate of 26.5% (1252 patients, 729 women, median age 47.7, interquartile range 37–58, 49% with Crohn's disease, 48.9% with ulcerative colitis) answering from each of the 20 Italian regions. Of note, 46.7% of the patients were in therapy with biological or immunosuppressive drugs.

Patients declared being vaccinated against the following diseases: 74.1% tetanus, 67.7% flu (during last season), 43.3% (measles, mumps, and rubella) MMR, 37.1% hepatitis B (HBV), 29.1% pneumococcus (pneumococcal conjugated 13-valent vaccine, PCV13, or pneumococcal polysaccharide 23-valent vaccine, PPSV23), 20% meningitis, 16% hepatitis A (HAV), 15.3% varicella-zoster virus (VZV), 7.6% human papillomavirus (HPV). Two hundred and fifty-nine (20.7%) did not remember every previous vaccination.

Among the respondents, 1154 (92.2%) stated they wanted to be vaccinated in the future against VPDs. A previous negative experience with vaccinations, whether personal or referred by relatives, was reported by 163 (13.2%) among the 1238 respondents to this question.

One thousand one hundred and twelve (88.8%) stated a positive attitude towards vaccination, 91 (7.3%) were indifferent, 49 (3.9%) reported being opposed to vaccinations; 456 (36.4%) stated that the main reason for vaccination adherence was due to their IBD.

The belief of possible return of VPDs with decline of vaccination coverage rates was the factor related to a positive attitude towards vaccinations was (AdjOR 5.67, 95% CI 3.45-9.30, p-value <0.001).

Conclusion: Despite a general positive attitude towards vaccinations, there is a low vaccination coverage against some VPDs in Italian IBD patients.
This might suggest a possible role of physicians in under-prescribing vaccinations, or a difficulty in organizing them.
This is one of the biggest IBD cohort investigated both for vaccination coverage and hesitancy. These results should inspire to develope specific campaigns aimed to increase vaccination rates.
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Disclosure: Nothing to disclose.

PP0577

IRON-DEFICIENCY REFRACTORY ANEMIA (IDRA) IN SARDINIAN INFLAMMATORY BOWEL DISEASE PATIENTS: A LONGITUDINAL OBSERVATIONAL STUDY

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Introduction: Anemia represents the most frequent extra-intestinal manifestation of Inflammatory Bowel Disease (IBD) and it is most frequently caused by iron deficiency.
Despite iron replacement therapy, most IBD patients fail to recover from anemia thus contributing to fatigue and reduced quality of life. Many genetic mutations cause iron-deficiency refractory anemia (IDRA), and their frequency in IBD patients remains unknown. Furthermore, the great prevalence of thalassemic trait in Sardinian IBD patients may further complicate the management of anemia in this population.
Aims & Methods: Aim: To describe the prevalence of IDRA-related genetic mutations in Sardinian IBD patients and their role in the management of anemia.
Methods: All IBD patients matching the criteria for the diagnosis of IDRA, according to WHO criteria, and without known causes of anemia other than IBD, were included in the study. Blood analysis to evaluate Hb, MCV, Tsat, MCH, ferritin, serum iron, vitamin D, vitamin B12, folate, CRP and stool analysis for fecal calprotectin were performed at T0, after 4 (T4) and after 8 (T8) weeks. Iron-replacement therapy was given to all patients. All patients were genetically tested for mutations in ABCB7, ALAS2, HSPA9, MPL, TMPRSS6, TRNT1, GLRX5, SLC11A2, SLC19A2, SLC25A38, YARS2, HBA1, HBA2, HBB, PUS1 genes. Therapy response/remission and safety were evaluated at T4 and T8. The presence of genetic mutations and their correlation with therapy response at T8 was evaluated as primary endpoint and analyzed by correlation tests (Chi-squared and Fisher's exact test).
Results: Twenty-two IBD patients matching the inclusion/exclusion criteria were included in the study. At baseline, mean Hb concentration was 10.86 ± 1.18 gr/dL, mean MCV 71.64 ± 9.61 fL, MCH 23.55 ± 3.49, and median ferritin concentration 12.75 ng/ml (range 3.8-93.3). At T8, 19/22 (86%) pts were therapy failure, 3/22 (14%) were
responders, while 8/22 (36%) had anemia resolution. 8/22 (36%) pts carried genetic mutations: 3/22 (13.6%) had single HBB gene mutation, 1/22 (4.54%) single ALAS2, 2/22 (9.09%) double HBA1, 1/22 (4.54%) had both HBA1 and HBB, and 1/22 (4.54%) had both HBA2 and ALAS2 gene mutations. The presence of genetic mutations was significantly correlated to iron-replacement therapy failure at T8 (p=0.0423). No biochemical parameter or clinical disease characteristics were found to be predictors of therapy response through logistic regression analysis. No sides effects were recorded during the study period.
Conclusion: The presence of unknown thalassemic trait and other allele variants involved in iron metabolism may explain the iron-replacement therapy refractoriness in Sardinian IBD patients.
Disclosure: no conflict of interest to declare.

PP0578

INCREASED RISK OF CIRRHOSIS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A DANISH REGISTRY-BASED COHORT STUDY (1998-2018)

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Introduction: Prior studies suggest an increased risk of non-alcoholic fatty liver disease (NAFLD) in patients (pts) with inflammatory bowel disease (IBD). There is no data available on the risk of cirrhosis in IBD. Our aim was to investigate the risk of cirrhosis (compensated or decompensated) in IBD pts compared to a matched non-IBD population in a population-based cohort.
Aims & Methods: A registry-based cohort study was conducted in the Danish health registries (including the pathology register) using data, between (and including) 1998 and 2018. Incident IBD was identified using ICD-8/10 codes for Crohn's disease (CD) or ulcerative colitis (UC), with two IBD registrations up to two years apart, living in Denmark for at least one year prior to their first IBD registration and without a diagnosis of cirrhosis prior to their IBD registrations. Those with IBD were matched 1:10 to non-IBD persons on the basis of sex, age, calendar year, and the municipality of residence. Persons were followed from index date (IBD diagnosis date/matching date) until a diagnosis of cirrhosis (study outcome), death, emigration, or end of follow-up, whichever came first. The diagnosis of cirrhosis, including both compensated and decompensated cirrhosis, and the underlying etiology, were recorded by ICD-8/10 and SNOMED codes. Kaplan-Meier approach was used to calculate the cumulative incidence of cirrhosis and Cox proportional regression analysis to calculate hazard ratios (HRs) with corresponding 95% confidence intervals (CIs) for cirrhosis among pts with IBD, compared to the non-IBD population.
Results: In a study population of 495,220 persons, a total of 2,741 cirrhosis cases were identified (median [IQR] time in years between index date and diagnosis of cirrhosis: 6.3 [3.0-10.7]), with a higher proportion of cases among pts with IBD (N = 45,020) compared to non-IBD persons (0.9% vs. 0.5%, respectively). After adjusting for sex, age, and index year, pts with IBD had a higher risk of cirrhosis, compared to non-IBD persons (adjusted HR (95% CI): 1.84 [1.65 – 2.04]). Cirrhosis was diagnosed on the basis of liver biopsy and/or imaging (ultrasound, CT or MRI) in 77.3% of IBD pts vs. 69.3% of non-IBD persons. The leading etiology of cirrhosis was NAFLD (51.6%) followed by alcohol (39.0%). The risk of cirrhosis among IBD pts (compared to non-IBD persons) was more pronounced among younger persons (adjusted HR (95% CI): 3.08 [2.45-3.87] among ≤ 40 years of age; 1.63 [1.45-1.84] among > 40 years of age, p-value <0.001) and CD pts (adjusted HR (95% CI): 2.20 [1.80-2.67] among CD; 1.72 [1.52-1.95]; among UC, p-value 0.0402). The risk was also consistent across the year of cohort entry (IBD diagnosis year/index year): 1998-2001 (794 events, 1.37 [1.07-

1.66]), 2002-2005 (776 events, 1.98 [1.63-2.40]), 2006-2009 (612 events, 1.94 [1.56-2.41]), 2010-2013 (378 events, 2.01 [1.53-2.64]), 2014-2018 (181 events, 2.89 [2.03-4.10]).

		No. of events	Adjusted HR (95% CI)	p-value
Overall		2,741	1.84 (1.65-2.04)	
IBD type	UC/UC controls	2,033	1.72 (1.52-1.95)	0.04
	CD/CD controls	708	2.20 (1.80-2.67)	
Sex	Female	1,208	1.93 (1.65-2.25)	0.42
	Male	1,533	1.77 (1.53-2.04)	
Age group (in years) at IBD diagnosis/index date	≤ 40	414	3.08 (2.45-3.87)	<.0001
	> 40	2,327	1.63 (1.45-1.84)	

Table. The hazard ratio for cirrhosis in IBD compared to matched controls in Denmark 1998-2018.

Conclusion: IBD pts had a higher incident risk of cirrhosis compared to matched non-IBD persons, especially with age at IBD diagnosis ≤ 40 years and those with CD. These data point towards a need for focused screening for cirrhosis among IBD pts, especially in certain risk groups.
Disclosure: Nothing to disclose.

PP0579

MICROSCOPIC COLITIS AND RISK OF INCIDENT ACUTE PANCREATITIS: A NATIONWIDE POPULATION-BASED MATCHED COHORT STUDY

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Introduction: Several gastrointestinal diseases have been linked to acute pancreatitis, but the risk of acute pancreatitis in microscopic colitis (MC) has not been studied.
Aims & Methods: To assess the risk of acute pancreatitis in patients with MC, we conducted a nationwide, population-based, matched cohort study in Sweden of 12,140 patients with biopsy-verified MC (diagnosed in 2003-2017), 57,806 matched reference individuals, and 12,781 siblings without MC with follow-up until 2021. Data on MC were obtained from all of Sweden's regional pathology registers (n=28) through the ESPRESSO cohort. Data on acute pancreatitis were collected from the National Patient Register. Adjusted hazard ratios (aHRs) and 95% confidence intervals (CIs) were calculated using Cox regression.
Results: During a mean follow-up of 9.9 years (SD=4.3), 146 MC patients and 437 reference individuals were diagnosed with acute pancreatitis (127.8 vs. 80.1 per 100,000 person-years), corresponding to an aHR of 1.57 (95%CI=1.30-1.90). Moreover, we found a positive association between MC and acute non-gallstone-related pancreatitis (aHR 1.99 (95%CI=1.57-2.51)), but not with acute gallstone-related pancreatitis (aHR 1.08 (95%CI=0.78-1.49)). Comparing patients with MC to their unaffected siblings yielded an aHR of 1.28 (95%CI=0.92-1.78).
The risk of acute pancreatitis remained elevated also for MC patients with a follow-up exceeding 10 years (aHR 1.75 (95%CI=1.14-2.67)).
Conclusion: This nationwide study of more than 12,000 patients with MC demonstrated an increased risk of acute pancreatitis after MC. Hence, clinicians should have a low threshold for evaluation of acute pancreatitis in patients with MC. Also, these patients should receive advice and care aimed at reducing the risk of acute pancreatitis.
References: NA
Disclosure: Dr. Ludvigsson coordinates a study on behalf of the Swedish IBD quality register (SWIBREG). That study has received funding from the Janssen corporation. Dr Ludvigsson has also received financial support from MSD to develop a paper reviewing national healthcare registers in China.
Dr Olén has been PI on projects at Karolinska Institutet financed by grants from Janssen, Pfizer, AbbVie, Takeda, and Ferring, and Karolinska Institutet has received fees for lectures and participation on advisory boards from Janssen, Ferring, Galapagos, Bristol Myer Squibb, Takeda, and Pfizer. Dr Olén also reports grants from Pfizer, Galapagos, and Janssen in the context of national safety monitoring programs.

PP0580

INFLAMMATORY BOWEL DISEASE IN THE LGBTIQ+ POPULATION: ESTIMATES OF PREVALENCE IN ENGLAND & WALES AND THE IMPLICATION FOR SERVICES

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Introduction: Societal trends in recent decades have led to greater expression and awareness of gender and identity. This was demonstrated by the 2021 census in England and Wales asking, for the first time, whether respondents still identified as the same sex as at their birth. Inflammatory bowel disease (IBD) affects close to 500,000 people in England and Wales and is known to have long term effects on patients' physical, mental and sexual health. However, it's prevalence within the LGBTIQ+ population and the specific service provisions this population requires, given that LGBTIQ+ individuals may have greater psychological needs[1], has not been previously studied.
Aims & Methods: To calculate the prevalence of individuals identifying with LGBTIQ+ and living with IBD within England and Wales, census data for England and Wales from 2021 were analysed to calculate the percentage of population identifying as LGBTIQ+[2]. Data was also collected from the Crohn's and Colitis UK (CCUK) national report 2021 on disease prevalence as well as the provision of psychological support[3].
This data was then cross-referenced with census data to determine the estimated prevalence of LGBTIQ+ people diagnosed with IBD.
Results: 45.7 million census responses were received in 2021 across England and Wales. 262,000 (0.5%) respondents identified as a gender different to their sex at birth. 48,000 (0.10%) identified as a trans man, 48,000 (0.10%) identified as a trans woman, 30,000 (0.06%) identified as non-binary, 118,000 (0.24%) did not give further information regarding their gender and 18,000 (0.04%) provided another response. The highest levels were seen in London (0.46%) and the lowest in Wales (0.14%). 1.5 million (3.2%) people answered as gay, lesbian, bisexual or other sexual orientation with the highest prevalence in London (2.23%) and lowest in the West Midlands and East of England (1.21%). CCUK data suggests 485,000 people suffer from IBD in England and Wales[4].
The calculated number of IBD patients identifying as lesbian, gay, bisexual or other sexual orientation was 15,520 whilst the calculated number identifying as a gender different to their sex at birth was 2,425. The CCUK National IBD report from 2020 identified that 2% of services were sufficiently staffed with psychologists to meet the previously defined IBD standards[3].
Conclusion: This analysis suggests that there are over 17,000 people in England and Wales suffering from IBD who identify as LGBTIQ+ however the true prevalence is likely to be higher. Whilst there is no specific data

on the impact of IBD in this population, individual statements published by patient support groups show that these patients have unique requirements in simultaneously navigating a chronic disease and the challenges of identifying as LGBTIQ+[5]. There is extensive data suggesting that both LGBTIQ+ people[1] and IBD patients[6] have a higher burden of mental health disorders and thus these patients are more likely to require, and benefit from, increased psychological support.

However, the national provision of psychologists as part of the IBD multidisciplinary team is extremely low and this represents an unmet need. Further research is required to gain more insight into LGBTIQ+ patient experience to identify deficiencies in service provision and help modify IBD services to better support the holistic needs of this patient group.

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Disclosure: Nothing to disclose.

PP0581

MICROSCOPIC COLITIS AND RISK OF INCIDENT PSORIASIS: A NATIONWIDE POPULATION-BASED MATCHED COHORT STUDY.

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Introduction: Microscopic colitis (MC) has been associated to various autoimmune diseases. Previous studies on the association between MC and psoriasis have focused on psoriasis as a risk factor for MC. Data from large scale cohort studies investigating the risk of future psoriasis in MC, however, are lacking.

Aims & Methods: We aimed to examine the association between MC and psoriasis by conducting a nationwide, population-based, matched cohort study in Sweden from 2007-2021. In total, we identified 8,404 patients with biopsy-verified MC (diagnosed in 2007-2017), 37,303 matched reference individuals, and 8,381 siblings without MC. Information on MC was obtained through the ESPRESSO cohort (a histopathology database containing data on all gastrointestinal biopsies in Sweden from 1965-2017). Data on incident psoriasis was gathered from the National Patient Register. Using Cox regression, we calculated hazard ratios (HRs) and 95% confidence intervals (CIs).

Results: During a median follow-up of 9.2 years (interquartile range=6.7-11.7), 179 MC patients and 440 reference individuals were diagnosed with psoriasis (241 vs 131 events per 100,000 person-years), corresponding to one extra case of psoriasis in 91 patients with MC followed for 10 years. After adjustment for the matching variables (birth year, sex, county of residence and calendar period) and level of education – as a proxy for socioeconomic status - we computed an aHR of 1.82 (95%CI=1.53-2.17). Stratifying by sex, estimates were similar and when examining the aHR across different lengths of follow-up, we found significantly elevated estimates up to 10 years after MC diagnosis. Compared to MC-free siblings, the aHR was 1.85 (95%CI=1.36-2.51).

Conclusion: Patients with MC are at an almost doubled risk of being diagnosed with psoriasis compared to the general population. Our findings suggest clinicians should consider psoriasis in MC patients with skin lesions.

Disclosure: Dr. Ludvigsson coordinates a study on behalf of the Swedish IBD quality register (SWIBREG). That study has received funding from the Janssen corporation. Dr Ludvigsson has also received financial support from MSD to develop a paper reviewing national healthcare registers in China. Dr. Ebrahimi has served as an advisory board member for Boehringer Ingelheim. AS has received consultancy fees from ICON plc, Abbvie, Novarits, and Eli Lilly. AS has received lecture fees from Janssen Cilag and UCB.

PP0582

CLINICAL CHARACTERISTICS AND OUTCOMES OF APPENDICEAL NEOPLASMS IN INFLAMMATORY BOWEL DISEASE: A TERTIARY CARE CENTER EXPERIENCE

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Introduction: Primary cancer of the appendix is rare and accounts for 0.4% of all gastrointestinal (GI) malignancies with an incidence of approximately 1.2 cases per 100,000 people per year in the United States. Patients with inflammatory bowel disease (IBD), including ulcerative colitis (UC), Crohn's disease (CD), and indeterminate colitis (IC), face increased risk for the development of colorectal dysplasia and carcinoma. Although appendiceal inflammation occurs histologically in 40-80% of colectomy specimens from patients with IBD, appendiceal neoplasms have been reported only infrequently. A direct association between IBD and appendiceal neoplasia, including whether IBD predisposes to the development of appendiceal neoplasia, is unclear.

Aims & Methods: We aimed to describe the clinical characteristics, outcomes, and incidence of appendiceal neoplasms in patients with IBD. Using bioinformatics and natural language processing tools to mine the electronic medical record at our large referral center, all patients ≥ 18-years-old with IBD who had an appendiceal neoplasm were identified from January 1992 to April 2023. Relevant demographic and clinical data were abstracted.

Results: In total, 44 patients were included (61.4% female) with a median age of 53 years at appendix neoplasm diagnosis. A majority had UC (68.2%). Of these, four (13.3%) had backwash ileitis, 27 (90%) had extensive colitis, 12 (40%) had a history of colorectal neoplasia, and 6 (20%) had primary sclerosing cholangitis (PSC). Median duration of IBD prior to appendix neoplasm diagnosis was 17 years. The most common type of appendix neoplasm was adenocarcinoma (36.4%), followed by appendiceal mucinous neoplasm (34.1%), and carcinoid or neuroendocrine tumor (22.7%). The most common presenting symptom associated with diagno-

sis of appendix neoplasm was abdominal pain/distension (36.4%). Appendix neoplasm diagnosis was made by cross-sectional imaging in a majority of patients (47.7%). The most common type of IBD-directed therapy at the time of appendix neoplasm diagnosis was 5-aminosalicylate (5-ASA) agents (25%). All patients had appendix neoplasm surgically resected. Median appendix neoplasm size was 2.7 cm. The most common histologic tumor grade was grade 1 (31.8%). Two (4.5%) patients had lymph node involvement and 7 (15.9%) patients had metastatic disease at the time of appendix neoplasm diagnosis. Twelve (27.2%) patients received adjuvant chemotherapy. Three patients with UC (6.8%) had recurrence of appendix neoplasm after surgical resection due to peritoneal seeding with a median time to recurrence from initial diagnosis of 78 months.

Conclusion: Appendix neoplasms are more commonly seen in patients with longstanding extensive UC in those presenting with abdominal pain/distension. The most common types of appendix neoplasia included adenocarcinoma and appendiceal mucinous neoplasms. A minority of patients had metastatic disease at the time of appendiceal neoplasia diagnosis. Although the incidence and recurrence of appendix neoplasia in patients with IBD is relatively low, likely related to the small area of mucosa at-risk relative to the colorectum, the recognition of appendix neoplasms as a potential complication of longstanding disease remains unclear. Further studies to compare appendiceal neoplasia in patients with and without IBD are needed to determine if IBD predisposes to the development of this neoplastic complication.

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PP0583

CLINICAL FEATURES AND PROGNOSIS OF SPORADIC NEOPLASIAS DETECTED IN ULCERATIVE COLITIS PATIENTS

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Introduction: Sporadic neoplasias (SNs) and ulcerative colitis-associated neoplasias (UCANs) can occur in patients with UC. Differences in the characteristics and prognoses between UCANs in patients with UC and SNs in patients without UC have been assessed in numerous previous studies. However, only a few studies have focused on the characteristics and prognoses of SNs in patients with UC. It is important to distinguish between UCANs and SNs, because they have different prognoses and therefore need different treatment strategies.

Aims & Methods: This study aimed to evaluate the clinical features and prognoses of SNs detected in patients with UC, both within and outside the affected area. A total of 141 SNs in 59 patients with UC, which were detected by surveillance colonoscopy (SCS) at Hiroshima University Hospital between January 1999 and December 2021, were included. In our hospital, we perform SCS for UC patients with left-sided or total colitis and with a disease duration of more than 7 years, if possible, in the remission stage. SNs were diagnosed based on their location, endoscopic features, and histopathological findings. The final diagnosis was made by histopathological evaluation of the excised specimens and confirmed by more than one gastrointestinal pathologist. The histopathological diagnosis of SN was made according to the pathological features described in the recent European Crohn's and Colitis Organization and the European Society of Pathology statement on histopathology. Immunohistochemical evaluation of Ki67 and p53 was performed in all cases. SNs, especially sporadic adenomas, have regular neoplastic glands with low amounts of stroma, and rarely have a mixture of benign/dysplastic crypts. Although UCANs sometimes have a surrounding flat area with overexpression of p53, SNs have no such area and have a distinct border between the neoplastic glands and non-neoplastic mucosa. SNs have Ki67 expression mainly in the superficial zone and have low levels of p53 expression.

Results: The mean age at first SN detection was 58.8 years, and the mean duration of UC was 9.9 years. Male patients represented 64.4% of the enrolled patients. The most common type of UC was the total colitis type (47.5%). With regard to their clinical course, approximately half of the patients (49.2%) presented with the relapse-remitting type. Among the 141 SNs, 129 lesions (91.5%) were diagnosed as adenomas, five (3.5%) as Tis carcinomas, two (1.5%) as T1a carcinomas (superficially submucosal invasive carcinoma: <1,000 μm), and five (3.5%) as T1b carcinomas (deeply submucosal invasive carcinoma: ≥1,000 μm). There were 86 (61.0 %) SNs in the right colon, 44 (31.2%) in the left colon, and 11 (7.8%) in the rectum. When classified as outside or within the affected area of UC, 100 (70.9%) SNs occurred outside and 41 (29.1%) within. Most SNs (135 lesions, 95.7%) underwent endoscopic resection, and only six lesions (4.3%) underwent surgical resection. Among the 59 patients included in this study, synchronous SNs occurred in 14 (23.7%), and metachronous multiple SNs occurred in 24 (40.7%) patients. The 5-year cumulative incidence of metachronous multiple SNs was higher in patients with synchronous multiple SNs (54.2%) than in those without (46.4%). The histology, size, and background mucosa of the initial SNs were not associated with the incidence of metachronous SNs in our study.

Conclusion: UC patients with synchronous multiple SNs were at higher risk of developing metachronous multiple SNs and may require close follow-up compared to patients without synchronous SNs.

Disclosure: Nothing to disclose.

PP0584

INCREASED PREVALENCE OF NON-ALCOHOLIC FATTY LIVER DISEASE IN LEAN INDIVIDUALS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Nowadays, Non-Alcoholic Fatty Liver Disease (NAFLD) is a leading cause of liver disease and liver transplantation. Although obesity is a well-recognized risk factor for NAFLD, there are data to support that not all patients with NAFLD are necessarily obese. However, the evidence on the prevalence and risk factors for NAFLD in lean individuals with Inflammatory Bowel Disease (IBD) is scarce.

Aims & Methods: The aim of the study was to assess the prevalence and risk factors for NAFLD in lean population with IBD. This is a cross-sectional, case control study including lean individuals with IBD (cases) and lean individuals without IBD (controls), matched for age and sex. Patients with risky alcohol consumption, previous diagnosis of chronic liver disease (immune, viral, genetic) and secondary causes of NAFLD were excluded. All included patients were performed a liver ultrasound, transient elastography and laboratory tests. Lean individuals were defined as Body Mass Index < 25 kg/m^2, and NAFLD as ultrasound steatosis and/or Controlled Attenuation Paremeter >248 dB/m. A descriptive analysis was carried out, and the relationship between variables was assessed using Chi square test/Fisher´s test (categorical variables) or T-student/Mann-Whitney U test (quantitative variables), as appropiate. In addition, a multivariate analysis was performed, presented as adjusted Odds Ratio (OR) and 95% Confidence Interval (95%CI).

Results: A total of 443 participants, 363 lean cases and 80 lean controls, were included in the study. No differences were observed in terms of age, sex and metabolic risk factors between both groups (***Table 1***). The prevalence of NAFLD in lean individuals with IBD was significantly higher compared to lean individuals without NAFLD (22% vs. 10%, p=0.015). Multivariate analysis confirmed that IBD was an independent risk factor for NAFLD in lean population (OR 2.75 95%CI (1.18-6.41)). In addition, male sex (OR 1.78 95%CI (1.04-3.05)) and older age (OR 1.03 95%CI (1.01-1.05)) were identified as risk factors for NAFLD in lean individuals.

Characteristics	Lean cases (IBD) n= 363	Lean controls (non-IBD) n=80	p-value
Female sex, n (%)	215 (59.2)	46 (57.5)	0.776
Age, mean ± SD	46.3±13.7	44.1±15.5	0.198
CV disease, n (%)	8 (2.2)	0 (0.0)	0.361
Arterial hypertension, n (%)	30 (8.3)	8 (10.0)	0.616
Type 2 DM, n (%)	13 (3.6)	3 (3.8)	1.000
BMI (kg/m2), median (range)	22.4 (15.4-25.0)	22.4 (16.7-24.8)	0.902
Total cholesterol (mg/dl), mean ± SD	188.0±40.6	197.0±36.1	0.070

Legend: CV: Cardiovascular. IBD: Inflammatory Bowel Disease

Table 1. Baseline characteristics of cases and controls.

Conclusion: The prevalence of NAFLD is significantly higher in lean population with IBD, suggesting that IBD could play a role in the development of NAFLD in lean individuals.

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PP0585

INCREASED SERUM APELIN LEVELS IN PATIENTS WITH WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Apelin, an adipokine secreted from visceral fat, has been associated with endothelial cells dysfunction-related chronic inflammatory diseases. Decreased serum apelin levels have been found in patients with cardiovascular disease (CVD). Higher apelin levels have been measured in mesenteric adipose tissue and inflamed colonic epithelium of patients with Inflammatory Bowel Disease (IBD), but data on the role of serum apelin levels in IBD patients are lacking.

Aims & Methods: We aimed to a) compare serum apelin levels between 104 consecutive IBD patients and 104 age and sex matched healthy controls (blood donors), b) to evaluate the correlation between serum apelin levels with demographics, disease characteristics, treatment and disease course. Serum apelin-13 levels were measured using ELISA (Wuhan Fine Biological Technology Co., Ltd). Statistical analysis was performed with SPSS 24 (SPSSInc. Chicago, IL, USA).

Results: Mean apelin levels were significantly higher in IBD patients compared to their matched healthy controls *(1996.29 ± 1592.96pg/ml vs 1552.99 ± 809.64, p=0.012).* Among the examined parameters only smoking was found independently associated with serum apelin levels in IBD patients *(p<0.001).*

IBD patients with CVD (25) had lower but not significant different serum apelin levels compared to patients without CVD (79) (*1743.01 ± 1116.26pg/dl vs 2465.09 ± 2006.51pg/ml, p=0.122*). In a subgroup analysis of patients without CVD (79 IBD patients) significantly elevated serum apelin levels were found in patients with extended UC, history of immunomodulator use and absence of musculoskeletal EIMs (*2539,69 ± 1969.29pg/ml vs 1164.45 ± 818.89pg/ml, p=0.044, 2317.69 ± 1867.99pg/ml vs 1451.40 ± 1024.20pg/ml, p=0.043 and 2340.58 ± 1850.16pg/ml vs 1392.09 ± 1054.99pg/ml, p=0.027, respectively*).

Finally, a moderate positive correlation was found among UC extent and serum apelin levels in patients without CVD *(r=0.525, p=0.004)*. Negative correlations were found among age at study entry and serum apelin levels in both IBD patients without CVD and all IBD patients (r=-0.263, p=0.001 and r=-0.214, p=0.002, respectively) and between immunomodulator use, history of musculoskeletal EIMs and serum apelin levels in patients without CVD (r=-0.26, p=0.021 and r=-0.336, p=0.005, respectively).

Conclusion: The circulating serum apelin levels are significantly increased in IBD patients compared to matched healthy controls. Increased apelin levels are independently associated with smoking status and disease extend (in UC). IBD patients with musculoskeletal manifestations have decreased serum apelin levels compared to IBD patients without musculoskeletal manifestations. Further investigation with larger studies on the role of serum apelin in IBD is needed.

Disclosure: None.

PP0586

RISK OF EATING DISORDERS AND DISORDERED EATING IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: FOCUS ON ORTHOREXIA NERVOSA

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Introduction: Patients with inflammatory bowel disease (IBD) often adopt restrictive diets in the belief that certain foods can trigger disease symptoms. This behavior may prelude to eating disorders. Orthorexia nervosa is the pathological obsession with healthy eating consisting of organic, non-artificially processed foods. To date, it is not yet recognized as an eating disorder by the DSM-V and there is no gold standard for diagnosis. In recent years, some studies have investigated the prevalence of eating disorders in IBD patients but there are no studies regarding orthorexia nervosa. The aim of this study is to assess the risk of orthorexia in patients with IBD.

Aims & Methods: 158 consecutive subjects (113 IBD patients, 45 healthy controls) were prospectively recruited from February to October 2022. The following data were collected: clinical and demographic data and disease characteristics. The control group (45 subjects) was enrolled among the hospital staff and their relatives. The ORTO-15 test developed by Donini et al. was administered by trained dieticians to assess the risk of orthorexia; the cut-off validated by Donini for the diagnosis of orthorexia nervosa is a score <40.

Results: Of the 113 IBD patients who participated in the study, 48 (42%) had UC and 65 (58%) had CD, mean age 50 ± 16 years, range 18- 84 years, 54% were males, mean BMI 25± 5 kg/m^2. Disease duration was less than 5 years in 40% of patients, between 5 and 20 years in 49.5%, while only 11.5% of patients had a disease duration longer than 20 years. Regarding disease activity, 58% were in remission, 27% had mild activity, 13% moderate activity, and only 2% had severe activity. 16% have undergone previous surgery for IBD and 2.6% are oostomy carriers. Regarding therapy 75% of patients were on biologics while 25% on conventional therapy. The control group consists of 45 subjects, 60% female, mean age 32 ± 12 years, range 18- 58 years, mean BMI of 23 ± 4 Kg/m2. Patients with IBD had a 77% risk of orthorexia, significantly higher than the 47% observed in the control group (p<0.001). No statistically significant differences were found between patients with risk of orthorexia and patients without risk of orthorexia in relation to age (p=0.66), gender (p=0.37), marital status (p=0.78), educational qualification (p=0.88), and occupation (p=0.64), although a non-significant trend for lower BMI (mean BMI 26.7 vs 25 Kg/m2 , p=0.12). Regarding the characteristics of IBD, the prevalence of orthorexia did not differ in relation to the diagnosis of UC or CD (p=0.98), nor to the duration of the disease (p=0.75), type of therapy (p=0.42) and disease activity as measured by Mayo score/HBI (p=0.47) or the presence of ostomy (p=0.33). The only statistically significant difference was related to the history of previous surgery for IBD (19.5% in patients at risk for orthorexia, 3.8% prevalence in patients not at risk (p=0.05).

Conclusion: To our knowledge, this study is the first that shows a higher risk of orthorexia nervosa in patients with IBD as compared to healthy controls and that this risk is more frequent in patients with lower BMI and history of previous surgery.

Further studies are needed to confirm our results and assess the impact of orthorexia nervosa and its possible relationship with eating disorders such as Avoidant Restrictive Food Intake Disorder (ARFID) and anorexia.

The presence of an expert dietitian in centers caring for IBD is strongly warranted to ensure adequate nutritional counselling in order to prevent inappropriate disordered eating and nutritional deficiencies.

Disclosure: All authors have declared no conflict of interest.

PP0587

FACTORS ASSOCIATED WITH CHRONIC ABDOMINAL PAIN IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A PILOT CROSS-SECTIONAL STUDY

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Introduction: 20-50% of patients with inflammatory bowel disease (IBD) experience chronic pain during remission (1-5). The clinical features of IBD patients with and without abdominal pain during remission remain unknown.

Aims & Methods: In a cross-sectional pilot study of IBD patients in remission, our aims were to assess patient recruitment, compliance, feedback to optimise the questionnaires for future use and to determine clinical features that distinguish patients with and without abdominal pain.

Online validated questionnaires about disease activity, symptoms and psychological assessment were sent to participants of the UK IBD BioResource (total sample 30,000 patients). Inclusion and exclusion criteria of the IBD BioResource main cohort were applied.

Descriptive statistics were used in all participants to assess disease status. Descriptive and inferential statistics were applied to all participants in remission.

Results: 2,050 patients were approached and 291 (14.2%) participated. 249 completed the study and 244 patients were included in the analysis. Technical problems, lack of understanding of the relevance of some questionnaires and their length were identified as factors which affected completion in 35 participants. 244 patients were full responders with 122 (50%) participants in remission, out of which 33 (27%) experienced chronic abdominal pain. Comparison of the remission groups with (N=33) versus without (N=89) chronic abdominal pain yielded higher scores in patients with pain for the following: use of azathioprine (p=0.021); patient health questionnaire 15 score (p<0.001); gastrointestinal symptoms rating scale total score (p<0.001); coping resources inventory health in general ((p=0.046); big five questionnaire neuroticism (p=0.019); highly sensitive person scale- short form total score (p=0.007); cognitive and behaviour responses questionnaire catastrophizing score (p=0.010); Pittsburgh sleep quality index poor sleeper (global score > 5, p=0.03).

Variable	Chronic pain (n=33)	No chronic pain (n=89)	p-value*
Sample	Mean ± SD or N (%)	Mean ± SD or N (%)	
Use of azathioprine	12 (36.64%)	15 (16.85%)	0.021
PHQ15 score	8.67 (±3.76)	5.09 (±4.0)	<0.001
GSRS total score	2.06 ±0.48	1.52 ±0.54	<0.001
BFQ neuroticism	4.63 (±0.85)	4.25 (±0.82)	0.019
HSPSF total score	4.00 (±0.81)	3.50 (±0.91)	0.007
CBRQ catastrophizing score	4.64 (±3.63)	2.78 (±2.84)	0.010

*Applied tests were either chi-square, Fisher's exact, Fisher-Freeman-Halton Exact test, independent t-test or Mann-Whitney U test
Abbreviations: IBD= inflammatory bowel disease, SD= standard deviation, N=number, PHQ15= Patient health questionnaire 15, GSRS= Gastrointestinal symptoms rating scale, BFQ= Big five questionnaire, HSPSF= Highly sensitive person scale - short form, CBRQ= Cognitive and behavioural responses questionnaire

Table 1. Comparison of patients with inflammatory bowel disease with chronic pain and without chronic pain in remission.

Conclusion: Rectifiable factors affecting recruitment and compliance were identified. Differences in symptoms and psychological characteristics exist in patients with IBD in remission with and without chronic abdominal pain. Further research is warranted to translate these preliminary findings into meaningful and personalised holistic treatment options for IBD patients with chronic pain.

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PP0588

PERIODONTITIS IS ASSOCIATED WITH INCREASED DISEASE ACTIVITY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Periodontitis (gum disease) and inflammatory bowel disease (IBD) are both chronic progressive inflammatory diseases with many similarities in their aetiopathogenesis. In addition, patients with IBD are reported to be at increased risk of developing periodontitis, which in turn seems to impact IBD activity and disability as shown in recent studies. However, these findings need to be validated.
Thus, we aimed to assess whether the presence of periodontitis is associated with increased IBD activity, disability, and severity, and/or reduced IBD specific quality of life, in a Swedish patient cohort.

Aims & Methods: An on-line questionnaire was distributed to the members of the Swedish patient organisation for gastrointestinal diseases. The survey included questions on social demographics, oral health, as well as IBD-related characteristics. Oral health was assessed by the number of missing teeth, self-reported state of teeth and gums, and the Periodontal Screening Score (PESS), which is a validated instrument to screen for severe periodontitis. Disease activity in patients with Ulcerative Colitis (UC) and Crohn's disease (CD) was assessed by the Simple Clinical Colitis Index (SCCAI) and the Harvey & Bradshaw's Activity Index (HBI), respectively. Disease related disability was assessed by the Inflammatory bowel disease disability index (IBD-DI). IBD-specific health-related quality of life measured by the short inflammatory bowel disease questionnaire (sIBDQ).

Results: A total of 786 IBD patients responded to the invitation, including 371 patients with CD and 415 patients with UC. For both CD and UC, self-reported severe periodontitis was significantly associated with a higher level of current disease activity [OR 1.72 (1.86;2.49); p=0.004] based on the HBI (for CD) and the SCCAI (for UC), an increased IBD disability score [Coef. 5.07 (1.86;8.27); p=0.002], and an increased self-reported disease activity in the last 12 months [OR 1.44 (1.05;1.98); p=0.025]. Likewise, number of missing teeth (tooth loss is the ultimate outcome of untreated periodontitis and as such an indirect indicator of its severity), was associated with an increased IBD disability score [Coef. 4.47 (0.71;8.22); p=0.020]. IBD severity (analysed as composite parameter of history of IBD-related surgery and/or treatment with biological therapy) was neither associated with tooth loss [OR 1.57 (0.97;2.52); p=0.065], nor with self-reported severe periodontitis [OR 1.20 (0.80;1.80); p=0.367]. IBD-specific health-related quality of life measured by sIBDQ score showed a tendency to be decreased in the presence of self-reported severe periodontitis [OR -1.45 (-3.01;0.10); p=0.067] but was not associated with tooth loss [Coef. -1.20 (-3.01;0.62); p=0.194].

Conclusion: The present study provides further evidence that the presence of periodontitis is associated with an increased disease activity and disability in IBD patients. These results underline that increased attention should be given to the oral health of IBD patients.

Disclosure: Nothing to disclose.

PP0589

THE ROAD TO AND SEQUENCE OF BIOLOGICAL THERAPY IN A POPULATION-BASED, EUROPEAN INCEPTION COHORT OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE -AN EPI-IBD COHORT STUDY

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Introduction: The Epi-IBD cohort is a prospective European population-based cohort of 1,390 patients diagnosed with inflammatory bowel disease (IBD) in 2010 and 2011 according to Copenhagen criteria. Of these, 482 were diagnosed with Crohn's Disease (CD), 817 with ulcerative colitis (UC) and 91 with IBD unclassified (IBDU). The Epi-IBD cohort was established to examine differences in incidence, treatment strategies, disease course and prognosis among IBD patients in Eastern and Western Europe.

Aims & Methods: This study aims to describe the use of biological therapy as well as the treatment prior to biological therapy. IBD patients were followed prospectively from the time of diagnosis until the 31st December 2020, death, emigration or loss of follow-up. Clinical data on surgery, hospitalizations, and medical treatment, were captured throughout the follow-up period and entered into a validated web-database, www.epi-ibd.org.

Results: During a median follow-up period of 10.7 (interquartile range (IQR), 10.0-11.4) years, 34% (N=165/482) of CD and 15% (N=122/817) of UC patients were started on biological therapy. Biological therapy was initiated within the first year after diagnosis in 16.8% (N=81/482) of all CD and 3.8% (N=31/817) of all UC patients. In median biological therapy was started at 1.0 year (IQR, 0.3-3.1) and 2.7 years (IQR, 1.6-4.0) after CD and UC diagnosis, respectively. First-line biological therapy was infliximab in 74% (N=213/287) and adalimumab in 22% (N=64/287) of the patients. The remaing (N=10/287) received either Golimumab, Vedolizumab, Ustekinumab or were part of a trial/unknown. The sequences of biological therapies are displayed in Sankey diagrams, Figures 1 and 2. Herein illustrated is that 34% (N=56/165) CD and 34% (N=41/122) UC received at least two different biological drugs. Immunomodulators were initiated simultaneously to the first biological therapy in 19% (N=31/165) of CD patients and in 9% (N=11/122) of UC patients. Overall 63% (N=104/165) CD and 51% (N=62/122) UC patients were receiving concomittant immunomodulators with the first biological therapy.

The sequences of therapy leading up to biological therapy are displayed in Sankey diagrams, Figures 3 and 4. Herein illustrated is that the most common sequence of treatment before the first biological therapy for CD was 1) Steroids, 2) Immunomodulators (21%, N=34/165), and for UC was 1) 5-aminosalicylic-acid (5ASA), 2) Steroids, 3) Immunomodulators (39%, N=48/122). Prior to the first biological therapy one, two and three or more courses of systemic steroid were used in 41%, 28% and 17% (N=67, 47 and 28) of CD patients and 43%, 24% and 26% (N=52, 29 and 32) of UC patients. In 14% (N=23/165) and 7% (N=9/122) of CD and UC patients, systemic steroids were not used prior to first biological therapy. In patients having immunomodulators prior to biological therapy, these were administered for a median of 0.5 (IQR, 0.1-1.9) years and 1.1 (IQR, 0.2-3,2) years in CD and UC, respectively. For 5ASA this was 0.8 (IQR, 0.2-1.5) years for CD and 2.2 (IQR, 0.8-4.3) years for UC.

Conclusion: In this multicenter European population-based cohort, different prescribing patterns for biologics emerge: 34% of CD and 15% of UC patients received biologics within 10 years after diagnosis. Infliximab was the most common first-line biological therapy. Only about half of the patients received concomitant immunomodulators. Prior to the first biological therapy, most patients were exposed to systemic steroids and many to repeated courses.

Disclosure: Nothing to disclose.

PP0590

THE USE OF ANTIBIOTICS INCREASES THE RISK OF RELAPSE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE – A POPULATION-BASED NESTED CASE-CONTROL STUDY USING THE DANISH NATIONAL PATIENT REGISTRY

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Introduction: Inflammatory bowel disease (IBD) is a chronic gastrointestinal disease with unknown causes. Patients experience periods with active disease and symptoms such as diarrhoea, pain and weight loss. Little is known about environmental factors that trigger flare-ups, including the effects of commonly used medications. Recent studies suggest a link between microbial factors and IBD, making it important to investigate the impact of antibiotics on flare-ups.

Aims & Methods: We aimed to investigate whether certain antibiotics increase the risk of flares in patients with IBD. We utilized a previously described[1] cohort of all patients with IBD in Denmark between 1974 and 2018. The cohort is based on the Danish Nationwide Patient Registry, which registers all healthcare related visits, treatments and procedure on an individual level. We utilized data between 1994 and 2018 and two distinct cohorts was created for the purpose of identifying flares. The first cohort was characterized by having an IBD-related hospital stay. The second cohort was characterized by experiencing a flare of IBD in need of systemic steroids. Patient were matched 1:5 using K-nearest neighbour. Antibiotics were grouped into the 3rd level of the Anatomical Therapeutic Chemical (ATC) classification system, with anthelmintics grouped into the 2nd level due to low numbers and all given within 60 days before the outcome. Logistic regression analysis was used to calculate odds ratios (ORs) with a 95% confidence interval (95% CI), with adjusting variables including year of remission/flare, sex, age at diagnosis, year of diagnosis, type of IBD, socioeconomic status[2], use of 5-ASA, use of budesonide, use of immunosuppressants, and use of subtypes of biologics.

Results: There were in total 69,908 IBD patients in the original cohort. After applying the abovementioned algorithm, a total of 15,636 and 5,178 patients were included in the cohort for hospitalisation and steroid use, respectively.

Using a multivariate logistic regression model, both cohorts observed a significant increase in odds ratios for certain antibiotics in relation to hospitalization and steroid course. Specifically, for the need of a course of steroids, quinolones (OR 3.83 (95% CI: 2.73-5.35)), antimycotics (OR 2.30 (95% CI: 1.53-3.40)), agents against amoebiasis and protozoal (OR 2.06 (95% CI: 1.39-3.01)), betalactam antibiotics (OR 1.35 (95% CI: 1.10-1.66)), and intestinal anti-infectives (OR 2.12 (95% CI: 1.08-3.98)) were associated with an increased risk for a flare requiring steroids.

Regarding the need for an IBD-related hospitalization, agents against amoebiasis and protozoal (OR 3.48 (95% CI: 2.72-4.44)), quinolones (OR 3.10 (95% CI: 2.48-3.86)), intestinal anti-infectives (OR 2.42 (95% CI: 1.54-3.76)) and antimycotics (OR 1.58 (95% CI: 1.17-2.12)) were all found to be significantly associated.

Conclusion: This study provides evidence that certain types of antibiotics increase the risk of flare-ups in patients with IBD. Quinolones, antimycotics, agents against amoebiasis and protozoal, betalactam, and intestinal anti-infectives were all associated with increased odds ratios for hospitalization and a need for a course of steroids. These findings highlight the importance of carefully considering the use of antibiotics in IBD patients and the need for further research on the effects of different antibiotics on disease progression.

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PP0591

BIOELECTRICAL IMPEDANCE ANALYSIS REVEALED DIFFERENCES BETWEEN LEAN AND NON-LEAN NON-ALCOHOLIC FATTY LIVER DISEASE IN PATIENTS WITH CROHN'S DISEASE

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Introduction: About 30% of Crohn's disease(CD) patients complicated with non-alcoholic fatty liver disease(NAFLD), and it was mainly lean NAFLD. Whether the patients with lean NAFLD have specific characteristics in human body composition is unclear. This study aimed to analyze the body composition in lean NAFLD patients in a CD cohort.

Aims & Methods: Consecutive patients diagnosed between January 2021 and June 2021 were retrospectively enrolled in a tertiary center in China. NAFLD was diagnosed by clinical characteristics and CT imaging. Human body composition was calculated by bioelectrical impedance analysis (BIA). The differences of clinical characteristics and human body composition of lean NAFLD was analyzed and compared to non-NAFLD and non-lean NAFLD.

Results: A total of 422 CD patients were enrolled. The overall prevalence of NAFLD was 13.03% (55/422), with 37 lean and 18 non-lean NAFLD. Compared to Non-NAFLD patients, CD patients with NAFLD tend to had a higher body fat mass (BFM) (13.70[8.20-20.30] vs. 10.20[7.50-14.30], P=0.001) and visceral fat level (VFL) (5[3-8] vs. 4[3-5], P=0.002). These differences may mainly contributed by the non-lean NAFLD, for no difference was found between lean NAFLD and non-NAFLD group. When compared to non-lean NAFLD, CD patients with lean NAFLD showed a lower body mass index (BMI) (19.10[17.50-20.30] vs. 25.45[24.45-27.70], P<0.001), protein (8.30[6.95-9.40] vs. 10.40[7.85-11.43], P=0.007), minerals (2.92±0.52 vs. 3.40±0.68, P<0.001), body fat mass (BFM)(10.62±4.24 vs. 23.52±6.98, P<0.001), percent body fat (PBF)(17.40[13.00-27.75] vs. 29.55[27.73-33.98], P<0.001), skeletal muscle mass (SMM) (23.10[18.85-26.55] vs. 29.35[21.70-32.40], P=0.008) and VFL (4[2-5] vs. 9[7-11], P<0.001).

Conclusion: Different to non-lean NAFLD in the present CD cohort, lean NAFLD showed a strong relationship to malnutrition. It suggested that different mechanisms may exist in lean and non-lean NAFLD in CD population.

Disclosure: Nothing to disclose.

PP0592

RISK OF ACUTE CORONARY SYNDROME IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE – A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: There is conflicting data on the risk of acute coronary syndrome (ACS) in patients with inflammatory bowel disease (IBD). Furthermore, the risk amongst younger patients with IBD in the absence of traditional risk factors is yet to be characterised. We performed the largest to date systematic review and meta-analysis to identify the risk of ACS in patients with IBD.

Aims & Methods: A thorough computer-based search was performed using 5 major databases (PubMed, MEDLINE, EMBASE, CENTRAL, Web of Science) up until 27th October 2022 for observational cohort studies evaluating ACS in adults with IBD. Odds ratios were calculated using a random-effects model. Subgroup and sensitivity analyses were conducted in order to explore sources of heterogeneity.

Results: Eleven eligible studies were included (169,013 IBD patients). Patients with IBD were associated with an increased risk of ACS in both adjusted (HR 1.23; 95% CI 1.06-1.42) and unadjusted analyses (HR 1.46; 95% CI 1.16-1.84). Substantial heterogeneity was observed ($p < 0.001$, $i^2 = 86\%$). Younger patients (≤ 40 years of age) with IBD demonstrated a higher risk compared to older patients (relative HRR 1.50; 95 CI 1.15-1.96) without heterogeneity ($i^2 = 0$). Patients with Crohn's disease demonstrated a greater risk of ACS than patients with ulcerative colitis [(HRR 1.72; 95% CI 1.22-2.41) versus (HRR 1.28, 95% CI 1.06-1.55) respectively].

Conclusion: Patients with IBD demonstrated an independently increased risk of ACS, which is more pronounced in younger patients less than 40 years of age. Prospective studies are required to explore the relationship with disease activity and duration, concomitant medication use and angiographic characteristics and outcomes.

Disclosure: Nothing to disclose.

PP0593

ELDERLY INFLAMMATORY BOWEL DISEASE IN A TUNISIAN POPULATION

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Introduction: Chronic inflammatory bowel disease (IBD) is an early onset disease most often between the 2nd and 3rd decade, a second peak of incidence between 50 and 70 years old has been recognized.

Aims & Methods: The aim of our study was to describe the prevalence of elderly patients in IBD as well as the epidemiological, evolutionary and therapeutic profiles of these patients. Then, we compared the evolution of their IBD to younger patients.

We conducted a retrospective, descriptive, comparative study including patients hospitalized for IBD over a 9-year period [January 2011-January 2020]. Patients with less than 2 years of follow-up were excluded. We defined the elderly patients group, or group 1, as patients in whom IBD was diagnosed at an age ≥ 60 years. Group 2 represented younger patients.

Results: Of the 452 patients included, 6.8% (n=31) were elderly patients. We first described this group of patients. The mean age was 64 years with extremes ranging from 60 to 80 years. The sex ratio M/F=1.6. Fourteen were smokers and 9 were occasional drinkers. For the history, 6 patients were diabetic, 7 had hypertension, and 2 were dyslipidemic. Only one patient had an associated autoimmune disease such as ALS-like syndrome. Fourteen patients had a BMI > 25kg/m^2. Sixteen patients had Crohn's disease (CD) and 15 had ulcerative colitis (UC). UC was of pancolic location in 7 patients, left in 3 and distal in 5 of them. For CD, it was mainly a colonic localization (n=6) and an inflammatory phenotype (n=9). A phenotypic progression was noted in only one patient, from stenosing phenotype to fistulizing phenotype. Twelve patients had extra-intestinal manifestations, exclusively rheumatological. Severe acute colitis was noted in 10 patients. Corticosteroids were used in 61% of the patients with a good response in 87% of them. Immunosuppressive therapy was used in 9 patients. Thiopurines were used in 100% of cases. Treatment with an anti-TNF α was indicated in 3 patients. Eight patients underwent surgery. These were mainly ileo-caecal resections (n=6).

After comparison, we found that patients in group 1 were significantly more overweight and obese compared to group 2 (45.2 vs 23%, p=0.006). The proportion of UC was significantly higher in group 1 (p=0.001). For patients with CD, there were significantly more ano-perineal manifestations in group 2 (p=0.015), however, the proportion of upper GI tract involvement was equivalent in both groups (p=1). The rate of surgical intervention was comparable in both groups (p=0,9). Nevertheless, the rate of use of immunosuppressive therapy was higher in group 2 (30% vs. 60%, p=0.045). Similarly for the rate of use of anti-TNF α therapy which was 9.6% and 33% in group 1 and 2 respectively (p=0.009).

Conclusion: In our study, we showed that elderly IBD has a mild disease course compared to younger patients. We found significantly lower rate of initiation of IBD medications in elderly patients.

Disclosure: Nothing to disclose.

PP0594

ASSESSMENT OF PHYSICAL ACTIVITY LEVELS AND ITS BARRIERS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASES: THE "BE-FIT-IBD" STUDY RESULTS IN SOUTHERN EUROPE

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Introduction: The place that regular Physical Activity (PA) should occupy in managing patients with Inflammatory Bowel Diseases (IBD) is unclear. Unfortunately, there is little data on PA in patients with IBD, although it appears to be reduced compared to the general population. Nevertheless, PA may provide several multidimensional metabolic, anti-inflammatory, and sarcopenia benefits. Therefore, the World Health Organization recommends for each age group and patients with disabilities regular PA adapted to individual ability/tolerance. However, there are no precise guidelines on the best PA and the intensity to recommend for patients with IBD. Therefore, this study aims to assess PA levels and barriers to PA in a southern European Italian IBD population.

Aims & Methods: IBD patients with non-severe disease activity [assessed with partial Mayo score for Ulcerative Colitis (UC) and Harvey-Bradshaw index for Crohn's Disease (CD)] were approached to receive an anonymous online questionnaire to assess PA levels using the International Physical

Activity Questionnaire (IPAQ) and to assess disease activity as Patient-Reported Outcomes 2 (PRO-2) and finally to assess habits, beliefs and barriers in conducting regular PA. Clinical, anthropometric and demographic data of patients were also collected. PA was expressed as continuous units of resting metabolic rate (Met) in minutes/week (Met min/wk). Three PA groups were identified: inactive (< 700 Met min/wk), sufficiently active (700-2500 Met min/wk) and Health Enhancing PA (i.e., HEPA active, > 2500 Met min/wk) patients.

Results: Included patients (219) showed overall PA levels of 834.5 Met min/wk, with a large proportion (94, 42.9%) classified as inactive while only a minority (9, 4.1%) as health-enhancing PA (see Table). Patients without dyslipidaemia ($p < 0.0001$) or on biologics therapy ($p=0.022$) showed better IPAQ scores in moderate activities. UC PRO-2 correlated negatively with IPAQ intense activities scores ($\tau= -0.156$, $p=0.038$). PRO-2 did not show notable sensitivity/specificity in predicting IPAQ inactivity (AUC < 0.6). IBD activity did not differ between active and inactive patients ($p > 0.05$). Active patients expressed the need to discuss PA with their gastroenterologist. Some barriers (e.g., diagnosis of IBD and fear of flare-ups after PA) are significantly more reported by inactive patients.

PA variable	Crohn's disease (N=92)	Ulcerative colitis (N=127)	P-value*
Intense activities *(Met min/wk)*	0 (0 – 192)	0 (0 – 240)	0.099
Moderate activities *(Met min/wk)*	208 (0 – 536)	140 (0 – 540)	0.590
Mild activities *(Met min/wk)*	293.75 (158.12 – 711.6)	350 (120 – 840)	0.940
Sitting time at work *(min)*	210 (113 – 292.5)	215 (125 – 292)	0.719
Sitting time at home *(min)*	174 (118.75 – 221.75)	177 (115 – 229)	0.855
Total score *(Met min/wk)*	828.25 (339.37 – 1343.5)	839 (390 – 1451)	0.678
PA level			
Inactive	39 (42.4%)	55 (43.3%)	0.995
Sufficiently active	50 (54.3%)	66 (52%)	
HEPA active	3 (3.3%)	6 (4.7%)	

HEPA: Health Enhancing Physical Activity. *The P-value was calculated by checking the difference in the distribution of different variables between the two identified groups (i.e., Crohn's disease and ulcerative colitis). Data are expressed for continuous variables as median (interquartile range) and, for categorical and ordinal variables, as numerosity (%).

Conclusion: There was a significant rate of physical inactivity in patients with IBD in this setting. Many IBD southern European patients are inactive and may be exposed to all the complications of not practising regular PA. This does not seem dependent on disease activity but is affected by patients' beliefs about PA's impact on baseline IBD. There is some patient interest in discussing PA with their gastroenterologist that should be used to inform them about the available evidence on PA and the risks of impact on IBD that they fear.

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Disclosure: Nothing to disclose.

PP0595

NATURAL HISTORY OF ANAL STRICTURE IN PEDIATRIC-ONSET CROHN'S DISEASE: LONG-TERM FOLLOW-UP OF A POPULATION-BASED STUDY

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Introduction: Natural history of anal stricture observed in Crohn's disease (CD) remains poorly known, especially in pediatric onset CD.

Aims & Methods: All patients with a diagnosis of CD before the age of 17 years between 1988 and 2011 within the population-based registry EPIMAD were followed retrospectively until 2013. At diagnosis and during follow-up, the clinical and therapeutic features of perianal disease were recorded.

Results: Among the 1,007 included patients (females, 451 (44.8%); median age at diagnosis 14.4 years (IQR, 12.0-16.1)), one (0,1%) had an anal stricture at diagnosis and 26 (2.6%) during follow-up. Cumulative incidence of anal stricture at 5 and 10 years from diagnosis was 0.6% (95%CI, 0.1-1.1) and 1.4% (95%CI, 0.5-2.3), respectively. Twenty-five (n=25/27, 92.6%) patients had at least one episode of anal ulceration or fistulizing perianal Crohn's disease (pCD). In multivariable analysis, the presence of extra-intestinal manifestations (HR 2.3 (95%CI, 1.1-4.9), p=0.0378), colonic location (L1 vs L3 HR 0.0 (95%CI, 0.0-na), L2 vs L3 HR 1.2 (95%CI, 0.5-2.7), p=0.0246) and history of fistulizing pCD (HR 7.6 (95%CI, 3.2-17.9), p<0.0001) were significantly associated with the onset of anal stricture. Eleven (40.7%) patients needed at least one dilatation. After a median follow-up of 6.2 years (IQR, 2.4-10.6), after anal stricture diagnosis, healing was observed only once. One patient (3.7%) had an anal cancer seven years after stricture diagnosis and nine (33.3%) patients needed a stoma. Anal stricture was significantly associated with the need of stoma (HR 5.8, 95%CI 2.3-14.3), p=0.0002).

Conclusion: The occurrence of anal stricture is an infrequent event in pediatric onset CD, since only 1.5% of patients will present an event after 10 years. Anal stricture increased the risk of stoma by a factor of 5.

Disclosure: Nothing to disclose.

PP0596

THE EFFECT OF PROTON-PUMP INHIBITORS ON DISEASE OUTCOME IN INFLAMMATORY BOWEL DISEASE: A POPULATION-BASED COHORT STUDY

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Introduction: Proton pump inhibitors (PPIs) are among the most commonly prescribed drug classes in most western countries. Their clinical effect is mediated by inhibition of acid secretion from stomach parietal cells, and relieve gastro-esophageal reflux disease, peptic ulcers, and dyspepsia (1).

Despite the perceived safety of PPIs, increasing evidence links PPI treatment to bacterial enteritis, and *clostridium difficile* enterocolitis (2).

Alteration of gut microbiota seems to be the common denominator of these adverse outcomes (3), which may trigger inflammation in IBD (4).

Several studies link proton pump inhibitor (PPI) use and adverse outcomes in patients with inflammatory bowel disease (IBD) (5-7). On the other hand, PPI prescription may also mark the onset of symptoms from IBD flare-ups, and in that case indicate confounding by indication – a protopathic bias.

Thus, it remains unresolved whether PPI use have an adverse impact on the clinical course of IBD, or whether an association between PPI use and deterioration of IBD is the result of a protopathic bias. An analysis of the interaction between time since PPI prescription and the adverse outcomes would aid to the clarification of that (8).

Aims & Methods: We aimed study the association between PPI use and hospitalizations/surgery in IBD patients.

We identified all Danish residents diagnosed with IBD in 2000–2018 in a nationwide healthcare register (18). The data were analyzed as separate PPI treatment episodes allowing an individual to enter with more than one PPI episode.

We used propensity score weighted Cox regression to estimate the hazard ratio (HR) for hospitalization and surgery for PPI-users compared with non-users adjusted for age, sex, IBD duration, calendar year of diagnosis, disease category (Crohn's disease / Ulcerative colitis), Charlson Comorbidity Index score, previous IBD-related hospitalizations, previous IBD-related surgery, maintenance therapy (5-aminosalicyclic, thiopurines or anti-tumor necrosis factor-a agents [infliximab/adalimumab], and prescription of NSAIDs).

Results: We identified 40,767 patients with IBD (69.2% with ulcerative colitis, 30.8% with Crohn's disease). Before first IBD diagnosis, 34.0% had filed at least one PPI prescription. Five years after IBD diagnosis, 39.9% had had at least one PPI prescription. The weighted HR for hospitalizations was 1.71 (95% CI: 1.62–1.81) during the first year after PPI prescription, and 1.33 (95 % CI: 1.18–1.50) thereafter. The weighted HR for IBD-related surgery was 1.39 (95% CI: 1.18–1.50) the first year and 1.40 (95% CI: 1.20–1.64) thereafter.

Conclusion: We identified a 40–70% higher rate of hospitalization and surgery the first year after PPI prescription in IBD patients, and a 10–30% higher rate for the remaining follow-up.

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Disclosure: Nothing to disclose.

PP0597

PREVALENCE OF SURGERY IN PATIENTS WITH CROHN'S DISEASE IN AUSTRIA – A NATIONWIDE RETROSPECTIVE STUDY FROM 2011 THROUGH 2019

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Introduction: Crohn's disease (CD) is a chronic inflammatory bowel disease that may result in progressive bowel damage and complications requiring surgery. Despite an increasing number of available advanced targeted therapies, the literature reveals conflicting results concerning the prevalence of surgeries in CD.

Aims & Methods: The aim of the study was to examine the number of intestinal and perianal fistula surgeries in patients with CD in Austria from 2011 through 2019. We conducted a retrospective analysis of real-world data on surgery in CD patients of the Austrian health insurance funds (covering 98% of the Austrian population) from 2011 through 2019. Data before 2011 were unavailable, and the years after 2019 were excluded due to a potential influence caused by the coronavirus pandemic. All patients with a recorded CD-specific intestinal (bowel resection and/or stricturoplasty) or perianal fistula surgery and an ICD-10 diagnosis of CD(K50.x) during the observation period were included. We calculated the absolute number of operations per year, the prevalence per 100,000 persons of the Austrian population (the prevalence of CD in Austria is unknown) and the change in the operation rate per year.

Results: During the observation period, 4,812 intestinal and 4,802 perianal fistula operations were performed. We observed an increase of +8.8% and +58.9%, respectively, in bowel and perianal fistula operations from 2011

through 2019, see Table. If the numbers were adjusted for the increase of the Austrian population, the number of bowel operations remained stable (+1.9%), however, the number of perianal fistula operations still increased significantly (+48.8%).

Year	Austrian population	Intestinal operations	Perianal fistula operations	Prevalence of intestinal operations/ 100,000	Prevalence of perianal fistula operations/ 100,000
2011	8,388,534	503	423	6.00	5.04
2012	8,426,311	555	481	6.59	5.71
2013	8,477,230	539	491	6.36	5.79
2014	8,543,932	491	514	5.75	6.02
2015	8,629,519	537	509	6.22	5.90
2016	8,739,806	505	487	5.78	5.57
2017	8,795,073	538	586	6.12	6.66
2018	8,837,707	597	639	6.76	7.23
2019	8,951,520	547	672	6.11	7.51

Conclusion: Despite novel therapies, the number of patients requiring intestinal surgery for CD remained stable while the number of perianal fistula operations increased. A potential increase in the prevalence of CD in Austria, as described in other European countries, might reveal a decrease in the rate of intestinal surgeries.

Disclosure: Nothing to disclose.

PP0598

PREDICTORS FOR INFLAMMATORY BOWEL DISEASE DEVELOPMENT IN PSORIASIS PATIENTS: INSIGHTS FROM LARGE DATABASE ANALYSIS

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Introduction: Emerging evidence points towards a plausible link between psoriasis, a common chronic inflammatory skin disease, and inflammatory bowel disease (IBD), as both diseases share similar inflammatory pathways(1).

Aims & Methods: Our aim was to identify patterns and potential predictors for the development of IBD in a psoriasis patients cohort.

This retrospective electronic health records-based study utilized data from the Meuhedet Health Maintenance Organization (MHMO) which contains 20 years of continuous follow-up. Patents' data were evaluated for demographic parameters, comorbidities, auto-antibodies, and medications used.

Prevalence and incidence of IBD were measured. The association between psoriasis and IBD was evaluated using both univariate and multivariate logistic regression models, with adjustments made for possible confounding factors. The prediction model was developed to identify predictors of IBD development in psoriasis

Results: Data between psoriasis patients (n=61,003) and age and gender-matched controls (n=244,012) was compared.

Among psoriasis patients, 2.5% were diagnosed with IBD, compared to 1.6% of controls (OR 1.57, 95%CI 1.48-1.67). The adjusted OR was 1.47 (95% CI 1.37-1.56), p<0.001. IBD was diagnosed before the onset of psoriasis in 51.9% and within 1 year of psoriasis onset in 7.2%. Predictors of IBD development in psoriasis patients were: older age (OR 1.01, 95%CI 1.01-1.02), male gender (OR 1.22, 95%CI 1.03-1.45), axial spondyloarthropathies (OR 1.78, 95%CI 1.29-2.45), severe psoriasis (OR 16.03, 95%CI 11.02-23.34), uveitis (OR 3.13, 95%CI 2.08-4.71), ASCA positivity (OR 10.71, 95%CI 7.38-15.55), and P-ANCA positivity (OR 7.71, 95%CI 2.04-29.04). The specific risk for IBD among psoriasis patients according to disease severity is shown in Table 1.

Decreased risk for IBD in psoriasis patients was observed in patients with obesity (OR 0.76, 95%CI 0.62-0.94), psoriatic arthritis (OR 0.49, 95%CI 0.34-0.72), phototherapy (OR 0.09, 95%CI 0.06-0.15), and methotrexate use (OR 0.13, 95%CI 0.08-0.21). The presence of ANA antibodies was not significantly associated with the risk of IBD within the psoriasis cohort.

		Psoriasis	Controls	Crude OR (95%CI)	Adjusted OR(95% CI)
IBD	All PsO patients	1495/61003 (2.5%)	3834/244012 (1.6%)	1.57 (1.48-1.67)**	1.47 (1.37-1.56)**
	Mild psoriasis	1009/53714 (1.9%)	3358/214856 (1.6%)	1.21 (1.12-1.3)**	1.17 (1.08-1.26)**
	Severe Psoriasis	486/7289 (6.7%)	476/29156 (1.6%)	4.3 (3.78-4.89)**	4.45 (3.87-5.12)**
Crohn's disease	All PsO patients	1208/61003 (2%)	2950/244012 (1.2%)	1.65 (1.54-1.76)**	1.52 (1.42-1.63)**
	Mild psoriasis	781/53714 (1.5%)	2582/214856 (1.2%)	1.21 (1.12-1.31)**	1.17 (1.07-1.27)**
	Severe Psoriasis	427/7289 (5.9%)	368/29156 (1.3%)	4.87 (4.22-5.61)**	4.99 (4.28-5.82)**
UC	All PsO patients	553/61003 (0.9%)	1525/244012 (0.6%)	1.45 (1.32-1.6)**	1.38 (1.25-1.53)**
	Mild psoriasis	389/53714 (0.7%)	1338/214856 (0.6%)	1.16 (1.04-1.3)*	1.12 (1-1.25)*
	Severe Psoriasis	164/7289 (2.2%)	187/29156 (0.6%)	3.56 (2.88-4.4)**	3.94 (3.15-4.94)**

Conclusion: Our study provides evidence for a significant association between psoriasis and IBD and identifies several predictors for the development of IBD in psoriasis patients. These findings may improve clinical decision-making and patients' outcomes.

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Disclosure: Nothing to disclose.

PP0599

MUCINOUS AND SIGNET-RING COLORECTAL ADENOCARCINOMA IN INFLAMMATORY BOWEL DISEASE: A CASE-CONTROL STUDY

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Introduction: Colorectal cancer (CRC) risk is increased in patients with long-standing colitis related to Inflammatory Bowel Disease (IBD). A higher frequency of mucinous and signet-ring colonic adenocarcinoma has been suggested in IBD, but risk factors for these histotypes of CRC are undefined.

Aims & Methods: Primary aim was to compare the frequency of mucinous and signet-ring adenocarcinoma in patients with vs without IBD. Secondary aims were to search for IBD-related risk factors for signet ring

and mucinous adenocarcinoma and to compare the localization of these histotypes of CRC in patients with vs without IBD. From January 2002 to January 2023, all IBD patients with concomitant colorectal adenocarcinoma (Cases) were retrospectively enrolled. Each Case was matched with 2 patients with CRC and no IBD (Controls) for age at CRC diagnosis (±5 years). Inclusion criteria for Cases and Controls: 1) age ≥18; 2) well-defined diagnosis of CRC. Additional inclusion criteria for Cases: well-defined diagnosis of IBD, classified according to standard criteria. Exclusion criteria: Missing histological and surgical report. Data were expressed as median [range]. Student-t Test and $\chi 2$ test were used for comparisons. Univariate logistic regression model was applied for assessing risk factors for mucinous and signet-ring CRC (OR [95%CI]).

Results: The study population included 120 patients with colorectal adenocarcinoma: 40 IBD patients and 80 non-IBD Controls. CRC in the 40 IBD patients occurred in 24 (60%) patients with Ulcerative Colitis (UC) and in 16 (40%) with Crohn's Disease (CD). In patients with CRC, no differences were observed between IBD and non-IBD Controls in terms of gender (F) (13 [32.5%] vs 35 [43.7%]; p=0.32) and median age at diagnosis of CRC (54 [29-80] vs 58 [31-83] years; p=0.19). CRC in IBD was histologically defined as mucinous/ signet-ring in 17 (42.5%) and standard adenocarcinoma in 23 (57.5%) patients. Mucinous/signet ring CRC more frequently occurred in patients with IBD vs non-IBD Controls (17 [42.5%] vs 18 [22.5%], p=0.03). In IBD patients, rectal localization of CRC was significantly more frequent in mucinous/signet-ring vs standard CRC (4 [17.4%] vs 8 [47.1%]; p=0.04). In stricturing CD, there was a significantly higher frequency of standard vs mucinous/signet-ring CRC (7 [77.8%] vs 1 [14.4%]; p=0.04). Other IBD characteristics did not differ in relation to the 2 CRC histotypes, including gender (F): 8 [34.8%] vs 5 [29.4%]; p=0.98 and IBD duration at CRC diagnosis (14 [1-45] vs 17 [1-36]; p=0.74). In IBD, CRC stage at diagnosis was comparable between patients with standard vs mucinous/signet-ring CRC (stage I: 6 [26.1%] vs 1 [5.9%]; p=0.21; II: 9 [39.1%] vs 4 [23.5%]; p=0.48; III: 5 [21.7%] vs 7 [41.2%]; p=0.71; IV: 3 [13.1%] vs 5 [29.4%]; p=0.37)). At univariate analysis, no IBD-related risk factors for mucinous/signet-ring CRC were detected.

Conclusion: In the tested cohort, mucinous and signet-ring adenocarcinoma was more frequently observed in IBD than in non-IBD controls, although no IBD-related risk factors were identified. A higher frequency of rectal involvement is suggested for mucinous/signet-ring vs standard adenocarcinoma in IBD.

Disclosure: Nothing to disclose.

PP0600

CROHN'S DISEASE-RELATED SURGERY DIFFERENT FROM ILEO-COLONIC ANASTOMOSIS: CLINICAL OUTCOME AT 5 YEARS

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Introduction: In Crohn's Disease (CD),the natural history of post-operative recurrence (POR) after ileo-colonic (IC) anastomosis has been extensively investigated. Fewer evidences are available regarding the POR after other surgical resections for CD.

Aims & Methods: The primary aim was to investigate, in a retrospective study, the clinical outcome at 5 years (yrs) of patients (pts) with previous CD-related resection different from IC anastomosis. Secondary aim was to assess possible differences in terms of clinical outcome at 5-yrs between pts with small bowel anastomoses involving or not the colon. Data from all pts with CD-related resection different from IC anastomosis from Jan. 2002-Apr. 2018, were recorded.Inclusion criteria:1)age ≥18 yrs; 2)well-defined diagnosis of CD (Montreal)(1);3)history of CD-related bowel resection (index surgery);4) Available data 5-yrs after surgery.Exclusion criteria:1)IC resection; 2)ostomy; 3) strictureplasty. Parameters considered after surgery: need of corticosteroids (CS),biologics, immunomodulators (IMM),CD-related surgery, hospitalization. Data were expressed as median [range], Student-t-test or X^2 test to assess differences.

Results: The study population included 47 pts with CD-related surgery with anastomosis different from IC (females:18 [38.3%];age:50 [29-78] yrs; CD duration:26 [7-53] yrs; age at surgery:34 [14-63] yrs). CD characteristics A1 n=8 (17%), A2 n=34 (72.3%), A3 n=5 (10.6%) pts; L1 n=23 (48.9%), L2 n=5 (10.6%), L3 n=19 (40.4%); L4 n=14 (29.8%); B1 n=1 (2.1%), B2 n=25 (53.2%), B3 n=21 (44.7%), perianal disease in 5 (10.6%) pts. Time interval between CD diagnosis and index surgery: 8 [0-25] yrs.Surgical indication:penetrating CD in 15 (31.9%), occlusion in 27 (57.4%), perforation in 4 (8.5%), refractory CD in 1 (2.1%) pt. Surgical anastomoses were: ileo-ileal in 23 (48.9%), jejunum-ileal in 5 (10.6%) duodenum-jejunal in 1 (2.1%), jejunum-jejunal in 4 (8.5%), ileo-rectal in 9 (19.1%), colo-colonic in 5 (10.6%) pts. Anastomoses involved only the small bowel in 33 (70.2%) pts, while anastomoses involved also the colon-rectum (ileo-rectal or colo-colonic) in 14 (29.8%) pts. Clinical outcome after index surgery in the 47 pts (at 1-yr and 5-yrs, respectively): A) Additional CD-related surgery in 2 (4.4%) and in 6 (12.8%) pts; B) Clinical recurrence in 16 (34%) and in 34 (72.3%) pts; C) CD-related hospitalization in 7 (14.9%) and in 25 (53.2%) pts. Either CS or IMM were used in 11 (23.4%) pts at 1 yr and in 20 (42.5%) pts at 5 yrs, while biologics in 8 (17%) pts at 1-yr and in 29 (61.7%) at 5 yrs. When comparing pts with anastomoses involving only the small bowel or also the colon-rectum, a comparable clinical outcome was observed, including: additional CD-related surgery (at 1 yr: 1 [3%] vs 1 [7.1%]; p=0.87; at 5-yrs: 4 [12.1%] vs 2 [14.3%]; p=0.78), clinical recurrence (at 1 yr: 10 [30.3%] vs 6 [42.8%]; p=0.62; 5-yrs: 24 [72.7%] vs 11 [78.6%]; p=0.94), CD-related hospitalization (at 1-yr: 4 [8.5%] vs 3 [21.4%], p=0.71; at 5-yrs: 20 [60.6%] vs 6 [42.8%]; p=0.42), need of CS (at 1-yr; 10 [30.3%] vs 2 [14.2%], p=0.43; at 5-yrs:18 [54.5%] vs 5 [35.7%], p=0.38),IMM (at 1 yr:8 [24.2%] vs 2 [14.2%]; p=0.7; at 5 yrs: 17 [51.5%] vs 4 [28.6%]; p=0.26), biologics (at 1 yr: 5 [15.1%] vs 3 [21.4%]; p=0.92); 5 yrs: 21 [63.6%] vs 8 [57.1%]; p=0.92).

Conclusion: In a retrospective study, a severe clinical course characterized CD pts with a history of surgery different from ileo-colonic resection in the previous 5 yrs. Hospitalization or major treatments were required in more than half of cases.

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Disclosure: Nothing to disclose.

PP0601

THE IMPACT OF IMMUNOSUPPRESSIVE THERAPY ON SARS-COV-2 MRNA VACCINE EFFECTIVENESS IN PATIENTS WITH IMMUNE-MEDIATED INFLAMMATORY DISEASES: A DANISH NATIONWIDE COHORT STUDY

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Introduction: Investigation of SARS-CoV-2 vaccine efficacy in immune-mediated inflammatory disease (IMID) patients receiving immunosuppressives have been restricted to small sized serological studies. We therefore undertook an investigation of immunosuppressants' impact on real-world effectiveness of vaccines in these patient groups.

Aims & Methods: We performed a nationwide cohort study to assess the risk of COVID-19 infection in vaccinated IMID patients exposed to immunosuppressives compared to propensity score matched unexposed patients in the period from 1 January 2021 to 30 November 2021. Exposure to immunosuppressives 120 days before receiving the second SARS-CoV-2 mRNA vaccination was assessed. Patients were followed from the date of second vaccination, and weighted Cox models were used to estimate the risk of infection associated with immunosuppressives. Secondary outcomes included hospitalisation and death following positive SARS-CoV-2 test. Subgroup analysis for risk of infection by immunosuppressive drug class was also undertaken.

Results: Overall, 152,440 patients were followed over 19,341 person-years. Immunosuppressives were associated with a significantly increased risk of infection in Inflammatory Bowel Disease (IBD; HR: 1.64, 95% CI: 1.42, 1.91), and Arthropathy (HR:1.27, 95% CI: 1.13, 1.43) but not Psoriasis (HR: 1.11, 95% CI: 0.89, 1.38). Meta-analysis of all IMID also showed a significantly increased risk of infection in immunosuppression (HR: 1.35, 95% CI: 1.24, 1.46). Meta-analysis showed no significantly increased risk of either hospitalisation (HR: 1.40, 95% CI: 0.80, 2.46), or death (HR: 0.92, 95% CI: 0.38, 2.23) was identified. Subgroup analysis by immunosuppressive drug class showed increased infection risk in anti-TNF (HR: 1.75, 95% CI: 1.56, 1.96), systemic corticosteroid (HR: 1.24, 95% CI: 1.00, 1.42), and Rituximab and other immunosuppressant (HR: 1.27, 95% CI: 1.14, 1.42) exposure.

Conclusion: Findings suggest reduced effectiveness against infection following two doses of mRNA SARS-CoV-2 vaccination in IBD and arthropathy patients receiving immunosuppressive therapies. Anti-TNF, systemic corticosteroids, and Rituximab and other immunosuppressants were particularly associated with increased infection risk.

Disclosure: Nothing to disclose.

PP0602

UPPER GASTROINTESTINAL TRACT INVOLVEMENT IN CROHN'S DISEASE: IMPACT ON CLINICAL PROFILE AND DISEASE COURSE

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Introduction: Crohn's disease (CD) is generally confined to the ileocecal tract. Upper gastrointestinal tract (UGIT) involvement is estimated to be between 0.5 and 4% of adult patients with CD.

Aims & Methods: The aim of our study was to describe the epidemioclinical and evolutionary profiles of patients with UGIT involvement in CD. A retrospective, descriptive and comparative study including all patients followed for CD in our department during the period from January 2011 to December 2020 was conducted. Patients with UGIT involvement were identified. Data were entered and analyzed via the software SPSS 26.

Results: Among 341 patients followed for CD, we included 49 with UGIT involvement (14.3%), with a sex ratio of M/F=1,1. The mean age at diagnosis was 29.27 ± 11.8 years. Fifteen patients were smokers. A family history of chronic inflammatory bowel disease was statistically more present in patients with UGIT disease (p=0.031). The mean duration of disease progression since diagnosis was 9.43 years. Only one patient had exclusive upper GI involvement; in the other cases, it was associated with another luminal involvement represented mainly by ileal involvement in 59.3% of cases, with a significant association (p=0.019). The CD behaviour was mainly fistulizing in 40.8%, stricturing in 36.7% and inflammatory in 22.5%. Extensive luminal disease, defined as damage exceeding 50 cm, was observed in 12 patients (24.48%) and was associated with UGIT involvement (p=0,001). Eight patients had complex anoperineal fistulas and one patient had an associated anal stenosis. Forty percent of the patients had an associated extra-intestinal manifestation. The mean body mass index at diagnosis was 20.41 kg/m² [13.7 - 32,4]. The mean albumin level at diagnosis was 31.94g/L. Histological severe activity was noted in 14 patients. Epithelioid and gigantocellular granuloma, found in 13 patients (26.5%), was associated with UGIT involvement (p=0.027). On the other hand, a history of severe acute colitis was associated with the absence of upper GI involvement (p=0.01). The median number of flares was 4 [1-16]. The median number of hospitalizations was 4 with a maximum of 13 hospitalizations and a mean duration of hospitalization of 21 days. The use of anti-TNF drugs was associated with UGIT involvement with p<0.001. Surgical treatment was required in 48,4% of the patients (n=24), mainly ileo-caecal resection, without any significant difference (p=0.05). We noted that the number of surgical interventions was significantly higher in the presence of granuloma on histology (p=0.043). However, the detection of granuloma or severe activity on histology was not associated with a greater use of anti-TNF drugs.

Conclusion: Upper gastrointestinal tract involvement in Crohn's disease is rare and is more likely to be associated with a severe disease course.

Disclosure: Nothing to disclose.

PP0603

LET´S TALK ABOUT SEX: A CROSS-SECTIONAL STUDY ON SEXUAL DYSFUNCTION, SEXUAL SATISFACTION AND BODY SCHEMA DISORDERS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE (IBD)

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Introduction: IBD patients suffer from a variety of physical and psychological problems. Sexual health is an often underestimated but important concern among patients. Despite its major impact, there has been little research on this topic in the past.

The aim of this study was to investigate sexual dysfunction, sexual satisfaction and body schema disorders in patients with IBD compared to a healthy control group.

Aims & Methods: A cross-sectional study was performed. 123 patients with IBD and 71 population controls were recruited for 12 months. Inclusion criteria for the patient group included a diagnosed IBD (Crohn's Disease or Ulcerative Colitis), age between 18 - 65 years and sufficient language skills to complete the questionnaires. For the control group inclusion cri-

teria were similar but without a diagnosed IBD. Data was collected using standardised questionnaries (IBDQ, IBD-F, pMS, HBI, IIEF, BISF-W, FKKS, PHQ15, PHQ9, HADS-D). Sexual dysfunction, sexual satisfaction and body schema disorders were mainly assessed by the "Frankfurter Körperkonzeptskalen" (FKKS) and "The Brief Index of Sexual Functioning for Women" (BISF-W).

Results: Significant differences ($p < 0.05$) could be found within the individual questionnaire scales. Regarding the FKKS, the control group scored higher in three of the nine scales: Health and physical condition scale (SGKB), Sexuality scale (SSEX) and Body self-acceptance scale (SSAK). A similar result was also shown in the BISF-W: population controls had higher scores in two of the seven dimension scores: "Arousal" (D2) and "Pleasure/Orgasm" (D5). Overall, when comparing the total scores of FKKS and BISF-W between patients and population controls no remarkable distinctions were identified.

Conclusion: Sexual health seems to be impaired in patients with IBD. Patients suffer from reduced sexual arousal, orgasmic sensation and physical well-being. In addition, they are also more inhibited in sexual contact with their partners and devalue their own body in terms of aesthetics and biological functionality.

Overall, these results can help to understand the disease´s complexity considering not only clinical but also psychological factors regarding sexual well-being and point to new therapeutical directions.

Disclosure: Nothing to disclose.

PP0604

PAEDIATRIC INFLAMMATORY BOWEL DISEASE UNCLASSIFIED IN SCOTLAND: LONG-TERM LONGITUDINAL NATURAL HISTORY DATA WITH UP TO 20 YEARS OF FOLLOW-UP

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Introduction: Inflammatory bowel disease unclassified (IBDU) is the least common subtype of IBD accounting for around 10% of incident cases in children.[1] It represents a distinct phenotype of colonic IBD where there are insufficient endoscopic and histological patterns to diagnose either ulcerative colitis (UC) or Crohn's disease (CD).[2] There is a lack of long-term longitudinal data to fully elucidate the disease course in IBDU.

We present nationwide data of an IBDU cohort with long-term (9-20 years) follow-up.

Aims & Methods: In a nationwide study, we analysed a prospectively identified cohort of IBDU patients diagnosed 01/01/03-31/12/13 via all Scottish paediatric IBD centres (Aberdeen, Edinburgh, Glasgow) with follow-up until 01/1/23. Data were obtained retrospectively from electronic medical records (demographics, diagnostic assessment, longitudinal disease severity based on defined global clinician assessment, medical treatment and surgical outcomes) at fixed time points (5-10 years post-diagnosis) and at the last follow-up.

Results: 99 patients were identified with IBDU, with 10 excluded as they emigrated out of area. 89 patients were included in the analysis (52/89 (58%) male, median (IQR) age at diagnosis 11.6 (9.2-13.5 years)). All had a diagnosis of IBDU based on the Porto criteria[3] using a combination of clinical, endoscopic, histological and radiological findings. The median (IQR) length of follow-up was 10.5 (8.7-14.0 years).

A change of diagnosis was made to UC in 24/89 (27%) and CD in 28/89 (31%) after a median (IQR) disease duration of 3.7 (1.6-7.7 years; 2.5 repeated endoscopies) and 4.38 (1.8-5.6 years; 2 repeated endoscopies) respectively. IBDU remained the diagnosis in 37/89 (42%) after a median (IQR) follow-up of 9.7 (8.0-13.8 years) and a median of 2 (1-2) repeated endoscopies.

At 5 and 10 years of follow-up, 37/83 (45%) and 36/67 (54%) patients were in clinical remission with a reduction in the proportion of patients with moderate to severe disease activity between 5 and 10 years (5-years 32/83 (39%), 10-years 10/67 (15%), p=0.001). No differences were found in remission rates at 5- and 10- years according to disease classification (IBDU vs CD/UC, 5-years p=0.29, 10-years p=0.60). However, compared to IBD-U, patients with active reclassified UC or CD were more likely to have had a moderate-to-severe disease course at 5 -years (IBDU 21% vs CD/UC 50%; p=0.01). 34/89 (38%) patients achieved longstanding clinical remission on aminosalicylates. Escalation to biologics was required in 30/89 (34%) with 7/89 (8%) requiring multiple classes; no differences in biologic use were found according to IBD sub-type (p=0.82).

Resectional surgery was required in 13/89 (15%; 6 UC, 5 CD, 2 IBDU) after a median (IQR) disease duration of 6.7 (1.24-12.7 years). Patients who changed diagnosis to either UC or CD were more likely to require resectional surgery than those remaining IBDU (UC 6/24 (25%) vs IBDU 3/37 (8%), p=<0.001; CD 6/28 (21%) vs IBDU 3/37 (8%), p=<0.001).

Conclusion: This population-based cohort with up to 20 years of follow-up showed that the majority of patients initially diagnosed with IBD-U are reclassified as either UC or CD. Those reclassified are more likely to have a severe disease course with a greater need for surgery.

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Disclosure: Nothing to disclose.

PP0605

EPIDEMIOLOGICAL PROFILE AND MANAGEMENT OF SPECIFIC ANAL FISTULAS

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Introduction: Anal fistulas are the most common clinical forms of anoperineal suppurations. They are defined by the initial infection of an anal gland of Hermann and Desfosses opening in the middle part of the anal canal. A specific origin is possible. The treatment is surgical and has two objectives: to treat the suppuration definitively and to preserve fecal continence, but also to have histological evidence for specific fistulas.

Aims & Methods: The aim of our work is to collect epidemiological, clinical, paraclinical, therapeutic and evolutionary data of this condition.

This is a retrospective, descriptive study over a period of 6 years: January

2015-December 2021, including 640 patients with anal fistula collected at the proctology unit, all patients with anal fistula and who received surgical treatment or biopsy for diagnostic purposes were included in our study. This work allowed to collect epidemiological, clinical, paraclinical, therapeutic and evolutionary data of this condition.

Results: 640 patients were included presenting with anal fistula. The average age was 39 years [25-59], with a male predominance of 570 patients (89%). Clinically, the predominant symptomatology was chronic purulent discharge in 416 cases (65%), 128 cases (20%) had an inaugural anal abscess, 77 cases (12%) had proctalgia, 19 cases (3%) had anal pruritus and 13 cases (2%) had diarrhea.

The proctological examination revealed: simple anal fistula in 575 patients (90%) and 65 patients had complex anal fistula (10%).

Out of 640 patients recruited for anal fistula, 45 patients (7%) had specific anal fistula and 595 patients (93%) had cryptoglandular anal fistula.

After a digestive, phtysiological and radiological assessment we concluded :

- 26 cases (58%) anal fistula occurring in patients followed for Crohn's disease or inaugural ano-perineal Crohn's disease having benefited from a seton drainage and put under combotherapy.
- 16 cases (36%) in favour of anal tuberculosis put on anti bacillary treatment.
- 2 cases (4%) of neoplastic fistulas that benefited from oncological management.
- 1 case (2%) in favor of anal sarcoidosis treated with corticotherapy.

Conclusion: Anal fistulas are a fairly common pathology. The diagnosis of anal fistulas is clinical. Cryptoglandular anal fistula remains the most frequent entity, requiring surgical treatment, while the management of specific anal fistula depends on the etiology.

Disclosure: No conflict of interest.

PP0606

PROTON PUMP INHIBITORS ARE ASSOCIATED WITH A DISABLING COURSE OF CROHN'S DISEASE

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Introduction: The impact of proton pump inhibitors (PPIs) on the evolution of inflammatory bowel disease (IBD) remains debated with only sparse data available. The primary objective of this study was to analyze the impact of PPIs on the course of IBD.

Aims & Methods: This was a single-center, retrospective cohort study. We included consecutive adult patients diagnosed with Crohn disease (CD) or ulcerative colitis (UC) who were followed prospectively in our day hospital over a 4-month period (from May to August 2022). PPI exposure was defined as PPI use for a cumulative duration of more than seven days from the date of IBD diagnosis until the end of follow-up. We performed a time to event analysis to investigate the association of PPI exposure with treatment failure defined as an IBD- related surgery or hospitalization and/or failure for more than four biologic treatment (Anti TNF, Vedolizumab, Ustekinumab).

Results: Among the 281 patients identified, 244 patients were eligible for analysis of the primary objective (152 with CD, mean age 45 years, sex ratio 1:1). 113 (46%) patients had been previously exposed to a PPI. PPI-exposed patients were significantly older (p=0.013), more often women (p=0.029), with more frequent active smoking (p=0.001). A total of 152 patients (62%) had treatment failure. Using Cox regression analysis, (Table 1), PPI use identified as an independent factor associated with treatment failure (HR = 1.920; 95% CI [1.084-3.403]; p0.025). In a subgroup analysis by IBD type, this remained statistically significant only for CD (HR = 3.190; 95% CI (1.412-7.206); p 0.005) but not for UC (HR = 0.981; 95% CI (0.384-2.504); p0.968). Survival without treatment failure (Figure 1) was significantly higher in patients without PPI exposure compared to patients with PPI exposure (175 months vs. 119 months, respectively, p=0.033 Log-Rank). In a subgroup analysis of infliximab-treated patients, PPI use was not associated with risk of immunogenicity (HR = 1.071; 95% CI (0.515-2.226); p0.854).

Conclusion: This study demonstrates the negative impact of PPIs on the disease course in patients with CD. The use PPIs should better be discussed on a case-by-case basis.

Disclosure: None.

PP0607

RISK FACTORS OF MICROSCOPIC COLITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Microscopic colitis (MC) is a chronic inflammatory disease of the large bowel characterized by watery diarrhea, stool leakage, and nightly defecation, leading to impaired quality of life. Scarce consistent data suggest the association of MC with certain risk factors.

Aims & Methods: We aimed to assess MC's lifestyle and medical risk factors. Our protocol was prospectively registered with PROSPERO (CRD42022286624).

We systematically searched three medical databases from inception to the 18th of December 2021 (Pubmed, Embase, and Cochrane). Cohort, case-control, and cross-sectional studies, reporting on the number of risk factors in MC patients compared to controls with or without a histopathological examination, were included. We used the random-effect model to calculate pooled odds ratios (ORs) with 95% confidence intervals (CIs). The risk of bias assessment was made with the aid of the QUIPS tool.

Results: The systematic search yielded 7174 articles, and 43 were eligible for the study. Investigating lifestyle factors, current smoking was associated with a 1.64 odd (CI:1.06–2.52), while past smoking had a 1.28 odd (CI: 0.91–1.81) of MC compared to both types of controls. Regarding alcohol consumption, we could only do a comparison to controls who were not examined histologically, and no significant association with MC was found. Similarly, we could not show a significant association between MC and patients' level of education.

When investigating medical risk factors, we found a twofold increased chance of MC diagnosis in the case of non-steroidal anti-inflammatory drug (NSAID) use (OR=2.07, CI: 1.31–3.27), but the odds of MC were not significantly increased neither in the case of proton pump inhibitors

(OR=1.59, CI: 0.65–3.90) nor in the case of selective serotonin reuptake inhibitors (OR=2.10, CI: 0.73–5.98), compared to the overall control group. Most of the articles were deemed moderate or high risk of bias due to the low number of patients and the lack of confounding factors assessment.
Conclusion: Our data demonstrate a 64% increase in the odds of MC in the case of current smoking, and NSAID use is associated with a twofold risk for MC. Further prospective studies with longer follow-ups are needed to further investigate these associations.
Disclosure: None to declare.

PP0608

INFLAMMATORY BOWEL DISEASE WITH CONCOMITANT ENDOMETRIOSIS: CHARACTERIZATION AND 1-YEAR CLINICAL OUTCOME IN A PROSPECTIVE STUDY

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Introduction: Inflammatory bowel disease (IBD) and endometriosis are immuno-mediated chronic inflammatory diseases observed in young women, sharing some of the clinical manifestations (i.e. abdominal pain). The possible association and the relationship between endometriosis and IBD is undefined.
Aims & Methods: In a multidisciplinary approach, we aimed to assess in patients with IBD and concomitant endometriosis, the clinical outcome in terms of abdominal pain and endometriosis-related symptoms at 6 and 12 months and characteristics of endometriosis. All female IBD pts in childbearing age referring symptoms compatible with endometriosis were enrolled and referred to dedicated gynecologists for transvaginal ultrasonography (TVS). Inclusion criteria:
1) female gender;
2) age ≥18 and ≤55 years;
3)well-defined diagnosis of IBD;
4) symptoms compatible with endometriosis;
6) consent.
Exclusion criteria:
1) pregnancy;
2) menopause;
3) suspected pelvic malignancy at TVS.
Characteristics of IBD, endometriosis and adenomyosis were classified according to standard criteria. Data were expressed as median [range]. The Student-t Test and $\chi 2$ test were used for comparisons.
Results: Endometriosis was diagnosed in 25 (71%) out of 35 IBD patients with compatible symptoms. These 25 IBD pts included 12 (48%) Crohn's Disease (CD) and 13 (52%) Ulcerative Colitis (UC). CD and UC patients were comparable in terms of age (38 [28-47] vs 39 [25-53]; p=0.75). IBD characteristics included: IBD duration: 11.5 [1-35], CD 11 [1-25] vs UC 12 [1-35] years; p=0.8, CD localization: ileum 4 (33.3%), colon 1 (8.4%), ileum-colon 7 (58.3%), CD behavior: non-stricturing non-penetrating 6 (50%), stricturing in 3 (25%), penetrating in 3 (25%) pts, UC extent: proctitis 3 (23%), left-sided 5 (38.5%), pancolitis in 5 (38.5%) pts. Other IBD characteristics did not differ between CD and UC pts with endometriosis. In IBD patients with endometriosis, a comparable frequency of dysmenorrhea (9 [75%] vs 13 [100%] pts; p=0.47), dyschezia (5 [41.7%] vs 6 [46.1%] pts; p=0.85), dyspareunia (9 [75%] vs 10 [76.9%] pts; p=0.72), dysuria (0 [0%] vs 3 [23.1%] pts; p=0.24) was observed between CD and UC.
At transvaginal ultrasonography, deep infiltrating endometriosis was observed in all thr 25 patients with IBD and endometriosis. Moreover, a high frequency of rectal endometriosis was detected in these 25 IBD pts (6 [24%]). Adenomyosis was observed in 19 (76%) IBD pts with endometriosis, with no differences between CD and UC (8 [66.6%] vs 11 [84.6%]; p=0.56).
Among the 25 IBD pts with endometriosis, 10 (40%) underwent dienogest or estroprogestinic treatment. At 6 months, gynecological follow up was available in 9 pts, of whom 7 were on dienogest or estroprogestinic treatment. Among these 7 pts, 4 reported no endometriosis-related symptoms and 5 no abdominal pain. At 12 months, gynecological clinical follow-up currently includes 6 pts (25%), all on progestinic treatment. Of these, only 2 pts reported abdominal pain while 3 pts reported recurrence of endometriosis-related symptoms.
Conclusion: In the tested population, endometriosis was present in half of IBD pts with compatible symptoms, particularly DIE, with a high rate of rectal endometriosis. After endometriosis treatment, a lower proportion of patients referred abdominal pain. Endometriosis, often mimicking IBD, should be searched and treated in IBD young patients in order to avoid ineffective treatments.
Disclosure: Nothing to disclose.

PP0609

IMPACT OF VITAMINS, PROBIOTICS, ANTIBIOTICS, AND THE HISTORY OF COVID-19 INFECTION ON THE GUT MICROBIOME IN ULCERATIVE COLITIS PATIENTS

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Introduction: It is well established that the gut microbiota plays an important role in host health and is perturbed by several factors including antibiotics and diseases like coronavirus disease 2019 (COVID-19). The microbiome contributes to the pathogenesis of ulcerative colitis (UC). Some vitamins have been shown to beneficially modulate the gut microbiome by increasing the abundance of presumed commensals. Also, probiotics could shape the intestinal microbiota leading to potential control of multiple bowel diseases and promotion of overall wellness.
Aims & Methods: In 6-month time (June 2021 to December 2021) 49 ulcerative colitis (UC) outpatients from Riga East Clinical University Hospital were included in a Cross-sectional study. All patients were divided into groups according to medically proven data about COVID-19 status (COVID-19pos vs. COVID-19neg) within the last 6 months. Information about vitamin, probiotic, and antibiotic intake, as well as fecal samples was collected. For taxonomical classifying of the gut microbiome metagenome data, MetaPhlAn v.2.6.0 tool was used. In further analysis gut microbiome (mostly bacteria phyla) and related data were analyzed with SPSS 20.0.
Results: Out of 49 patients, 31(63%) were male and 18(37%) were female, mean age was Md=38[IQR:34-51]. Fourteen patients (28.6%) have been COVID-19pos, 35(71.4%) COVID-19neg. Patients who were not using antibiotics in the last month had more *Firmicutes* Md= 64 [IQR:52.3-69.4] than users Md=31 [IQR:25.5-39.8], p=0.008. Only 9 patients (18.4%) consumed probiotics within the last month and 40 (81.6%) did not. Evaluating differences in bacteria composition in phylum level in-between probiotic users and non-users there were found no statistically significant difference. Most common used vitamins were vitamin D 18(64.3%), from those 15(42.9%) were COVID-19neg, 3(21.4%) COVID-19pos; vitamin C 7(32.8%),

from those 4(11.4%) were COVID-19neg, 3(21.4%) COVID-19pos, p>0.5. Evaluating vitamin D and C users and non-users and bacteria type there were found no statistically significant differences.

Conclusion: Patients who were not using antibiotics in the last month had more *Firmicutes* than users. There were no statistically significant differences between probiotic users and non-users, nor between vitamin users and non-users.

Disclosure: Nothing to disclose.

PP0610

ATOPIC PREDISPOSITION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A SYSTEMATIC REVIEW

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Introduction: Inflammatory bowel disease (IBD) and atopic diseases, namely asthma, atopic dermatitis (AD), and atopic rhinoconjunctivitis (AR) show a rising prevalence worldwide and share some genetic and epidemiological risk factors. Consequently, observational studies have explored the potential association between IBD and atopic diseases, with some conflicting data.

Aims & Methods: The objective of this study was to systematically review and summarize the current evidence on the co-occurrence of IBD and these atopic diseases.

We searched Medline, Embase, Web of Science and CENTRAL (from inception to August 14, 2022) to identify observational studies on the incidence or prevalence of IBD in atopic diseases (asthma, AD; AR) and vice versa.

Results: We included 23 observational studies (17 cohort, 4 case-control, 2 cross-sectional) on the association between IBD and asthma, comprising approximately 2 million patients; 17 of them showed a positive association and only one study showed a negative association. Nineteen studies (12 cohort, case-controls, 4 cross-sectional) on the association between IBD and AD were included, with approximately 2,6 million patients; 16 showed a positive association and 3 showed no association. We included 4 cohort studies on the association between IBD and AR, covering approximately 2,2 million patients which all showed a positive statistically significant association.

Conclusion: Published literature supports that IBD is associated with asthma, AD and AR, and vice versa. These results may increase gastroenterologists' awareness for these diagnoses so that timely management can be initiated. Additional research is needed to determine if one disease influences the risk of developing the other or if the frequent co-occurrence of these diseases results from shared genetic, environmental and microbial factors. As far as the author's know, this is the first systematic review that reports the association between IBD and the three main atopic diseases.

Disclosure: Nothing to disclose.

PP0611

EXPERT CONSENSUS TO STANDARDISE TRANSCRIPTOME ANALYSIS IN INFLAMMATORY BOWEL DISEASE CLINICAL TRIALS

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Introduction: Transcriptomic analysis has potential to evaluate the molecular basis and pathophysiology of inflammatory bowel disease (IBD), discover therapeutic targets, and identify biomarkers. However, the value of this technology in clinical trials is limited by substantial methodological heterogeneity, which confounds interpretation, generalisability, and comparison of data across studies.

Aims & Methods: We conducted a 2-part study that aimed to develop recommendations for standardising transcriptomic analysis in multicentre IBD clinical trials. First, 3 public databases were searched from inception to May 2021 to identify clinical trials that included patients with IBD and transcriptomic analyses. Studies that collected blood or intestinal samples and utilised microarray, RNA sequencing, or other global RNA analysis methods were eligible. Data on study design and methodological approaches to transcriptomic research ranging from biopsy location to data analysis and reporting were extracted by 2 independent reviewers. The results of the systematic review (SR) informed the second part of the study, in which a panel of 16 IBD translational researchers participated in a modified Research and Development/University of California Los An-

geles appropriateness methodology (RAM) process. A list of statements focused on topics with substantial methodological heterogeneity (Table) was developed based on the SR and panel opinion and formed the basis for creation of a formal survey. Panellists rated the appropriateness of survey statements in 2 rounds, with panel input and survey modification between rounds.

Topic	No. of statements
Use of blood or intestinal mucosal samples for bulk RNA transcriptomics in IBD clinical trials	140
Sampling of intestinal mucosa for bulk RNA transcriptomic analyses	45
Analysing, interpreting, and reporting transcriptomics data	95
scRNA-seq, snRNA-seq, and spatial transcriptomics	136

Abbreviations: IBD, inflammatory bowel disease; RAM, Research and Development/University of California Los Angeles appropriateness methodology; RNA, ribonucleic acid; scRNA-seq, single-cell ribonucleic acid sequencing; snRNA-seq, single nucleus ribonucleic acid sequencing.

Table. Overview of RAM survey topics.

Results: The SR identified 37 reports (22 abstracts; 15 manuscripts) of 22 clinical trials (13 ulcerative colitis [UC]; 6 Crohn's disease [CD]; 3 UC and CD) that included transcriptomic analyses. The earliest report was published in 2009, with most (>75%) reports published between 2017 and 2021. Most (59%) analyses were conducted at phase 1b or 2 of clinical development. The appropriateness of 416 statements were rated by 15 panellists in the first survey. The final survey included 305 statements, of which 14 panellists rated 75% appropriate, 1% inappropriate, and 24% uncertain. In general, transcriptomic analysis for multiple research objectives using either mucosal biopsy or blood samples was considered appropriate at all phases of clinical development in patients with active disease. Validation of results with external datasets and/or orthogonal methods was considered appropriate, as was the complete reporting of individual patient metadata (ex, patient demographics, disease/treatment history, sample location, and local disease activity); the latter of which was viewed as a critical component for further analysis and utility of transcriptomic data.

Conclusion: Although inclusion of transcriptomic analysis in IBD clinical trials has increased over the past decade, persistence of existing methodologic heterogeneity will continue to limit the interpretation and generalisability of the results of this important research. This study provides an initial framework for expert recommendations to address and overcome these discrepancies and increase the value of this research in clinical development.

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PP0612

THE INTERACTION OF GENETIC VARIANTS AND TOBACCO SMOKING IN CROHN'S DISEASE AND ULCERATIVE COLITIS: A GENOME WIDE STUDY

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Introduction: Inflammatory bowel disease (IBD), consisting of Crohn's disease (CD) and Ulcerative colitis (UC), is a group of chronic, relapsing disorders in the gastrointestinal tract. The disease mechanisms are largely unknown. We hypothesized that the interaction of genetic variants and tobacco smoking can influence the disease risk of IBD and impact the disease progression in CD and UC differently.

Aims & Methods: 3530 IBD patients were included in the present study via Parelsnoer IBD Biobank (PSI), a Dutch prospective, nationwide biobank of IBD patients. Phenotypic data on smoking status at the time of diagnosis was obtained through the PSI questionnaire. Genome-wide genotyping was conducted on all PSI participants using the Global Screening Array and divided into two independent datasets, the discovery (N=990) and replication cohort (N=2540). Case-only study design was applied to estimate the interaction effects for IBD, CD, and UC separately with subsequent meta-analysis between discovery and replication cohorts.

Results: 572 lead single nucleotide polymorphisms (SNPs) were demonstrated with interaction effect of smoking (meta-analysis $P < 5e\text{-}5$, heterogeneity Cochrane Q test $P > 0.05$). 30 interacting SNPs showed distinct opposite effects between CD and UC (the ratio of interaction effect sizes between CD and UC > 5 or < 0.1). Our analysis also confirmed 9 previously reported interacting SNPs in the regions of *NOTCH4*, *TSBP1-AS1, HLA-DRA, HLA-DRA-HLA-DRB5, HLA-DRB9, DNMT3A, MUC22,* and *CCR3*.

Conclusion: Our present study identified a large number of new interaction loci for IBD on a genome wide scale and shed new light on the disease mechanisms.

Disclosure: Nothing to disclose.

PP0613

*HLA-DQA1*05* ALLELE CARRIAGE AND ANTI-TNF THERAPY PERSISTENCE IN INFLAMMATORY BOWEL DISEASE

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Introduction: Carriage of *HLA-DQA1*05* allele is associated with development of antidrug antibodies (ADA) in patients with Crohn's Disease receiving anti-TNF therapy {1}. The presence of ADA is not uniformly associated with treatment failure. We aimed to determine the impact of carriage of *HLA-DQA1*05* allele on outcome of anti-TNF therapy evaluated by drug persistence and identify other risk factors impacting loss of response to anti-TNF therapy.

Aims & Methods: A multi-centre retrospective study of IBD patients treated with biologic therapy was performed. *HLA-DQA1*05* genotypes were generated by imputation from whole genome sequence using HIBAG. Primary endpoint was anti-TNF therapy persistence, expressed as time to discontinuation of anti-TNF therapy secondary to loss of response (LOR), segregated by *HLA-DQA1*05* allele genotype over a 700-day follow-up period. All patients treated with anti-TNF therapy in this study were biologic naïve. Secondary endpoints included investigating:

i. The impact of other risk factors on therapy persistence

ii. Anti-integrin and anti-interleukin therapy persistence segregated by *HLA-DQA1*05* allele genotype and;

iii. Formation and validation of the GPS-IBD risk score to predict loss of response (LOR) to anti-TNF therapy.

Results: 877 patients were treated with ant-TNF therapy. Median age was 34.7 years. 73.9% of our cohort had Crohn's disease. 543 (62%) had no copy, 281 (32%) one copy and 53 (6%) two copies of *HLA-DQA1*05* allele. Mean time to anti-TNF therapy discontinuation due to LOR in patients with 2 copies of *HLA-DQA1*05* allele was significantly shorter compared to patients with 0 or 1 copy at 700-days follow-up: 418 versus 541 versus 513 days respectively, p=0.012. Factors independently associated with time to anti-TNF therapy discontinuation included: carriage of HLA-DQA1*05 allele OR 1.2, p=0.02; female gender OR 1.6, $p=4.2 \times 10^{-5}$; CD phenotype OR 0.7, p=0.009; and anti-TNF therapy type (infliximab) OR 1.5, p=0.002. We developed and validated the GPS-IBD risk score (Table 1) to predict patients at higher risk of losing response to anti-TNF therapy. The scoring system ranges from 0 to 5 points. Mean time to anti-TNF therapy discontinuation due to LOR in patients with a score of 4-5 was significantly shorter compared to patients with a score of 2-3 with the patients at least risk being those with a score of 0-1: 406 versus 496 versus 580 days ($p < 0.001$). 98 patients were treated with vedolizumab therapy. Mean time to vedolizumab discontinuation in patients with 1/2 copies of *HLA-DQA1*05* allele was significantly shorter compared to patients with 0 copies ($p = 0.02$). 146 patients were treated with ustekinumab. No difference was seen in mean time to discontinuation of ustekinumab therapy dependent on *HLA-DQA1*05* allele status ($p = 0.33$).

Risk factors	Scoring System		
Carriage of HLA-DQA1*05 allele	0 copies - 0 points	1 copy - 1 point	2 copies - 2 points
IBD Subtype	Crohn's Disease - 0 points	Ulcerative colitis - 1 point	
Gender	Male - 0 points	Female - 2 points	

Conclusion: Carriage of two copies of the *HLA-DQA1*05* alleles is associated with a less favourable outcome of anti-TNF therapy with shorter time to therapy discontinuation. Female gender and a diagnosis of ulcerative colitis are also risk factors for LOR to anti-TNF therapy. We have developed and validated a risk scoring system to help predict LOR to anti-TNF therapy. Further prospective studies are required to validate the usefulness of this risk score in clinical practice.

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PP0614

MONITORING ADHERENCE TO SUBCUTANEOUS BIOLOGICS IN IBD CARE USING DIGITAL TECHNOLOGY – A NHS DIGITAL & INNOVATION PROOF OF CONCEPT STUDY FOLLOWING COVID-19 IN THE UNITED KINGDOM

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Introduction: During and following the COVID-19 pandemic, there has been a major expansion of self-administered subcutaneous biologics for the management of inflammatory bowel disease. These agents are more difficult to monitor since patients do not need to attend the Biologics infusion unit and there is no audit trail to confirm administration of the drug at the scheduled time points.

Aims & Methods: Following a successful NHS D&I bid for funding, a pilot proof of concept project to assess the feasibility and uptake of a digital technology (Health Beacon Digital Sharps Box®) to record and monitor subcutaneous injectable pen use was implemented in 50 consecutive IBD patients who were being treated with subcutaneous infliximab (Remsima®), Adalimumab (Amgevita®) or Vedolizumab (Entyvio®), on a 2-weekly schedule. The Health Beacon ICMS is comprised of a Smart Sharps Bin, pre-programmed with a patient's individual treatment schedule. The bin electronically captures each time a used injection is disposed of, to create a time-stamped record as a proxy for medication adherence. This is accompanied by Health Beacon's Companion App and Care Team support. Patients were also sent electronic dose reminders if they failed to dispose of a scheduled injection within certain time periods. Adherence data from the HealthBeacon ICMS, as well as patient satisfaction, transmission reports of data to

Results: Of 50 patients invited to join the programme, 45 registered patients had complete record of 6 months follow up; 4 patients deactivated recruitment and 1 left the programme. 21 patients were on Vedolizumab, 18 on Adalimumab and 8 on Infliximab, all 2-weekly SC injection. 45% patients were in the 36-50year age group, with the remaining spread between 18-75 years. M: F=21:24. Of 418 scheduled drops, 360 were made, with overall adherence being 86%. On time adherence was 76%. The study showed that up to 24% pts on SC Biologics at home delay their scheduled drug administration. Patient satisfaction was high. Reasons for delay in administration included forgetting, being away from home and being busy. Reminders were acknowledged.

Conclusion: This is the first study to our knowledge exploring adherence to subcutaneous biologics at home for IBD. It showed that a digital injection monitoring and support system is useful and acceptable to track adherence. Of the patients involved in the study there is an overall adherence of 90%, with up to 24% patients delaying their scheduled administration. Further studies are needed to analyse patient behaviour and impact on disease course.

Disclosure: Nothing to disclose.

PP0615

MALNUTRITION SCREENING IN A TERTIARY INFLAMMATORY BOWEL DISEASE OUTPATIENT CLINIC USING THE MUST TOOL

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Introduction: Malnutrition is a common complication in patients with inflammatory bowel disease(IBD) that leads to a worse long-term prognosis, but is frequently underdiagnosed. The "Malnutrition Universal Screening Tool"(MUST) ia a simple, rapid, reproducible and already validated tool for screening. We describe the prevalence of patients at risk of malnutrition in a single tertiary IBD outpatient clinic using the self-administered MUST and we assess the applicability of the test evaluating the patients' opinion about its difficulty.

Aims & Methods: We conducted a transversal study at a tertiary Spanish center that included consecutive adult outpatients with IBD. Variables related to their IBD such as type, phenotype, location, current treatment, number of previous biological drugs and surgical interventions were collected. Disease activity was evaluated with the partial Mayo index for ulcerative colitis(UC), Harvey-Brasdhaw for Crohn's disease(CD), fecal calprotectin and CRP. Remission was defined as both Partial Mayo≤1 for UC and Harvey-Bradshaw≤4 for CD and CRP<5mg/dL and fecal calprotectin<150mcg/g. All patients with IBD completed a self-administered nutrition screening assessment using the MUST score. The risk of malnutrition was classified as low(score=0), medium/high(score≥1).

Results: 106 patients were included, 51 men(48.11%) and 55 women(51.89%), with a mean age of 54 years(SD 17.95). 38(35.85%) had UC and 68(64.15%) had CD. Regarding treatment, 40patients(37.38%) had received at least one biological drug previously and 29(27.35%) had prior surgery. In relation to disease activity, at the time of the survey, 84(79.25%) were in remission. 21 patients(19.81%) had an intermediate/high risk of malnutrition. Regarding posible predisposing risk factors, remission was significantly associated with a lower malnutrition risk. Among patients without remission 81.81% had an medium/high risk of malnutrition whereas only the 3.57% of patients in remission presented medium/high risk(p<0.001). No statistically significant differences were found in univariate analysis when comparing the IBD type(OR 0.08 CI 0.004-1.61), the number of biological drugs received(OR 0.96 CI 0.67-1.4) or whether they had undergone previous surgery(OR 1.1 CI 0.78-1.55). All patients were able to screen themselves and 105/106 reported the MUST questionnaire as either very easy/easy to understand and to complete.

Conclusion: The self-administered MUST is an useful and easy to apply tool in malnutrition screening, being able to detect 20% of patients at risk of malnutrition in an outpatient setting.

Disclosure: Nothing to disclose.

Sex		IBD	IBP Fenotipe	Treatment		Previous biological drugs		Prior surgery		Remission
Women 55 (51.89%)	Men *51 (48.11%)*	UC 38 (35.85%)	E1 5 (4.72%)	None	5 (4.76%)	None	66 (62.26%)	None	77(72.64%)	Yes 84 (79.25%)
			E2 20 (18.87%)	5ASA	34(32.38%)	1	18 (16.98%)	Ileocecal resection	18(16.98%)	No 22 (20.75%)
			E3 13 (12.26%)	COR	2(1.90%)		14 (13.21%)	Right hemicolectomy	3 (2.83%)	
		CD 68 (64.15%)		AZA	8 (7.62%)	2	6 (5.67%)	Panproctocolectomy	1 (0.94%)	
			B1 36 (33.96%)	AntiTNF	33(31.43%)		2 (1.88%)	Perianal	6 (5.66%)	
			B2 14 (13.21%)	Vedolizumab	9 (8.57%)	3		Others	1 (0.94%)	
			B3 18 (16.98%)	Ustekinumab	11(10.48%)					
				Tofacitinib	4 (2.86%)	>3				

PP0615 Table 1. Baseline descriptive cohort characteristics. (UC: ulcerative colitis, CD: crohn´s disease, 5ASA: mesalazine, COR: corticosteroids, AZA: azathioprine).

PP0616

PREVALENCE OF INFLAMMATORY BOWEL DISEASE IN CELIAC DISEASE IN AN ALGERIAN POPULATION

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Introduction: Celiac disease is a chronic, autoimmune disease that affects the small bowel in genetically predisposed persons precipitated by the ingestion of gluten. Celiac disease (CeD) and inflammatory bowel disease (IBD), principally Crohn's disease (CD) and ulcerative colitis (UC) are among the most common immune-mediated gastrointestinal diseases. Some studies have described the coexistence of the 2 diseases in the same patient.

Aims & Methods: The aims of the present study were to determine the prevalence of inflammatory bowel disease (IBD) and to elucidate the clinical features in patients with CeD with concomitant IBD.

We conducted a cross-sectional and single-center study. A total of 205 adults with CeD were included, and following up at the Gastroenterology unit of the Constantine University Hospital between 2015 and 2021. The diagnosis of CeD was made with the positive serology and histology of endoscopic duodenal biopsies and we identified those who were also diagnosed with IBD. The diagnosis of IBD associated to CeD was established based on clinical, endoscopic, histopathological, and radiological findings. Clinical, demographic, laboratory and morphological characteristics were analysed in these conditions. Osteodensitometry was performed on every patient with CeD and IBD.

Results: Among 205 patients with CeD, 14 had co-existent IBD (6,8%; n = 11 CD, n = 3 UC), their mean age at diagnosis of CeD was 29.7 ± 15.7 years. Females constituted 64,3%. The average delay of diagnosis between IBD and CeD was 6.4±3.8 years. The diagnosis of CeD preceded that of IBD in 35,7% (n=5) and 28,5% (n=4) of patients was concurrently diagnosed with IBD and CeD. Patients with CeD and concomitant IBD had a higher frequency of atypical symptoms of CeD (63,6%). Various extra-intestinal manifestations have been reported in 71,4% (aphthous stomatitis: 35,7%; depression: 42,8%). Osteoporosis was detected in 1 case with CD. Celiac disease serology was positive in all cases. The distribution of duodenal histology results according to Marsh-Oberhuber classification were 4/14 Marsh 3a, 6/14 Marsh 3b, 4/14 Marsh 3c. Other autoimmune disorders, including *autoimmune thyroiditis* (n=2) and type-1 diabetes (n=1). Of the patients diagnosed with CeD and CD, 7 had Ileocolonic involvement and only 2 had perianal disease. The dominant behaviour of CD was of the Stricturing type in 7 cases. Two patients with UC had extensive colitis. All patients were put on a gluten-free diet (GFD). IBD was treated with 5-aminosalicylic acid (n=1), immunomodulators (n=7) and biological therapy (n=6).

Conclusion: In our study of patients with CeD the prevalence of IBD was 6,8% (IC 95% 3,8%-11,2%). It's higher than previously reported in a number of studies. CD was more common than UC. Patients with UC and CeD were more likely to have pancolitis.

Disclosure: Nothing to disclose.

PP0617

CORRELATION OF SIMPLE LABORATORY MARKERS WITH ENDOSCOPIC REMISSION IN PATIENTS WITH CROHN'S DISEASE

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Introduction: In patients with Crohn's disease, endoscopic remission is the most important endpoint for achieving a long-term course without clinical flare-ups and maintaining the patient's quality of life. Therefore, the use of simple laboratory markers to predict the presence of endoscopic remission without the need to perform colonoscopy could significantly simplify the management and follow-up of these patients.

Aims & Methods: The study included patients with Crohn's disease, that underwent a complete colonoscopy and laboratory workup to assess the disease, with the time interval between the two examinations not exceeding three months. Subsequently, the correlation between laboratory indicators and the endoscopic indicators Crohn's disease endoscopic index of severity (CDEIS) and SES-CD (Simple Endoscopic Score for Crohn's Disease) was investigated. Laboratory indicators included red cell distribution width (RDW), mean platelet volume (MPV), plateletcrit (PCRIT), C-reactive protein, erythrocyte sedimentation rate, neutrophil to lymphocyte ratio (NLR), lymphocyte to monocyte ratio (LMR), RDW to platelets ratio (RPR).

Results: The study included 76 patients (47 men, 29 women) under treatment, with a mean age of 38.4 years. Based on the CDEIS and SES-CD indices, 44 and 36 patients were in endoscopic remission, respectively. The endoscopic stage of the disease based on CDEIS showed a statistically significant correlation with the indices MPV (p=0.01), PCRIT (p=0.036) and NLR (p=0.022), while the stage based on SES-CD showed a significant correlation with MPV (p=0.016). Accordingly, the existence of endoscopic recession based on CDEIS showed a statistically significant correlation with the MPV (p=0.008) and NLR (p= 0.037) indices, while based on SES-CD it did not show a statistically significant correlation with any of the above indices.

Conclusion: The NLR and MPV indices showed a significant correlation with the endoscopic activity of Crohn's disease, and their use in a larger number of patients should be further investigated.

Disclosure: Nothing to disclose.

PP0618

INCIDENCE AND EVOLUTION OF INFLAMMATORY JOINT PATHOLOGY ASSOCIATED WITH INFLAMMATORY BOWEL DISEASE IN PATIENTS ON VEDOLIZUMAB/USTEKINUMAB TREATMENT

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Introduction: The role of ustekinumab and vedolizumab in articular extra-intestinal manifestations of IBD remains unclear and most existing studies are retrospective.

Aims & Methods: The aim of this study is to analyze the incidence of new onset or worsening of a preexisting IBD-associated arthropathy in patients treated with ustekinumab or vedolizumab.

An observational prospective study in a tertiary care University hospital was conducted. IBD patients undergoing treatment with vedolizumab or ustekinumab with previous or new onset arthropathy were included. Articular manifestations were evaluated by a rheumathologist. IBD and rheumatological related variables were assessed at baseline and after 6 months, including demographics, clinical, biochemical, endoscopic and ultrasound data.

Results: 201 patients are treated with ustekinumab/vedolizumab for IBD in our center.

36 patients (17.1%) with previous arthropaties and 5 (3.3%) patients who developed new onset arthropathy after the starting of the treatment were included.

Most patients were anti-TNF experienced (26, 72.2%) or other biological therapy (9, 24.9%) with a median of 2 previous biological treatments per patient (IQR: 1-3).

Of the patients with new onset arthropaty 1 was treated with ustekinumab (20%) and 4 with vedolizumab (80%). Type of arthritis was: peripheral arthritis 3 (60%), axial 1 (20%) and mixed 1 (20%).

Among patients with previous arthropaties, 14 were under treatment with vedolizumab (38.9%) and 22 (61.1%) with ustekinumab for a mean time of 27.8 ± 19.7 months. 12 (38.7%) had worsening joint activity or flare-ups during ustekinumab/vedolizumab treatment. Of these, 5 (41.7%) had parallel intestinal activity (4 with ustekinumab and 1 with vedolizumab). There were no significant differences between the two biological therapy groups and worsening joint activity.

In our study, in most of the patients, joint symptoms were independent of clinical intestinal activity, although the differences were not significant. However, we did find that fecal calprotectin levels was significantly higher in patients with joint worsening (588.4 µg/g) vs. no joint activity (188.8 µg/g); p=0.05.

Conclusion: A significant proportion of patients treated with ustekinumab/vedolizumab have poor control of both axial and peripheral joint activity. In our experience, joint activity is not related to the clinical but biochemical activity of IBD.

Disclosure: Nothing to disclose.

PP0619

ENDOSCOPIC, HISTOLOGICAL AND SEROLOGICAL ASSESSMENTS OF DISEASE ACTIVITY IN UC

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Introduction: Ulcerative colitis is a multifactorial immune-mediated inflammatory disease generally characterized by chronic recurrent mucosal inflammation and severe clinical symptoms which led to poor quality of life for patients. The methods for monitoring and follow-up of ulcerative colitis now are based on a combination of clinical and endoscopic findings but rarely involved serological and histological evaluation methods.

Aims & Methods: Aims: To investigate the consistency and correlation of endoscopic and histological scoring systems in assessing the disease activity of UC patients. Additionally, we explored the serological markers of endoscopic or histological activity of UC to achieve more accurate evaluation of disease activity.

Methods: A retrospective study was conducted in UC patients admitted from January 2014 to January 2020 at Renji Hospital, School of Medicine, Shanghai Jiao Tong University. The disease activity was examined endoscopically and histologically by Mayo Endoscopic Subscore and Simplified Geboes Score respectively. Blood samples were collected around the time of endoscopy.

Results: Altogether 143 UC patients were enrolled. Basal plasmacytosis is frequently seen in endoscopically active UC (OR=11.19, 95% CI: 4.80-26.09, P<0.001). Approximately half of the patients (53.7%) who achieved endoscopic remission still had inflammatory activity histologically. Kappa consistency test showed that the agreement between Mayo Endoscopic Subscore and Simplified Geboes Score for assessing disease activity was moderate (κ = 0.4, P<0.001). By Spearman correlation coefficient analysis, a moderate correlation between the two scoring systems was identified (rs =0.533, P<0.001). The histologically active group had lower hemoglobin (t=3.025, P<0.01) and higher percent (t=-2.113, P<0.05) neutrophils than the remission group.Blood biomarkers revealed a negative link to the Mayo score of UC patients, which includes large platelet ratio (ρ=-0.170, P<0.0001), hemoglobin (ρ=-0.275, P<0.0001) and albumin (ρ=-0.452, P<0.0001),while white blood cell count (ρ=0.205, P<0.01), neutrophil count (ρ=0.259, P<0.01), percentage of neutrophils (ρ=0.224, P<0.01), erythrocyte sedimentation rate (ρ=0.185, P< 0.05) and C-reactive protein (ρ=0.21, P<0.05) revealed a positive correlation.

Conclusion: In UC patients, the assessments of disease activities endoscopically and histologically are moderately correlated and are generally consistent. Basal plasmacytosis is predictive of endoscopically active UC. Decreased hemoglobin and elevated percentage of neutrophile granulocyte suggest endoscopic and histological activity.

Disclosure: Nothing to disclose.

PP0620

CAPSULE ENTEROSCOPY PROXIMAL SMALL-BOWEL INFLAMMATION IN CROHN'S DISEASE IS ASSOCIATED WITH MORE SEVERE MUCOSAL INJURY AND NEED FOR TREATMENT WITH BIOLOGICS

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Introduction: Small-bowel (SB) inflammatory activity in Crohn's Disease (CD) is variable among patients. Capsule Enteroscopy (CE) allows for visualization of the entire SB, which may be divided into three parts, known as tertiles.

Aims & Methods: The aim of this study was to determine the association between SB inflammatory involvement in CD of the first and second tertiles and the impact on the clinical outcome. A total of 53 treatment-naive patients with SB CD submitted to CE as part of the diagnosis workup were selected. Data regarding SB inflammatory activity quantified by the Lewis Score (LS; < 135, normal; 135–790, mild; ≥790 moderate-to-severe) were collected. Individuals with any colonic involvement, as well as stricturing or fistulizing phenotypes, were excluded from the analysis.

Results: Thirty-six (67.9%) patients displayed inflammatory activity in the first and/or second tertile together with third tertile involvement (Proximal+T3 group). Seventeen (32.1%) had inflammation in the third tertile only (T3 group). The LS accounts for the SB tertile with the highest degree of inflammation, yet we found that individuals in the Proximal+T3 group exhibited higher inflammatory scores (p=0.031). We performed a subgroup analysis for those with mild inflammatory activity. There were no differences regarding age or sex distribution, smoking habits, frequency in relatives with CD, perianal disease, extra-intestinal manifestations, or laboratory values. Notably, we found that patients with mild disease in the Proximal+T3 group initiated biologic drugs more often in the five years following the initial diagnosis (p=0.036).

Conclusion: This study shows that involvement of the first and/or second tertiles of the SB is significantly associated with more severe inflammatory activity overall. Additionally, in those with mild disease and proximal inflammation the need for biologics occurred more frequently. This suggests that early detection of proximal SB CD using CE may contribute to timely treatment.

Disclosure: Nothing to disclose.

PP0621

APPLICATION OF THE NUTRITIONAL RISK INDEX IN NUTRITIONAL ASSESSMENT OF PATIENTS WITH CROHN'S DISEASE

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Introduction: Malnutrition and weight loss are well-recognized complications of Crohn disease (CD), however nutritional routine assessment is not commonly performed, resulting in under-detection of both malnutrition and nutrient deficiencies. In fact, a number of nutrition screening tools are available including the Nutritional Risk Index (NRI).

The aim of this study was to assess the nutritional status using the NRI and to investigate the associated factors to malnutrition during CD.

Aims & Methods: We conducted a retrospective single-center study, including patients followed for CD over a 7-year period [2014 - 2021]. Malnutrition risk was estimated based on the NRI calculated at first presentation with the following formula: NRI = (1.519 × serum albumin (g/L) + 41.7× (present weight/usual weight).

Nutrition status of patients was categorized into four groups: NRI>100: no risk group, NRI= 97.5–100: mild risk, NRI= 83.5–97.5: moderate risk, and NRI< 83.5: severe risk group of malnurition. Radiologic sarcopenia was assessed by calculating the total psoas area index.

Results: In total, 50 patients were enrolled with a mean age of 44.3 years, a median disease duration of 106 months and a sex ratio M/F of 3.16.

Based on NRI, 11/50 (22%) patients had normal nutritional status, 27/50 (54%) mild-moderate risk of malnutriton and 12/50 (24%) had severe malnutrition.

In the univariate study, severe malnutrition risk was associated with the presence of anemia (p=0.002), thrombocytosis (p=0.05), hypocholesterolemia (p=0.024), the presence of radiologic sarcopenia (p=0.05), extensive ileal involvement of more than 50 cm (p=0.014), the occurrence of complications such as intra-abdominal collection (p=0.001) and thromboembolic complications (p=0.05). Regarding, patients who underwent surgical treatment, the occurrence of postoperative complications and extensive small bowl resection were factors associated with severe malnutrition with a p-value of 0.02 and 0.025 respectively.

On multivariate regression analysis, severe malnutrition risk was a predictive factor of developing intra-abdominal abscess (OR 10.5 95% CI 2.22-49.51), p=0.003).

Conclusion: Patients with Crohn's disease have a high incidence of nutritional risk and malnutrition witch was associated with severe course of CD. Nutritional Risk Index is a simple, validated and reproducible tool to identify patients at increased risk of malnutrition allowing adapted nutritional support.

Disclosure: Nothing to disclose.

PP0622

THE DUBLIN SCORE: A NEW VISION FOR ASSESSMENT OF ULCERATIVE COLITIS

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Introduction: Endoscopic assessment is a crucial part of the management of Ulcerative Colitis (UC). The DUBLIN score (DS) has the advantage of assessing both disease activity and extent. The aim of our study was to evaluate the performance of the DS compared to the UCEIS.

Aims & Methods: This is a retrospective study, among patients with UC. Clinico-biological and evolutionary data were collected. We calculated the UCEIS endoscopic score, the Nancy histological index and the DS as a product of the Mayo endoscopic score [0-3] and the disease extent [E1-E3].

Results: Fifty patients were enrolled with a mean age of 49.1 years [11-83] and a sex ratio M/F of 1.94. The DS showed a statistically significant correlation with both the UCEIS score [r=0.913, p<0.0001] and the Nancy index [r=0.857, p<0.0001]. Regarding biological parameters, there was a significant positive correlation between DS and CRP [r=0.660, p<0.0001] and a weak negative correlation between DS and both albumin [r= -0.575, p<0.0001] and hemoglobin [r=-0.443, p=0.001]. The DS and UCEIS were significantly associated with the occurrence of disease extension (p<0.0001), the need for colectomy (p<0.0001), as well as the need for immunomodulators (p=0.034 and 0.008 respectively). Both scores were not associated with the need for biotherapy (p=0.2 and 0.194 respectively). During follow-up, twenty patients (40%) were in therapeutic failure. When analyzing, the AUROC in predicting the occurrence of treatment failure in UC was 0.913 [95% CI 0.831–0.996] for DS and 0.924 [95% CI 0.846–1] for UCEIS.

Conclusion: Based on our study, although the DUBLIN score was correlated with inflammatory markers as well as clinical and histological data, it did not show superior performances to the UCEIS.

Disclosure: Nothing to disclose.

PP0623

INFLAMMATORY BOWEL DISEASE AND IMPAIRMENT OF WORKING LIFE

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Introduction: Living with inflammatory bowel disease (IBD) affects physical, psychological and social dimensions, limiting the ability to engage in daily activities. It is a lifelong illness that mainly affects patients of working age, with a significant impact on their professional life. In fact, the maintenance and promotion of employees is one of the important social goals and can be considered as a determinants of health for IBD patients.

The aim of the study was to analyze the impact of disease on the working life among IBD patients and to characterize the breadth of challenges they experience in their workplace.

Aims & Methods: We conducted a cross-sectional study including patients followed for IBD and exercising a professional activity, over a 9-months period. We collected sociodemographic, clinico-biological and evolutionary data. Then, we performed a survey among these patients using a self-report questionnaires on employment status, IBD-related difficulties at work and sick leave.

Results: A total of 45 patients were included: 80% had Crohn disease (CD) and 20% had ulcerative colitis (UC). The mean age was 44 ± 12 years [extreme: 20-72 years], the sex-ratio M/F was 0.73 and the average of follow-up was 9 years [extreme: 1-18 years]. Civil servants represented 33% of the total population, those in the private sector 47%, and those in the liberal profession 20%. The most important socio-professional category was manual workers with 51%. Thirty-seven patients (82%) developed their disease after being employed with a mean delay of 11.8 years. The average number of working hours per week was 38.8 ± 11 hours [extreme: 9-60 hours]. The majority of the employees worked full time (85%), only seven subjects worked part-time, two of them because of their IBD. One in three patients (N=14) claimed to have been exposed to at least one harmful agent during their professional career, mainly organic solvents and chemicals. The main complaint reported by the patients during the daily exercise of the work was about physical fatigue which was omnipresent in the majority of the workers (69%). The digestive symptoms were mainly abdominal pain (53%) evaluated according to VAS with a mean intensity of 2.8 [0 - 10], subocclusive syndrome (40%), presence of diarrhea (38%), incontinence and fecal impaction (22%) which was worsened by the absence of accessible restrooms (33%). Psychological repercussions such as anxiety and depression were mentioned in 27% of cases. The average absenteeism during the last twelve months was 49.6 days [extreme: 0-240 days] and the average number of hospitalization days was 30.7 [extreme: 0-150 days]. Twenty patients (44%) claimed that they were subject to a salary restriction during their professional career because of their illness. Among the patients interrogated, a minority (5 people) had already benefited from a contact with the occupational medicine and health service.

Conclusion: IBD has a negative impact on the working life of patients, due to uncomfortable symptoms, days of absenteeism, and unadapted workplaces, which can affect career plans, professional achievement, and income. Appropriate supports and accommodations to the workplace are needed in order to improve their working experience.

Disclosure: Nothing to disclose.

PP0624

« WORK ABILITY INDEX » AS A SUITABLE INSTRUMENT TO ASSESS WORK ABILITY AMONG IBD PATIENTS

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Introduction: Inflammatory bowel disease (IBD) is a chronic disease usually diagnosed in early adulthood and characterized by unpredictable flare-ups and debilitating symptoms that can interfere with the patient's ability to work and perform daily activities. In fact, since work disability is difficult to quantify, several scores have been developed for this purpose. The Work Ability Index (WAI) is a validated practical tool to measure the work capacity of patients.

The objective of this study was to assess work performance in patients followed for IBD, using the WAI psychometric tool, and to identify predictive factors of work disability.

Aims & Methods: We conducted a cross-sectional study including patients followed for IBD and exercising a professional activity, over a 9-months period. We collected sociodemographic, clinico-biological and evolutionary data. Quality of life was assessed by the IBDQ questionnairy.

Work capacity was assessed using the WAI which classified work performance into four categories: poor (score between 7 and 27), moderate (28-36), good (37-43) and excellent (44-49).

In order to determine the factors of disability at work, we divided our patients into two groups according to the WAI:
- Patients with work disability: WAI between 7 and 27.
- Patient with retained ability at work: WAI between 28 and 49.

Results: A total of 45 patients were included: 80% had Crohn disease (CD) and 20% had ulcerative colitis (UC). The mean age was 44 ± 12 years [20–72], the sex-ratio M/F was 0.73, and the mean of follow-up time was 9 years [1-18]. The average number of working hours per week was 38.8 ± 11 hours [9-60]. The mean absenteeism during the last twelve months was 49.6 days [0–240]. The mean WAI value was 32.6, which corresponds to a moderate work performance. Assessment of work performance according to the WAI questionnaire showed that 38% of patients (n=17) had poor work ability, 24% (n=11) moderate work ability, 34% (n=15) good work ability and only two patients (4%) had an excellent work ability.

In univariate study, the work disability was more important in workers (p=0.008), employees in private or liberal sector (p=0.017), workers with atypical schedules (p=0.034) and in case of a professional seniority higher than 16.5 years (p=0.009). Patient-related factors were advanced age, low socio-economic conditions and low educational level. Disease-related factors were stricturing phenotype of CD, extensive UC, moderate to severe disease activity, presence of extra-intestinal manifestations (EIM) and corticotherapy.

In multivariate analysis, independent predictive factors of work disability among IBD patients were:

Predictive factors	p-value	Odds Ratio	[95% CI]
Osteoarticular extraintestinal manifestation	0,007	21,898	[2,302 - 208,356]
Moderate to severe disease activity	0,002	34,255	[3,585 - 327,269]

Furthermore, the assessment of health-related quality of life by the IBDQ questionnairy, showed a mean IBDQ value of 160.8 which corresponds to a moderate score relating a quality of life; 224 being the maximum score obtainable reflecting an optimal quality of life. In the analytical study and using Spearman's test, a statistically significant correlation was found between the WAI and IBDQ with a p-value <0.0001 and a correlation coefficient r=0.7, reflecting the impact of working life on quality of life.

Conclusion: According to our study, IBD would cause work disability in 38% of cases. Moderate to severe disease activity and the presence of osteoarticular EIM were both identified as independent predictors of work disability. Thus, the WAI can be used as a screening tool to identify the need for rehabilitation.

Disclosure: Nothing to disclose.

PP0625

CLINICAL FACTORS ASSOCIATED WITH NAFLD IN IBD PATIENTS AND COMPARISON BETWEEN PATIENTS WITH NAFLD EXCLUSIVELY

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Introduction: Inflammatory Bowel Diseases (IBD) patients have increased risk for non-alcoholic fatty liver disease (NAFLD). The pathogenesis of NAFLD in IBD patients may be complex and related to multiple factors, such as gut dysbiosis, systemic inflammation, unhealthy nutritional behavior and body composition. NAFLD can lead to severe complications, such as NASH, cirrhosis and HCC, and its incidence is increasing worldwide. Therefore, this study aimed to evaluate NAFLD prevalence among IBD patients and compare their profile with NAFLD patients.

Aims & Methods: 138 IBD patients and 93 NAFLD from a public outpatient healthcare service in Brazil were included in this cross-sectional study. Patients were divided in three groups for comparison: IBD only, IBD+NAFLD and NAFLD only. The presence of NAFLD in IBD patients was assessed by ultrasonography. Exclusion criteria: preexisting liver disease in IBD group, history of alcohol intake >20g/day for women and >30g/day for men, and glucocorticoids treatment >20mg/day. Statistical analysis: descriptive statistics and association tests.

Results: In total, 58 IBD patients presented NAFLD (42.03%). Comparing the three groups, patients in NAFLD only were older (P=0.0279), presented more frequently clinical comorbidities and higher BMI (Table 1). When comparing patients "IBD+NAFLD" and "NAFLD only", we found difference regarding BMI (p<0.0027) and liver assessment scores, such as FIB-4 Index (1,11±0,69 vs 1.67±1.57, p=0.005) and NAFLD score (-1,34±1,84 vs 1.94±1.39 p=0.0467). Also, in biochemical tests, it was observed difference in platelet count (P=0.0009), ALT (P<0.0005), AST (P<0.0001), GGT (P<0.0001), ferritin (P<0.0001), glycosylated hemoglobin (P<0.0087), HDL cholesterol (P<0.0001) and insulin levels (P<0.0001). Mostly, patients in both groups presented moderate steatosis (46.55% vs 44.09%, p=0.0639).

	IBD only (n=80)	IBD+ NAFLD (n=58)	NAFLD only (n=93)	P
Age	43.39±15.05	48.50±12.41	50.63±12.58	0.0020
Female gender	73.75	51.72	62.37	0.0279
Clinical comorbidities	36 (45%)	34 (58.62%)	90 (96.77%)	<0.0001
Diabetes Mellitus	6 (7.5%)	8 (13.79%)	58 (64.44%)	<0.0001
High blood pressure	13 (16.25%)	19 (32.76%)	48 (54.55%)	<0.0001
Dyslipidemia	5 (6.25%)	11 (18.97%)	50 (61.73%)	<0.0001
Hypotyreoidism	6 (7.5%)	3 (5.17%)	17 (25%)	0.0008
BMI	24.93±4.67	29.64±4.29	32.08±4.07	<0.0001
Biochemical tests				
Platelet count	285150±84494.64	270465.52±79453	224279.57±79777.19	<0.0001
AST	24.42±7.88	28.70±15.1	36.42±18.98	<0.0001
ALT	18.76±8.54	27.96±15.62	43.46±35.66	<0.0001
Alkaline phosphatase	66.23±22.62	69.87±25.14	79.08±25.99	0.0204
GGT	29.01±18.14	41.29±27.58	68.76±66.91	<0.0001
Ferritin	75.45±122.9	186.42±297.07	493.98±2180.59	<0.0001
Fasting glucose	89.26±21.15	99.9±23.83	124.20±54.11	<0.0001
Glycated hemoglobin	5.49±0.75	5.8±0.96	7.03±3.59	0.0011
Triglycerides	124.22±68.56	180.21±107.93	182.70±160.62	0.0001
HDL cholesterol	58.17±14.34	48.3±15.09	45.46±10.94	<0.0001
Insulin	7.99±4.83	13.99±8.7	22.68±22.54	<0.0001

Table 1. Comparison among IBD only, IBD+NAFLD and NAFLD only groups. Data presented in mean (SD) and frequency (%)

Conclusion: We observed a high prevalence of NAFLD in patients with IBD (42.03%). NAFLD group had higher levels of BMI, AST, ALT, fasting glucose and blood insulin, in all comparisons – both groups and when compared to IBD+NAFLD group exclusively. We observed that patients without IBD presents higher levels of conditions associated to metabolic syndrome.

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Disclosure: Nothing to disclose.

PP0626

APEX SCORE PROSPECTIVE VALIDATION: AN EXCELLENT PREDICTOR OF FLARES IN SMALL BOWEL'S CROHN'S DISEASE AFTER MUCOSAL HEALING

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Introduction: Optimal strategies for monitoring isolated small bowel's Crohn's Disease (CD) remain uncertain. In 2020, the APEX score was developed, with a value between 4 and 7 presenting an excellent accuracy at stratifying patients relapse risk following a small bowel capsule endoscopy (SBCE) showing mucosal healing (MH)[1].

Aims & Methods: Our aim was to prospectively validate APEX score accuracy in predicting disease flares on the year following SBCE.

Our study prospectively included patients with isolated small bowel CD (Montreal L1±L4) undergoing SBCE, who were in clinical remission (CDAI<150) and corticosteroid-free for the previous 6 months. A blood sample was collected within a maximum of 15 days of SBCE. The score APEX (*Age ≤30 years +3 / Platelets ≥ 280 × 10^3/L +2 / EXtraintestinal manifestations +2*) was applied on patients whose SBCE reported MH. Disease flares were documented on the subsequent year.

Results: We have included 47 patients, from which 28 (59.6%) presented MH on SBCE. From these, 21 (75%) were female, with a mean age of 42±13 years. On the following year, a disease flare was documented on 4 (14.3%) patients. A high-risk APEX score was found in 5 (17.9%) of the patients.

The APEX score presented an excellent accuracy in predicting disease flares on the year following MH (AUC=0.97; 95%CI 0.92-1.00; *p*=0.003). The previously calculated optimal cut-off (APEX≥4) had a sensitivity of 100% and a specificity of 95.8% in predicting the outcome.

Conclusion: Patients with small bowel CD and MH still have a non-neglectable risk of disease flare on the subsequent year. The APEX score has prospectively demonstrated excellent accuracy at stratifying patients' relapse risk. Thus, it emerges as a helpful tool in patients with MH, by identifying those who will need earlier evaluations and more frequent monitoring.

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Disclosure: Nothing to disclose.

PP0627

CLINICAL FEATURES AND NATURAL HISTORY OF PAEDIATRIC PATIENTS WITH ULCERATIVE PROCTITIS: A MULTICENTRE STUDY FROM THE PAEDIATRIC IBD PORTO GROUP OF ESPGHAN

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Introduction: Ulcerative proctitis (UP) is an uncommon presentation in paediatric patients with ulcerative colitis, accounting for <10% of cases in most studies. Therefore, there is limited data on the clinical features and outcomes of these paediatric patients.

Aims & Methods: We aimed to characterize the clinical features and natural history of UP in children, and identify predictors of poor outcomes in a retrospective cohort study involving 37 sites affiliated with the IBD Porto Group of ESPGHAN. Data were collected from patients aged<18 years diagnosed with UP between 01/01/2016-31/12/2020. Associations between baseline characteristics at diagnosis of UP and different clinical outcomes were evaluated using univariable and multivariable Cox regression.

Results: Data were collected from 196 patients (median age at diagnosis 14.5 [IQR 11.9-15.9] years, 105 females [53.6%]). The most common presenting features were bloody stools (95%), abdominal pain (60%) and diarrhea (47%). The median Pediatric Ulcerative Colitis Activity Index (PUCAI) score at the time of diagnosis was 25 (IQR 20-35), with only 2 patients (1.1%) presenting with acute severe colitis (ASC). 125 patients (67.9%) had a PUCAI score of <35, reflecting mild clinical disease activity. Nevertheless, the majority of patients exhibited moderate-severe endoscopic inflammation, with a Mayo score of 2 in 103 (54.2%) and 3 in 40 (21.1%) patients. Most patients had normal inflammatory markers and albumin levels and the median fecal calprotectin value was 645 (IQR 238-1435) mcg/g, with 13/132 (9.8%) and 28/132 (21.2%) having a level of <100 mcg/g or <250 mcg/g, respectively. By the end-of-induction, 5-aminosalicylic acid administration orally, topically or both resulted in clinical remission rates of 52%, 50% 73%, respectively.

The median time to last follow-up was 2.7 (IQR 1.7-3.8) years. The rates of treatment escalation to oral steroids, thiopurines and biologics at 1, 3 and 5 years were 17.6%, 32.6% and 57.8%, 9.8 %, 24.3% and 43.2%, and 10.4%, 22.0% and 42.8%, respectively. Subsequent episodes of ASC were uncommon, involving up to 20% of the patients within 5 years of diagnosis. Nevertheless, IBD-related admissions were frequent, reaching 11.3%, 23.2% and 33.7% within 1, 3 and 5 years from diagnosis, respectively. Finally, only 6 patients (3.1%) had a colectomy by the end of follow-up. On multivariable cox regression analysis, only the PUCAI score was associated with poor outcomes, with a score ≥35 providing increased risk, including escalation to biologics (HR 3.5 [95% CI 1.8-6.6, P<0.001]), subsequent ASC event [HR 2.7 (95% CI 1.3-5.7, P=0.009]) and IBD-associated admission (HR 2.3 [95% CI 1.2-4.2, P=0.008]).

48% of patients that presented with UP and were rescoped exhibited proximal disease progression during follow-up. The presence of cecal patch at the diagnostic colonoscopy was more frequent in patients that subsequently exhibited proximal disease progression (4/58 [6.9%]) vs 11/51 [21.6%], [P=0.027).Moreover, the PUCAI score at the end-of-induction was significantly higher in patients that had subsequent disease progression.

Conclusion: This is the largest cohort, to date, of paediatric patients with UP. Children with UP exhibit high rates of proximal disease extension and requirement of systemic immunosuppressive medications, in the first years after diagnosis. Providers should consider to apply treat-to-target approaches, similar to other patients with UC, in the care of these patients with repeated sigmoidoscopies to document mucosal healing and a specific focus on quality-of-life measurements.

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PP0628

BARRIERS AND PREFERENCES OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE IN LATIN AMERICA

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Introduction: Information and communications technology (ICTs) include computer applications for dialogical, informative, or social use. ICTs are resources in the management of chronic diseases such as inflammatory bowel disease (IBD).

Aims & Methods: To understand their use by IBD patients in Latin America (LatAm), we aimed to assess the barriers and preferences (B&P) of ICTs in this population. From May to June 2022, 17 centers from 9 Spanish-speaking countries in LaTam were invited to participate in a survey-based-study to assess patients with IBD. A 351 cases sample was calculated. Included patients were >15-year-old, with IBD confirmed by histopathology. Patients diagnosed <6 months, hospitalized, without IBD-specific treatment, with psychiatric or oncological disease, health care providers, and unable to answer the survey were excluded. An ad-hoc, anonymous, and online survey was designed. The use of ICTs was estimated using a Likert scale. Surveys with >25% blank data were excluded; in those with <25%, blank questions were counted as such. A sample of 205 was calculated.

Results: 341 cases from 11/17 centers of 6/9 countries were included: Argentina 216, Uruguay 58, Ecuador 33, Chile 16, Peru 12, Paraguay 6. Median age was 37 /28-51) years; 200 (58.7%) females; 240 (70.4%) ulcerative colitis (UC), 90 (26.4%) Crohn's Disease (CD), and 11 (3.2%) indeterminate colitis (IBDU); 14 (4.1%) rurality; 158 (46.3%) complete secondary education, and 111 (32.6%) higher education. 306 (89.7%) owned a smartphone. WhatsApp (WA) was the most frequently used ICT by 325 (95.3%), followed by Instagram (Ig) 199 (58.4%), email 195 (57.2%), Facebook (Fb) 192 (56.3%), and YouTube (YT) 175 (51.3%). For IBD-specific purposes, the most used were WA 130 (38.1%), Fb 93 (27.3%), email 83 (24.3%), YT 73 (21.4%), and Ig 72 (21.1%). 48% used at least one ICT daily. 61.3% stated that they totally/strongly agreed to use ICTs to seek information on self-care measures, 57% diets, and 54% symptoms. Only 15.8% stated that this information was easily accessible, 45.7% easy to understand, 34.9% of good quality, and 25% were concerned about data privacy. 91.5% stated

that they would use an IBD-specific application to obtain updated information on IBD and 88.6% stated a preference for mobile-availability (Figure 1).

Conclusion: IBD patients in LatAm use different ICTs for IBD-specific purposes. ICTs are means to transmit information and maintain communications with and among patients with IBD. However, it is necessary to improve access, accuracy, and understanding of such resources while ensuring patient data privacy. To our knowledge, this is the first study to describe B&P with ICTs use in LatAm IBD patients. NCT04893928.

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PP0629

PERIPHERAL JOINT AND ENTHESIS INVOLVEMENT IN NEWLY DIAGNOSED PATIENTS WITH INFLAMMATORY BOWEL DISEASE (IBD): SYMPTOMS, CLINICAL AND ULTRASONOGRAPHIC FINDINGS

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Introduction: Peripheral musculoskeletal (MSK) symptoms are the most common extra intestinal manifestations (EIMs) in IBD patients, with substantial impact on quality of life. IBD related spondyloarthritis (IBD-SpA) often requires a multidisciplinary evaluation to enable optimal choice of treatment and patient care, but systematic rheumatological characterisation of this population is scarce [1].

Characterisation of IBD-SpA is challenged by the variety of MSK involvement (from arthralgia to ankylosing spondylitis), the co-existence of osteoarthritis, overuse enthesopathies or fibromyalgia, and by the heterogeneity in methodologies used to describe the SpA features. Recently developed recommendations for endpoints for EIMs in IBD trials [2] were applied in the present study.

Aims & Methods: To determine the prevalence and distribution of inflammatory lesions in peripheral joints and entheses in newly diagnosed IBD patients, assessed for presence of MSK symptoms, and by rheumatological and ultrasound (US) evaluation.

Patients from the IBD prognosis inception cohort (IBD-Pro) were consecutively included [2]. They reported MSK symptoms using a validated questionnaire (IBD-TASQ). A clinical examination was performed by rheumatologist, as was US examination (grey scale (GS) and colour Doppler (CD)) of 38 peripheral joints and 14 entheses, applying OMERACT-EULAR definitions and scoring systems for synovitis and enthesitis [3]. Synovitis was defined as GS score ≥2 and/or CD≥1 and entheseal inflammation was defined as presence of hypoechogenicity/thickening and/or CD score ≥1. Further, OMERACT-EULAR sum score (GLOESS) was calculated (0-114).

Results: 110 newly diagnosed IBD patients (mean age 42, 39% male) were included (34% Crohn's disease, 59% ulcerative colitis (UC), 5% unclassified IBD). The IBD disease activity scores indicated mild activity in UC patients (Simple Clinical Colitis Activity Index mean (SD) 6.7 (3.6), and low in Crohn's (Harvey-Bradshaw Index 4.5 (2.9)). Four patients received systemic glucocorticoids (2%) or biologics (2%) at the time of rheumatological evaluation. History of other SpA-associated features such as psoriasis was reported in 2% and uveitis in 5% of the patients.

40% of the patients reported positive history for ≥1 MSK symptom. Joint pain and swelling were the most common complaints (30%), followed by heel enthesitis (17%) and dactylitis in 20%. Patient pain VAS was low, mean (SD) 12(21).

Clinical examination revealed 52% of all patients had arthritis and/or enthesitis and 46% fulfilled ASAS classification criteria for peripheral SpA (25% ≥1 tender joint, 12% ≥1 swollen joint, 46% ≥1 tender enthesis (most affected sites were Achilles and lateral epicondyle).

US found inflammation in ≥1 joint or enthesis in 49% of the IBD patients - synovitis in 29%, mean GLOESS sum score 5.2 SD (4.6) and entheseal inflammation in 34% (US enthesitis sum, mean (SD) 2.6(2).

Among those patients reporting MSK symptoms, 69% had ≥1 tender/swollen joint and/or enthesis at clinical evaluation and 64% had joint/entheseal inflammation by US. Suggesting good overlap between patient-reported symptoms, clinical and US findings. 36% of the asymptomatic patients also had clinical and US signs of arthritis and/or enthesitis.

Conclusion: At the time of IBD diagnosis, more than half of the patients had musculoskeletal manifestations by clinical examination and half had objectively verified synovitis and/or enthesitis by ultrasound, indicating that SpA may be underdiagnosed among IBD patients.

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PP0630

THE IMPACT OF ENDOSCOPIC HEALING ON DISEASE-RELATED OUTCOMES IN PATIENTS WITH ULCERATIVE PROCTITIS

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Introduction: The impact of achieving endoscopic remission in ulcerative proctitis (UP) is unclear. The preferred long-term treatment goal in ulcerative colitis (UC) is achieving both the symptomatic resolution and endoscopic remission (ER),[1] which has been associated with reduced risk of complications, including colectomy.[2,3] UP is an anatomically limited form of UC, involving only the rectum. Unlike in extensive or left-sided UC, UP has not been associated with elevated colorectal cancer risk. Therefore, the achievement of endoscopic healing as compared to clinical remission in UP represents an uncertain therapeutic target.[4]

Aims & Methods: This study assessed the impact of achieving EH on subsequent outcomes in UP patients. This was a single-center retrospective cohort study including patients aged ≥ 18 with a confirmed diagnosis of UP based on clinical and endoscopic criteria. Included patients had at least two endoscopies and active endoscopic disease (Mayo endoscopy score [(MES) of 1, 2, or 3]) at the first (baseline) endoscopy. EH was defined as an MES of 0 or 1 at the second (follow-up) procedure. A minimum time of 1 month between scopes was required for inclusion. Descriptive statistics were used for baseline characteristics. The relationship of EH to IBD-related outcomes was assessed using univariate analysis (Pearson's

Chi-squared test; Fisher's exact test; Welch Two Sample t-test) and we identified those independently associated with EH using multivariable logistic regression analysis (odds ratio with 95% confidence interval).

Results: Among 200 UP patients with baseline endoscopic activity, 109 patients (54.5%) achieved EH at follow-up. The median time from baseline to follow-up was 15 months (IQR: 6, 31). EH at follow-up was significantly associated with fewer IBD-related ED visits (healing: 8.3%, no healing: 21%) or hospitalizations (5.5% vs 18%) and fewer GI visits (mean: 8 [SD: 9], vs 17 [22]) after the second scope. Patients with EH were less likely to have iron deficiency anemia (IDA; 23% vs 41%), iron infusion (10% vs 25%), *C. difficile* infection (0.9% vs 6.6%), or to initiate a new biologic after relapse (15% vs 33%). Patients with EH also had a greater time to clinical relapse (650 days [730] vs 270 days [416]). In multivariable analysis, patients with mucosal healing had 68% lower odds of an IBD-related ED visit (OR: 0.32, 95% CI: 0.13, 0.73), 74% lower odds of IBD-related hospitalization (0.26 [0.09, 0.67]), and 64% lower odds of biologic initiation after relapse (0.36 [0.13, 0.95]) compared to patients with no mucosal healing, adjusting for the index MES score.

	Overall, N = 200[1]	Healing, N = 109[1]	No healing, N = 91[1]	P-value[2]
IBD-Related ED Visit	28 (14%)	9 (8.3%)	19 (21%)	0.01
IBD-Related Hospitalization	22 (11%)	6 (5.5%)	16 (18%)	0.007
Total Number of GI Visits, mean (SD)	12 (17)	8 (9)	17 (22)	<0.001
IDA	62 (31%)	25 (23%)	37 (41%)	0.007
Iron Infusion	34 (17%)	11 (10%)	23 (25%)	0.004
C. Difficile Infection	7 (3.5%)	1 (0.9%)	6 (6.6%)	0.048
Biologic Initiation After Relapse (n=98)	24 (24%)	7 (15%)	17 (33%)	0.034

1. n (%)

2. Pearson's Chi-squared test; Welch Two Sample t-test; Fisher's exact test

Table.

Conclusion: UP patients with endoscopic healing had less IBD-related healthcare utilization (ED visits, hospitalizations, GI visits), fewer IBD-related complications (IDA, iron infusion, *C. difficile* infection), and were less likely to escalate to biologics after relapse. Our findings suggest that using a treatment target of endoscopic healing is desirable in UP and shed light on its potential utility in preventing disease-related complications and improving long-term outcomes.

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PP0631

DEVELOPMENT AND VALIDATION OF A MULTIFUNCTIONAL FREE ACCESS TELEMEDICINE MOBILE APP FOCUSED ON SPANISH-SPEAKING PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: The use of mobile Health applications (mHealth apps) is increasingly frequent as telehealth provides clinical support for patients with chronic pathologies, including health education, symptom surveillance, follow-up, and promotes therapeutic adherence and compliance. There are mHealth apps directed to patients with inflammatory bowel disease (IBD) that have shown to significantly improve IBD disease knowledge level, therapeutic adherence, and even quality of life. Nevertheless, the vast majority is not available in Spanish, thus have limited access and use, no documented validation or user-patient acceptance test (UAT), little multifunctionality and/or difficulty handling.

Aims & Methods: We developed a multifunctional and intuitive free access mHealth app directed to Spanish speakers with IBD and we aimed to validate it with a UAT. The *Development and Assessment of a Mobile Application for Sanitary Support in Spanish speakers with Crohn's and ulcerative Colitis* (DAMASCO) is an independent and multicenter project in Latin America. It is an observational, analytic, and prospective study. During this phase, a prototype mHealth app was designed in Adobe XD and a UAT was used in ambulatory IBD patients, with a ≥6 months diagnosis, cared for in a 3rd level hospital during July/2022. The UAT was performed on-line using the *Mobile Application Rating Score (MARS),* a tool of 30 questions scaled with Likert. It was taken as a reference a Likert (L) 4-5 (very good-excellent). MARS was translated from English to Spanish using the Sperber method. This study was approved by the institutional ethics committee (633 LMiP0Se/22).

Results: The prototype has the following purposes: symptom registry, medication reminder, pending studies, and food diary. Of the 40 people invited for the UAT, 38 accepted and 33 showed ≥75% of the MARS. The sample had a median age of 35 (29-45), 20/33 (60.6%) women, 22/33 (66.7%) ulcerative colitis, and 11/33 (33.3%) Crohn's disease. There was a higher score between questions related to functionality (L4-5 96%), followed by adherence to mHealth app (L4-5 80.3%), content (L4-5 76.5%), and design (L4-5 68.7%). mHealth app specific IBD evaluation had a very good-excellent score in 93.1% of the input. The mHealth app was rated with four and five stars by 20/33 (60.1%) and 5/33 (15.2%), respectively. There was a 1.4% input loss (**Figure 1**).

Conclusion: The recently developed mHealth app constitutes an intuitive, easy-to-use multifunctional free access tool highly accepted among Spanish speaking patients with IBD.

Disclosure: Carlos Robles-Medranda is a key opinion leader and consultant for Pentax Medical, Boston Scientific, Steris, Medtronic, Motus, Microtech, G-Tech Medical Supply, CREO Medical, and mdconsgroup. The other authors declare no conflicts of interest.

PP0632

PREVALENCE AND MANAGEMENT OF DASATINIB-INDUCED GASTROINTESTINAL DISORDERS: A STUDY AT OUR HOSPITAL

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Introduction: Dasatinib is a medication that inhibits the protein kinase activity of BCR-ABL chimeric protein and is used to treat chronic myeloid leukemia. However, reports of bleeding complications such as gastrointestinal bleeding have been reported despite its therapeutic effects.

Aims & Methods: To investigate the gastrointestinal symptoms and endoscopic findings associated with dasatinib administration.

We retrospectively reviewed medical records of 26 patients who received dasatinib for chronic myeloid leukemia or Philadelphia chromosome-positive acute lymphocytic leukemia at our hospital from July 2017 to June 2022. Patients with a history of dasatinib treatment for less than 1 year or bacterial or cytomegalovirus enteritis were excluded. We examined the duration of dasatinib treatment, adverse events including bloody stools, and endoscopic findings in 13 patients who underwent colonoscopy.

Results: The male-to-female ratio was 19:7, and the median age was 54.5 years (4-84). The median duration of dasatinib treatment was 48 months (12-132). Adverse events included edema (7 cases), pleural effusion (10 cases), rash (2 cases), hematotoxicity (8 cases), and muscle pain (2 cases). Gastrointestinal symptoms included chronic diarrhea (4 cases), gastric discomfort (2 cases), abdominal pain (1 case), and bloody stools (3 cases). Nine cases had occult gastrointestinal bleeding. The change in hemoglobin level from before to 1 year after treatment was -0.8, indicating a decreasing trend (13.1±2.2 before treatment, 12.3±1.1 after treatment; p=0.08). Colonoscopy findings included normal in 2 of the 13 patients, rough mucosa in the right colon in 10 patients, and total colitis in 1 patient. One case showed pseudomembranous colitis-like findings, and 2 cases showed inflammatory polypoid-like findings (1 case of solitary polyp and 1 case of polypoidosis).

Conclusion: Dasatinib has been associated with lower gastrointestinal bleeding, and its excretion in feces is thought to be one of the contributing factors. Various gastrointestinal disorders observed in this study are also suspected to be adverse reactions to the medication. Some cases had endoscopic findings suggestive of pseudomembranous colitis or inflammatory polypoid-like changes, requiring consideration of drug-induced enteritis due to dasatinib as a differential diagnosis.

Disclosure: Nothing to disclose.

PP0633

PREDICTORS OF ILLNESS TRAJECTORY IN NEWLY DIAGNOSED ULCERATIVE COLITIS: A 3-YEAR FOLLOW-UP COHORT STUDY

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Introduction: Psychological symptoms are associated with negative ulcerative colitis (UC)-related outcomes, such as increased symptom severity and decreased health-related quality of life (HRQOL). However, the majority of research to date is cross-sectional, limiting our ability to assess the impact of psychological processes on longitudinal IBD-related outcomes and the directionality of such effects.

Aims & Methods: We aimed to identify patient subgroups based on the longitudinal evolution of GI symptom levels and HRQOL and disentangle the directionality of effects between GI symptom levels and levels of psychological distress. Self-reported symptom severity,[1] HRQOL,[2] inflammatory biomarkers, psychological distress,[3] and coping[4] were assessed in 98 newly diagnosed UC patients (mean age = 36 [range 18–74], 69% male) at baseline (before anti-inflammatory treatment) and yearly for 3 consecutive years. Latent-class growth analysis (LCGA) was used to determine subgroups in longitudinal trajectories of symptom severity (diarrhea, abdominal pain) and physical and mental HRQOL. Risk factor analysis was used to determine psychological and inflammatory baseline predictors of trajectory group membership. Cross-lagged structural equation models were used to disentangle psychological predictor – symptom severity temporal relationships.

Results: Different subgroups were found based on the progression of diarrhea, abdominal pain, and physical and mental HRQOL over time. Patients with more psychological symptoms at baseline had an increased probability of maintaining higher levels of diarrhea (p = 0.049) and abdominal pain (p = 0.009) over time. Conversely, patients with lower levels of baseline diarrhea (p < 0.001) and abdominal pain (p = 0.003) had higher chances of maintaining lower levels of psychological distress. Higher levels of C-reactive protein at baseline predicted greater improvements in mental health after anti-inflammatory treatment (p = 0.017), suggesting a subgroup of patients for whom initial poor mental health was inflammation-driven. Cross-lagged structural equation models indicated that reductions in abdominal pain preceded reductions in psychological symptoms in time (all β=0.75, p <.001). Both diarrhea and abdominal pain preceded reductions in coping resources in time (diarrhea: $\beta_{baseline}$= -0.16, β_1= -0.10, β_2= -0.12, all p <.05; abdominal pain: $\beta_{baseline}$= -0.31, β_1= -0.18, β_2= -0.21, all p <.001).

Conclusion: Baseline psychological distress is predictive of higher maintained levels of symptom severity over time, suggesting early assessment of psychological symptoms may identify patients with worse disease trajectories. IBD symptom and disease severity also contribute to mental health outcomes; indeed, low baseline symptom severity may be protec-

tive against subsequent decreased mental health and reducing inflammation may improve mental health functioning in a subset of patients. When evaluating the directionality of psychological predictor–symptom severity relationships over time, abdominal pain predicted increased psychological distress, but not the other way around. Thus, interventions aimed at reducing abdominal pain may help prevent or reduce future psychological distress.

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Disclosure: Nothing to disclose.

PP0634

COMBINING LEUCINE-RICH ALPHA-2 GLYCOPROTEIN AND FAECAL BIOMARKERS FOR ACCURATE MONITORING OF SMALL BOWEL ACTIVITY IN CROHN'S DISEASE

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Introduction: Small bowel activity detected by endoscopy is known to be associated with unfavourable clinical outcome in Crohn's disease, regardless of symptoms. The treat-to-target approach whereby endoscopic remission is set as a treatment target is recommended. Imaging modalities for monitoring the small bowel are limited, as well as being invasive.

Aims & Methods: In this study, our objective was to investigate which of the existing biomarkers for Crohn's disease best indicates endoscopic small bowel activity, and whether combining the biomarkers can improve accuracy. 104 consecutive patients with ileal and ileocolonic type Crohn's disease who underwent balloon assisted enteroscopy (BAE) at our hospital from October 2021 to August 2022 were enrolled, with clinical and laboratory data prospectively collected and analysed. BAE was evaluated using the modified Simple Endoscopic Score for CD (modified SES-CD). Ulcers were defined as those ≧ 0.5 cm.

Results: Haemoglobin, platelet count, C-reactive protein (CRP), leucine-rich alpha-2 glycoprotein (LRG), faecal calprotectin, and faecal haemoglobin values all demonstrated a significant difference in those with ulcers found on BAE. All biomarkers significantly correlated with modified SES-CD. LRG and faecal calprotectin showed the highest areas under the curve (0.841 and 0.853) by ROC analysis for detecting small bowel ulcers. LRG showed a sensitivity of 78% and specificity of 80% at a cut-off value of 13 µg/mL, whereas faecal calprotectin showed a sensitivity of 91% and specificity of 67% at a cut-off value of 151 µg/g. Dual positivity for LRG and faecal calprotectin, as well as LRG and faecal haemoglobin, both predicted the presence of ulcers with a further improved specificity of 92% and 100%. A positive result for either LRG or faecal calprotectin/haemoglobin showed an improved sensitivity of 96% and 91%. Positivity for LRG and either of the faecal biomarkers was associated with poor clinical outcome in terms of hospitalisation, surgery, and relapse.

Conclusion: This is the first study comparing the major existing biomarkers for Crohn's disease in terms of monitoring for small bowel activity. LRG, faecal calprotectin, and faecal haemoglobin are accurate biomarkers, especially when used in combination. Patients who are dual-positive for LRG and faecal calprotectin or faecal haemoglobin should be assessed by early endoscopic evaluation of the small bowel and considered for change in treatment, as they are at higher risk for hospitalisation, relapse, and surgery.

Disclosure: Nothing to disclose.

PP0635

INTESTINAL ULTRASOUND IS RESPONSIVE TO TREATMENT IN NEWLY DIAGNOSED CROHN'S DISEASE

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Introduction: The disease course of ileal and ileocolonic Crohn's disease (CD) is highly heterogeneous, and continuous objective measures of disease activity are needed. Intestinal Ultrasound (IUS) is a non-invasive modality assessing disease activity in IBD. The International Bowel Ultrasound Segmental Activity Score (IBUS-SAS) is an index for grading CD activity. However, importance of the ultrasonic findings in the terminal ileum (TI) at diagnosis and the responsiveness of ultrasonic findings to different treatments is still limited.

We thus aimed to investigate the IUS characteristics of the TI at diagnosis and changes in IUS parameters in response to treatment 3 months after inclusion.

Aims & Methods: Patients with new-onset IBD are recruited in the ongoing multicentre prospective inception cohort study, the IBD Prognosis Study. IUS is performed at diagnosis and after three months (3M). IBUS-SAS (0-100) is scored for the TI and incorporates the bowel wall thickness (BWT), bowel wall stratification (BWS), colour Doppler signal (CDS), and inflammatory fat (I-FAT). Only patients with ileal and ileocolonic CD who had an available IBUS-SAS of the TI at diagnosis were included. Patient without subsequent assessment at 3M were excluded (except resected patients). Transmural remission was defined as IBUS-SAS < 12 (corresponding to BWT < 3 mm and no signs of inflammation). If the operator assessed the TI as complete transmural remission at 3M without providing numeric BWT values, the IBUS-SAS was set to 8. Patients treated with corticosteroids for > 72 hours or with any IBD treatment > two weeks prior to baseline IUS were excluded from analysis.

Results: Baseline IBUS-SAS at TI was available in 46 CD patients (ileal: 21, ileocolonic: 25). According to the Montreal classification, 31 patients had B1 (non-stricturing, non-penetrating disease), 9 patients had B2 (stricturing disease), and 6 patients had B3 (penetrating disease).

Among all patients, the mean IBUS-SAS was 60.7 at diagnosis vs. 33.7 at 3M (p<0.001). Mean baseline BWT decreased from 5.8 to 4.6 (p=0.011) at 3M. The other IBUS-SAS parameters also had significant reductions (p=0.021,

p=0.001, and p<0.001 for BWS, CDS, and I-FAT, respectively). After three months, 12/39 (30.8%) of non-resected patients were in transmural remission.

Changes in IBUS-SAS between diagnosis and 3M stratified by initiated treatment are presented in *Figure 1* (https://ibb.co/mBcVF9b). In total, 6 (13.0%) patients started only systemic steroids with a mean IBUS-SAS reduction of 20.6 (p=0.025), 5 (10.9%) patients started systemic steroids + biological therapy with a mean reduction in IBUS-SAS of 37.6 (p=0.022), 11 (23.9%) patients started on systemic steroids + immunomodulator with a mean reduction in IBUS-SAS of 35.6 (p<0.001), 4 (8.7%) patients started on immunomodulator + biological therapy with a mean reduction in IBUS-SAS of 24.8 (p=0.271), and 9 (19.6%) patients were started on budesonide with a mean reduction in IBUS-SAS of 9.4 (p=0.287). Finally, 4 (8.7%) patients did not commence on any treatment and these patients increased their IBUS-SAS by 6.75 (p=0.536), and 7 (15.2%) patients were resected as primary treatment with 1, 2, and 4 having the B1, B2, and B3 Montreal classification, respectively. Baseline IBUS-SAS was significantly higher for patients undergoing resection than patients without resection, (87.9 vs. 55.8, P<0.001).

Conclusion: IUS performed at diagnosis and after three months can effectively identify patients achieving ultrasonic response and / or transmural healing to multiple drug classes. All four IBUS-SAS activity parameters demonstrated responsiveness to treatment and patients without treatment increased their IBUS-SAS non-significantly. Transmural remission was achieved in up to 30 % of non-resected patients within 3M.

Disclosure: Nothing to disclose.

PP0636

RISANKIZUMAB LEVELS ARE SIGNIFICANTLY CORRELATED AND PREDICTIVE OF BIOMARKER REMISSION IN CROHN'S DISEASE

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Introduction: Risankizumab (RZB) is a P19 subunit blocking anti-IL-23 agent that has been shown to be effective in CD in a recent Phase 3 trial (Ferrante et al., Lancet 2022). Compassionate use has been possible since June 2022. The aim of this work was to investigate whether RZB levels correlate with biomarker-based remission.

Aims & Methods: Any CD patient on RZB (compassionate use or open-label phase 3 study) was eligible for the study. All patients were treated with a regimen of RZB (600mg/IV S0, S4 and S8) followed by 360 mg/sc every 8 weeks starting at S12. Patients who had received other regimens were excluded. Before each infusion or SC injection, fecal calprotectin, CRP and RZB levels were measured using an ELISA test. The assays were blinded to clinical and biomarker datas. Clinical remission was defined as CDAI score < 150 Conversly, clinical activity was definied by a CDAI score > 220. Biomarker remission was defined as fecal calprotectin levels below 250 µg/ml and CRP < 5 mg/l.

Results: 26 patients (mean age: 42 years, sex ratio M/F: 1.3) with 97 maintenance RZB samples (360mg/sc every 8S) were eligible. In 37 cases, RZB samples were taken while biomarkers were in remission. During, maintenance, mean RZB levels were significantly higher in cases of clinical remission than in the absence of clinical remission (22.5 versus 6.1 µg/ml; p<0.0001)(Figure 1). Mean RZB levels were similar between patients in clinical remission and patients in clinical and biomarker remissions (22.5 versus 19.6 µg/ml; p<0.0001). The higher RZB trough level quartiles tended to be associated with greater rates of clinical response [p = 0.001]. Clinical remission rates were 4% if RZB trough levels were ≤4.9 µg/mL [quartile 1] and 88% if RZB trough levels were >19.6 µg/mL [quartile 4] (Figure 2).

Conclusion: RZB levels are significantly higher in patients with clinical remission in CD. Trough concentration of RZB above 10.6µg/mL should be recommended in clinical practice.

References: Ferrantet et al., Lancet 2022

Disclosure: Nothing to disclose.

PP0637

ONE-YEAR INTESTINAL ULTRASOUND IMPROVEMENTS IN UC PATIENTS ON BIOLOGIC OR JAKI THERAPY – INTERIM RESULTS OF THE TRUST BEYOND STUDY

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Introduction: Transmural response (TR) and healing (TH) assessed by intestinal ultrasound (IUS) are gaining increasing relevance as treatment targets in Crohn's disease (CD) [1].

Even though less established in ulcerative colitis [UC], in which the inflammation mainly affects mucosa and submucosa, there is clear evidence that applying IUS in UC is beneficial to monitor short-term response to therapy [2].

However, the long-term IUS outcome, its association to clinical and lab parameters as well as the predictive value of early TR remain elusive.

Aims & Methods: The TRUST BEYOND study is an ongoing, prospective, non-interventional, multi-centre study in patients with active CD or UC who receive a biologic- or Januskinase-inhibitor (JAKi)-therapy at baseline. The study aims to assess the predictive value of TR or TH, evaluated at week 12 for the disease outcome after 52 weeks (TR: reduction of bowel wall thickness (BWT) of at least 25% and/or normalization; TH: normalization of BWT and Colour Doppler signal). For this interim analysis, we report IUS and clinical results as well as fecal calprotectin levels of 77 UC patients on the same therapy after 12 (W12) and 52 weeks (W52) and assessed the predictive value of TR at W12 for clinical remission at W52.

Results: Seventy-seven UC patients (63.6% were male, median age was 38.6 years (30.6 – 55.7) median disease duration of 5.85 years (2.49–12.77)) with clinically active disease (SCCAI 8.5 ± 2.2) with increased BWT at baseline had a documented visit after 52 weeks until February 2023. For the vast majority, the most affected bowel wall segment was the sigmoid colon with a mean BWT of 5.22 ± 1.28 mm at baseline.

At W12 after induction of therapy, the proportion of UC patients with TR and TH was 67.5% (n = 52) and 31.2% (n = 24). At W52, the rates of UC patients increased to 77.9% (n = 60) for TR and 41.6% (n = 32) for TH. Over the study course, patients with TR at W12 and W52 had a numerically lower SCCAI score and reduced fecal calprotectin levels than patients without TR.

Of note, 72.2% (n = 39) of patients with TR at W12 were in clinical remission at W52 compared to 27.8% (n = 15) of patients without early transmural response (p = 0.178).

Conclusion: In this interim analysis of the TRUST BEYOND study, UC patients demonstrated substantial rates of transmural improvements on IUS after 12 and 52 weeks. Patients with early transmural response were more likely to be in remission after one year. This suggests that in UC, IUS has to some degree a predictive value as observed for CD.

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PP0638

EARLY FECAL CALPROTECTIN LEVELS PREDICT POSTOPERATIVE RECURRENCE OF CROHN'S DISEASE: DATA FROM THE REPREVIO TRIAL

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Introduction: Crohn's Disease (CD) is a chronic inflammatory disease of the gastrointestinal tract often requiring lifelong treatment. An important proportion of CD patients with ileitis or ileocolitis require bowel resection during the course of their disease. [1] Although ileocolonic resection (ICR) induces clinical and endoscopic remission, more than half of patients develop postoperative recurrence in the first years following surgery. [2] In the recent REPREVIO trial, we showed that vedolizumab treatment (VDZ) is effective to prevent the incidence and severity of recurrence. [3]

Currently, the gold standard to diagnose postoperative CD recurrence is through ileocolonoscopy using the Rutgeerts scoring system. A modified Rutgeerts score ≥i2b predicts early clinical recurrence. Given the invasive nature and high cost of endoscopy, we investigated the value of fecal calprotectin (FC) in a prospective cohort of patients enrolled in the REPREVIO trial.

Aims & Methods: CD patients were randomized to blinded treatment with 8-weekly IV VDZ 300 mg or placebo for 26 weeks within 1 month following ICR. Faecal calprotectin (FC) and serum CRP were measured at baseline, week 8, week 16 and week 24. At week 26-28 ileocolonoscopy was performed to evaluate CD recurrence and scored by blinded investigators. Statistical analysis was performed using SPSS (IBM). Predictors for endoscopic recurrence were examined by univariable and multivariable logistic regression analysis. Receiver operating characteristic (ROC) curves were used to assess accuracy of FC in predicting endoscopic recurrence.

Results: Eighty patients (median age 36 [IQR 27-52], median disease duration 8.5 years [IQR 1-16]) participated in REPREVIO, all having at least 1 risk factor for postoperative recurrence (smoking 16.3%, >1 prior resection 35%, perforating complications 36.3%, previous exposure to TNF inhibitors 48.8%).

Median FC at baseline (BL) was 157.2 µg/g [IQR 68.3-310.3] for all patients. In patients *without* week 26 endoscopic recurrence, FC decreased from BL to week 8 (from 139 to 80.5 µg/g, p<0.001). Conversely, FC remained stable or increased in patients who had week 26 recurrence independently from allocation (VDZ or PLC).

Week 8 FC levels were significantly higher in patients with week 26 endoscopic recurrence (Rutgeerts ≥i2b) (158 µg/g [IQR 53.9-397]) than in patients without recurrence (Rutgeerts ≤i2a) (80.5 µg/g [IQR 19.3-181.8], p= 0.011). After correction for treatment (PLC or VDZ), the predictive power of FC was only significant for patients in the PLC group (Rutgeerts ≤i2a 46 µg/g [IQR 18.8-139] versus Rutgeerts ≥i2b 200 µg/g [43.1-425.3])(p=0.018), respectively). ROC analysis revealed that FC had an area under the curve (AUC) of 0.703 for a cut-off FC value of 45 µg/g at week 8, with a sensitivity of 85% and a specificity of 40% to predict endoscopic recurrence. Further analysis of the predictive value of week 16 and 24 FC was hampered by the number of missing samples. Serum CRP was not predictive of recurrence.

	Remission (Rutgeerts ≤i2a)	Recurrence (Rutgeerts ≥i2b)	p-value
ALL PATIENTS Calprotectin baseline, Median, IQR, µg/g	139 [46-375.5]	189.6 [82.3-323.8]	0.527
Calprotectin week 8, Median, IQR, µg/g	80.5 [19.3-181.8]	158 [53.9-397]	0.011*
ONLY VDZ Calprotectin baseline, Median, IQR, µg/g	157.2 [52-399]	186.1 [74-467]	0.865
Calprotectin week 8, Median, IQR, µg/g	88 [20-199.5]	120.5 [65.5-225.3]	0.456
ONLY PLC Calprotectin baseline, Median, IQR, µg/g	233.5 [21.8-366.5]	193 [89-240]	0.512
Calprotectin week 8, Median, IQR, µg/g	46 [18.8-139]	220 [43.1-425.3]	0.018*

Conclusion: In the REPREVIO study, week 8 FC levels were predictive of clinically relevant endoscopic recurrence at week 26. A FC >45 µg/g 8 weeks post-surgery has a sensitivity of 85% to predict significant endoscopic recurrence and treatment escalation should be considered in these patients.

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Disclosure: Nothing to disclose.

PP0639

FACTORS ASSOCIATED WITH ABDOMINAL PAIN IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Abdominal pain is a common but often overlooked symptom in patients with ulcerative colitis (UC). The causes of pain during deep remission remain incompletely known, although factors in the brain-gut axis may play a role.
Aims & Methods: The aim of this study was to determine factors associated with abdominal pain in UC patients. Three existing study cohorts of adults with UC were used. Cohort I included 133 patients (49 active), cohort II 287 patients (155 active) and cohort III 92 patients (20 active). The abdominal pain domain of the Gastrointestinal Symptom Rating Scale was used to assess the severity of pain, identifying subjects with at least mild severity of abdominal pain. The Hospital Anxiety and Depression Scale was used to identify subjects with anxiety and or depression (scores ≥8) Patients also completed questionnaires to assess severity of fatigue (Fatigue Impact Scale (FIS, cohort I)), and quality of life (QoL, the IBD questionnaire (IBDQ, cohort II)).
Results: In the three cohorts 39%, 24% and 20% of the patients with active disease and 20%, 7% and 15% of the patients in remission reported at least mild severity of abdominal pain. A higher proportion of UC patients with at least mild abdominal pain had anxiety (83%, 44%, and 40% vs 42%, 18% and 7%; p<0.01) and depression (40%, 33% and 40% vs 13%, 9% and 13% p<0.05). Disease-specific QoL was lower in patients with at least mild abdominal pain, both in patients with active disease (median [IQR] IBDQ score 182 [150-198] vs 144 [115-160], p<0.001) and in remission (IBDQ score 203 [190-213] vs 171 [141-181], p<0.001). In UC patients in remission, having at least mild abdominal pain was associated with more severe impact of fatigue on daily life, (FIS 81 [67-100] versus 29 [14-58], p<0.001).
Conclusion: Abdominal pain is relatively common in patients with UC with active disease as well as in remission. This is associated with anxiety, depression and more severe fatigue and a lower QoL. Hence, paying attention to abdominal pain and associated factors seems important to optimize clinical management of these patients.
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Hans Törnblom: Consultant/Advisory Board member: Cinclus Pharma, Dr Falk Pharma Gmbh, VIPUN Medical.
Speakers' bureau: Tillotts, Takeda, Galapagos
Börje Jonefjäll: Consultant/advisory board member: Tillots. Speaker for MSD, AbbVie, Tillotts, MEDA, and Takeda.
Hans Strid: Consultant/Advisory Board member: Tillotts, Takeda, Abbvie, Pharmacosmos, BMS
Magnus Simrén: Unrestricted research grants: Glycom/DSM, Genetic Analysis AS
Consultant/Advisory Board member: Danone Nutricia Research, Ironwood, Biocodex, Genetic Analysis AS, Tillotts, Takeda, Arena, Kyowa Kirin, Abbvie, BioGaia, Cinclus Pharma and Pharmanovia.
Speakers' bureau: Tillotts, Kyowa Kirin, Takeda, Biocodex, Sanofi, Janssen Immunology, Pfizer, Ferrer, BioGaia and Falk Foundation.

PP0640

ARTIFICIAL INTELLIGENCE IN THE DIFFERENTIAL DIAGNOSIS OF INFLAMMATORY BOWEL DISEASES AND IRRITABLE BOWEL SYNDROME

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Introduction: A differential diagnosis of inflammatory bowel diseases (IBD) and irritable bowel syndrome (IBS) is one of the unresolved problems in modern gastroenterology. The absence of clear criteria for IBD detection leads to delay in the diagnostic process for months and years.
Aims & Methods: The aim of the study was to identify clinical and laboratory markers that could distinguish between IBD and IBS with a subsequent development of an artificial neural network (ANN).
We retrospectively evaluated the clinical symptoms, anamnesis data and laboratory tests of patients with verified exacerbation of Crohn`s disease (CD) and ulcerative colitis (UC), and IBS. We found parameters that could distinguish IBD and IBS and then CD and UC, and used them to create the ANN.
Results: Of the 1006 examined, 32% were patients with IBS and 68% with IBD. Patients with IBS were significantly more likely to have a tendency to constipation (34.8% compared with 5.0% in IBD patients), loose stool up to 2 times (26.9% compared with 17.0%), the absence of extraintestinal (EIMs) (94.1% compared to 66.3%) and perianal manifestations (PAM) (96.0% compared to 83.5%) (p<0.001). The patients with IBD had diarrheal syndrome ≥ 5 times a day more frequently (40.0% and 6.2% in patients with IBS, respectively), blood admixture (65.3% and 6.8%, respectively) and higher level of fecal calprotectin (p<0.001). All these data were used to create and train the ANN on general and test (15% of all cases) dataset. Multilayer perceptron showed the best results in IBD detection: the sensitivity was 95.8% and the specificity was 90.2%.
To create the ANN for IBD differentiation, we analyzed medical histories of 350 patients (51%) with UC and 333 (49%) with CD. Statistical analysis in the group with UC significantly more often had severe diarrheal syndrome (≥ 5 times a day) (48.3% compared to 42.3% among the patients with CD), blood in the stool (87.1% compared to 79.0%, respectively), the absence of EIMs (73,4% compared to 58,9%, respectively) and PAMs (97,4% compared to 58,9%, respectively) (p<0,001). Patients with CD compared with UC were significantly more likely to have constipation (7.2% compared to 2.9%, respectively) (p=0.002), increased stool up to 2 times (21,6% compared to 12,6%, respectively), subfebrile temperature (25.8% compared to 16.9%, respectively) (p=0.004) and surgical intervention on the small and large intestines in the anamnesis (20.1% in compared to 1.4%, respectively) (p<0.001). The clinical and anamnestic parameters identified in our study were used to create and train the ANN. The best results were shown by a linear set with 5 input neurons: the accuracy of detecting CD was 78.7% and UC - 75.4%, which shows a moderate ability of the ANN to differentiate UC and CD.

Conclusion: As a result of the study, we created the ANNs with high sensitivity and specificity in the differentiation of organic and functional intestinal diseases and with moderate accuracy in IBD differentiation. The developed ANN can help clinicians in the diagnosis of IBD and IBS, but further work for improving its accuracy and the possibility of implementation into clinical practice is required.
Disclosure: All authors have declared no conflict of interest.

PP0641

THE UROTENSIN-II RECEPTOR: A NEW PREDICTIVE MARKER OF STAGING OF ULCERATIVE COLITIS AND THERAPEUTIC RESPONSE TO INTRAVENOUS STEROID ADMINISTRATION

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Introduction: Urotensin II (U-II) is a vasoactive peptide whose interaction with its specific receptor (UTR) plays a key role in promoting several phlogistic pathways in different inflammatory-related diseases, including ulcerative colitis (UC). The incidence of UC is increasing worldwide, becoming a contemporary important health and socio-economic problem due to the burden of optimal medical management, especially in the acute severe UC (ASUC) setting.
In the ASUC, in fact, the main goals for the clinicians at the moment of admission are represented by the rapid severity assessment and risk stratification to make the best therapeutic choice.
Aims & Methods: We aimed to assess the relationship between UTR expression and clinical, endoscopic, and biochemical severity of UC, exploring its predictivity predictive role for intravenous (iv) steroid administration therapeutic outcome. One-hundred patients receiving the first diagnosis of UC and 44 healthy subjects receiving a colorectal cancer screening colonoscopy were consecutively enrolled. UTR expression was assessed by quantitative polymerase chain reaction (qPCR), Western Blot (WB), and immunohistochemistry (IHC). Clinical, endoscopic, and histology activity of UC were evaluated by using Truelove and Witts (T&W) severity index, Mayo Endoscopic Score (MES), Truelove and Richards Index (TRI), Partial Mayo score (PMS) and Full Mayo Score (FMS). The "Albumin, C-reactive protein, Endoscopy" (ACE) index was also determined as a well-known score in the prediction of steroid response. Response to treatment was defined by combining bowel movements frequency and PCR levels according to the clinical practice guidelines.
Results: The UTR expression resulted higher in the lesioned mucosa of UC patients in comparison to healthy subjects ($p < 0.0001$ all). A direct relationship between UTR (mRNA and protein) expression and disease severity assessment (T&W, TRI, MES, PMS, and FMS) was highlighted ($p<0.0001$ all). Of 100 patients, 72 presented ASUC requiring iv steroid administration. UTR expression (mRNA and protein) was higher in these individuals than in those (28/100) who underwent alternative medications (budesonide, 5-aminosalicylic acid, and others) ($p<0.0001$). Of 72 steroid-treated patients, 40 were considerable responders. The 32 steroid-non-responders showed an increased UTR expression (WB, IHC, and qPCR from lesioned mucosa), compared to the 40 steroid responders (p:0.0002, p:0.0001, $p<0.0001$ respectively). Logistic regression analysis revealed the UTR expression levels associated with the negative iv. steroids administration therapeutic outcome ($p<0.05$).
ROC curves for the prediction of negative iv steroid therapeutic outcome were generated for IHC (AUC: 0.93, 95% CI: 0.86-0.99, $p<0.0001$), WB (AUC: 0.94, 95% CI: 0.87-1.00, $p<0.0001$), qPCR from lesioned samples (AUC: 0.99, 95% CI: 0.97-1.00, $p<0.0001$) UTR expression. The diagnostic performance of qPCR-UTR was superior to the ACE index (AUC: 0.94, 95% CI: 0.88-0.99) in the prediction of steroid response.
Finally, all the steroid responder patients (40/100) were undergone a second colonoscopy after one month and were considered "full responders" because of the reduction of at least two points of the continuous FMS in comparison to the baseline value.
Conclusion: UTR represents a promising inflammatory marker related to clinical, endoscopic, and histology disease activity as well as a predictive marker of steroid administration therapeutic outcome in the UC context.
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PP0642

DIAGNOSIS METHODS FOR INFLAMMATORY BOWEL DISEASES USING THE FECAL, HEMATOLOGICAL, SEROLOGICAL INDICATORS, FATTY ACIDS' LEVELS OF ERYTHROCYTE MEMBRANES, AND BLOOD SERUM

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Introduction: Inflammatory bowel diseases (IBDs), including Crohn's disease (CD) and ulcerative colitis (UC), are chronic advanced immune-mediated inflammatory diseases of unknown etiologies [1, 2]. There is still no unified "gold standard" for the diagnosis of IBDs; the diagnosis is usually made on the basis of data sets which include medical history, clinical manifestations, typical endoscopic views and histological signs, therefore, between 5% and 15% of cases of IBDs do not meet the strict criteria for either UC or CD, and in 14% of patients diagnosed with both UC and CD, the diagnosis can be changed over time [3, 4].
Aims & Methods: Research objective is as follows: To develop a diagnostic method for the IBDs including differential diagnosis, using a combination of indicators, such as fecal, hematological, serological, fatty acids' (FA) levels of erythrocyte (RBC) membranes and blood serum (BS).
A total of 91 patients (average age 37.7 ± 12.1 years old) with IBDs and 53 patients of the comparison group (43.3 ± 11.7 years old) have been examined. The group of patients with IBDs have included patients with ulcerative colitis (UC) – 50 persons and with Crohn's disease (CD) – 41 persons. In the examined patients, the red blood parameters and biochemical parameters have been studied by standard methods, as for the level of fecal

calprotectin, it has been researched by the enzyme-linked immunosorbent assay (ELISA), and the levels of fatty acids of erythrocyte membranes and blood serum have been investigated by the gas chromatography–mass spectrometry (GC-MS) (Agilent 7000B, USA).

Results: In a comparative analysis of patient groups using statistical analysis, a composite set of indicators has been found to be the most significant in distinguishing the patients with acute UC from comparison group individuals: hemoglobin levels ($p<0.00001$), sedimentation rate ($p<0.00001$), ferritin levels ($p<0.00001$), fecal calprotectin ($p<0.00001$), and oleic acid content ($p=0.0031$), polyunsaturated fatty acids in erythrocyte membranes ($p<0.05$), arachidonic acid in erythrocyte membranes and blood serum ($p<0.05$), and serum PUFAs ($p=0.0018$) and n6/n3 PUFA ratio ($p=0.0005$). Diagnostic models have been developed using machine learning methods using data analysis libraries of the Python programming language. The first model, which includes a combination of the above indicators, allows to perform the calculation of the diagnostic index Y_{D1} to differentiate healthy individuals from patients with IBDs (AUC 0.957, sensitivity 0.974, specificity 0.941). The second diagnostic model for distinguishing patients with acute ulcerative colitis from patients with active Crohn's disease (AUC 0.887, sensitivity 0.993, specificity 0.840) have considered the levels of hemoglobin, hematocrit, mean corpuscular volume of erythrocytes ($p=0.007$), mean cell hemoglobin concentration and content in the RBCs ($p<0.05$), ESR ($p<0.05$), C-reactive protein ($p=0.002$), ferritin ($p=0.014$), fibrinogen ($p<0.0001$), fecal calprotectin ($p=0.005$), and erythrocyte level of oleic acid ($p<0.05$).

Conclusion: The diagnostic models that have been created include fecal, serum markers of inflammation, as well as levels of fatty acids pathogenetically associated with the activity of IBDs, which ensures their high diagnostic accuracy. The non-invasive nature, an availability of indicators, and a convenient algorithm allow us to optimize and expedite the diagnosis of the IBDs.

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PP0643

INFLAMMATORY BOWEL DISEASE IMPACT ON PATIENT'S SEXUAL DESIRE

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Introduction: Sexual health is a major determining factor in the quality of life and psycho-emotional development of every individual, and may be affected by chronic diseases as inflammatory bowel disease (IBD). The aim of this study is to measure the impact of the disease on patient's sexual desire.

Aims & Methods: Cross-sectional descriptive study in which 107 patients over 18 years old anonymously undertook the Sexual Desire Inventory (SDI) survey validated in Spanish between the months of March and April 2022. The SDI consists in a questionnaire composed by 13 items that evaluate both dyadic (items 1-9) and solitary (items 10-13) sexual desire, measured from 1 to 8 with a total score of 101. Specifically, items 9 and 13 asked about patient's sexual desire compared to their peers. Furthermore, they were also asked if they believed their disease affected their sexual desire and to what extent. Sociodemographic data and general information about their disease were collected as well.

Results: 107 questionnaires were analyzed. Mean age was 47.21 years (± 13.54), 57.01% male. 39.01% of patients suffered from ulcerative colitis (UC), 59.81% from Crohn´s disease (CD). The average total score in the SDI of 52.99 out of 101 points. There is not a validated threshold to catalogue a reply as normal, considering that the higher the score, the greater the desire. When compared patients with UC and CD, their responses did not show statistically significant differences. Other variables that could have an impact on sexual desire as perianal disease or previous surgery were analyzed, again not showing differences with the overall average. When divided between dyadic and solitary sexual desire, results were constantly higher on dyadic answers (mean 4.6 vs 3.9), with statistically significant difference ($p=0.03$). However, when compared questions 1 to 8 (regarding dyadic sexual desire) with question 9 (compared to their peers), and questions 10 to 12 (regarding solitary sexual desire) with question 13 (compared to their peers), it did not showed differences. When asked whether they believed their disease affected their sexual desire, 41.12% (44) replied affirmatively, being women 24 of them. From those 44 patients, the average score on the degree to which their desire is affected of 5.43 out of 8, without differences between UC and CU. 38% of the 31 patients with perianal disease agreed with the affirmation as well, with a score of 6.16 out of 8. Patients who answered yes to this question tended to have lower score on the SDI, being statistically significant when compared to the answers on question 13 ($p=0.05$).

Conclusion: Sexual health is a complex issue which involves a great number of variables. Most statistically significative differences were seen regarding individual sexual desire, being impaired with respect to dyadic desire. There is a remarkable number of patients who felt their disease impaired their sexual desire, seeing a higher proportion between women.

Moreover, for the ones affected, it was to a large extent. It is an issue that needs further studies, especially because its impact on quality of life and the lack of quality evidence in this area.

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PP0644

DIAGNOSTIC DELAY IN INFLAMMATORY BOWEL DISEASE: STILL AN UNMET NEED

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Introduction: The diagnosis of ulcerative colitis (UC) and Crohn's disease (CD) is the result of a combination of clinical, endoscopic, histological and radiological data and is often delayed, especially for CD. Early referral to a specialist, timely diagnosis, and choice of appropriate treatment represent the most suitable strategy for improving outcomes and minimizing the onset of disease complications or the need for surgery.
Aims & Methods: Our study aims at evaluating diagnostic delay in CD and UC in an homogeneous cohort of patients followed up in a tertiary referral center. Patients with follow-up duration time < 9 months were excluded. Diagnostic delay was defined or as the time from onset of symptoms to the first visit to our IBD clinic or time from the first symptom to the diagnosis. A logistic regression model was used to analyze the relationship between baseline characteristics and diagnostic delay (defined as time greater than 2 years between the onset of symptoms and the diagnosis of IBD) and between diagnostic delay and disease outcome at 12 months follow up.

Diagnostic delay	CD	UC	p value
time from the onset of symptoms to IBD diagnosis (median, + SD + range)	15,9 ± 23 (0,1-116,2)	7,9 ± 11,7 (0,1-75,5)	0.013
time from the onset of symptoms to the first visit (median, + SD + range)	15 ± 23 (0,1-116)	8,9 ± 11,53 (0,5-75,73)	0.041
patients with diagnostic delay > 2 years (n)	18	5	0.031
patients with diasgnostic delay < 2 years (n)	68	58	

Table.1

Results: We retrospectively evaluated 149 IBD patients diagnosed from february 2017 to march 2022 at a tertiary referall center: 86 with CD (57.72%) and 63 with UC (42.28%). Age at diagnosis was 37±18 years for CD and 43±17 for UC. 18 patients with CD (20.93%) and 5 patients with UC (7.94%) received a diagnosis after more than 2 years from first symptom. Median diagnostic delay was significantly higher in CD patients (tab1.1) compared to UC patients (time from the onset of symptoms to the first visit: 15.9±23 months versus 7.9±11.7 months, p=0.013; time from onset of symptoms to diagnosis 15.4±23 versus 8.9±11.53, p=0.041; tab.2). CD (OR 3.07; 95% CI 1.07-8.78; p=0.036) and surgery at onset (OR 1.55; 95% CI 1.35-16.48; p=0.015) were significant predictors of diagnostic delay at univariate analysis.
In particular, in patients with CD, surgery at onset is associated with an approximately 4-fold higher risk of diagnostic delay. At multivariate analysis CD (OR:2.57 95% CI 0.87-2-55, p=0.086) and surgery at onset (OR 3.57; 95% CI 0.99-12.89, p=0.052) were independent predictors of diagnostic delay albeit with marginal statistical significance. Median follow-up was 13.19±2.90 . No significant association between diagnostic delay and outcomes at 12 months follow up were found.
Conclusion: Our study confirms that diagnostic delay is still common in IBD and is longer in CD patients compared to UC patients. An increased cooperation among specialists, primary care phisicians and referral centers and the development of dedicated integrated-care pathways are required in order to recognize red flags that raise clinical suspicion and lead to timely diagnosis in IBD patients.
Disclosure: Nothing to disclose.

PP0645

ACCURACY OF PANMAYO ENDOSCOPIC SCORE IN PREDICTING LONG-TERM DISEASE OUTCOMES IN ULCERATIVE COLITIS– A PROMISING SCORING SYSTEM

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Introduction: Colonoscopy plays a crucial role in management of ulcerative colitis (UC) that helps to assess mucosal healing. Different scoring systems are available to assess severity, however most of them do not correlate with disease extent.
Aims & Methods: Our study aimed to assess the predictive value and accuracy of PanMayo score compared to MES, UCEIS and Dublin in mid- and long-term disease outcomes. This is a retrospective, two-center study. UC patients, who underwent colonoscopy due to any reason between 2016 and 2018, were consecutively enrolled. PanMayo, MES, UCEIS and Dublin scores were recorded with clinical and demographical data at baseline. Disease flare, need for change in therapy (incl. initiation of biologicals, need for systemic steroids), hospitalisations and colectomy were collected during an at least 3-years follow-up. Patients were stratified by using baseline clinical activity (pMayo>1). Log-rank, logistic regression and Chi^2 tests were used to analyze outcomes and Kaplan Meier curves were plotted.
Results: A total of 250 UC patients (Table 1.) were enrolled. 157 (male ratio 0.49; mean age 46 IQR 19.5 years) UC patients had clinical remission, while 93 had active disease at baseline (male ratio 0.43; mean age 42 IQR 25 years). PanMayo, MES, and Dublin scores were positively associated with risk of flare-up (p=0.002; p<0.01; p=0.003).
Increasing MES score was coupled with risk of relapse. PanMayo score (above 12 points), but not MES or UCEIS, was associated with the need of new biological (p<0.001) and treatment escalation (p=0.018), similar trend was found for the Dublin score for need for new biologicals in the remission cohort.
All scores were strongly associated with the need for systemic steroids in patients with baseline remission. In the cohort with active disease at baseline, PanMayo (p=0.016) and Dublin (p=0.009) scores were associated to colectomy risk.

	Total cohort (n = 250)	Clinical remission (pMayo < 2) at baseline (n = 157)	Clinical activity (pMayo > 1) at baseline (n = 93)
Sex, *male (%)*	117 (46.8)	77 (49.0)	40 (43.0)
Age at inclusion, *years, median (IQR)*	45.0 (22.3)	46.0 (19.5)	42 (25.0)
Disease duration at inclusion, *years, median (IQR)*	10.0 (13.0)	11.0 (13.0)	8 (9.0)
Disease activity			
pMayo *median (IQR)*	1.0 (3.0)	0.0 (0.0)	4 (3.0)
MES *median (IQR)*	1.0 (2.0)	0.0 (1.0)	2 (1.0)
MES > 0 *n (%)*	158 (63.2)	71 (45.2)	87 (93.5)
PanMayo *median (IQR)*	2 (18)	0 (3)	18 (21)

Abbreviations: n: number of patients, pMayo: partial Mayo score; IQR: inter-quartile range; MES: Mayo endoscopic score.

Table 1. Baseline demographic and clinical characteristics of patients

Conclusion: Our study suggests that combined endoscopic assessment of the extent and severity may be more precise in predicting disease outcomes in UC. PanMayo score may be an alternative of the existing scoring systems and was associated more granularly with disease outcomes.
Disclosure: There are no conflicts of interest to disclose.

PP0646

IBD PATIENTS SHOW SIGNS OF RELEVANT DISEASE ACTIVITY – RESULTS FROM THE PORTUGUESE COHORT OF THE IBD PODCAST STUDY

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Introduction: Patients with inflammatory Bowel Diseases (IBDs) often present with inadequate control due to the limited efficacy of current treatments and suboptimal disease management. The IBD-PODCAST study aimed to estimate the proportion of Crohn´s Disease (CD) and Ulcerative Colitis (UC) patients with Inadequate Disease Control (IDC) based on the STRIDEII1 recommendations and assess the impact on their Quality of Life (QoL), in Portugal.

Aims & Methods: A non-interventional, multicenter study with a cross-sectional and retrospective assessments was conducted in Portugal gathering data from 130 patients (67 with CD, 63 with UC), from 5 Portuguese sites. The study collected real-world data of IBD patients regarding treatment and symptoms according to the STRIDE-II recommendations, to estimate the proportion of IBD patients with IDC. Patient's QoL was assessed with the Short Inflammatory Bowel Disease Questionnaire (SIBDQ). Analysis was descriptive in nature and performed separately for CD and UC.

Results: The 130 patients had a mean age of 41.9 (14.3) years and 74 (56.9%) were males. Ileocolonic CD was present in 26 (38.8%) patients and 26 (41.3%) of UC had extensive colitis. Regarding treatment, 55 (82.1%) patients with CD and 34 (54%) with UC were on targeted immunomodulators (biologics and small molecule drugs) and, according to STRIDE-II therapeutic windows, 85.1% of CD and 92.1% of UC patients were on treatment long-term phase. 56.7% (38/67) of CD and 31.7% (20/63) UC patients presented IDC and according to SIBDQ, 50% of CD and 35% of UC IDC patients showed impaired QoL.

ST: Lack of clinical improvement	At physician's discretion [point of reference: <50% reduction of SF/AP (CD) or SF/RB (UC) since therapy initiation]	
IM & LT: Lack of clinical remission (in combination with either a.) lack of CRP normalization OR b.) lack of fCAL reduction)	CD: PRO-2 SF score >3 OR AP score >1 OR Harvey-Bradshaw Index >4	UC: Mayo SF ss>0 OR RB ss>0
IM & LT: Lack of CRP normalization*(±2W)	CRP >5 mg/l	
IM: Lack of fCal reduction* (±2W)	fCal >250 µg/g	
IM & LT: Systemic steroid overuse	Prolonged (> 6 weeks) administration of prednisolone ≥ 10 mg/d (or equivalent) OR > 1 steroid course under the current therapy within the previous 12 months	
LT: Lack of endoscopic remission(±8W)	CD: Endoscopic detection of ulcers and/or inflammatory stenosis, fistula, or strictures	UC: Mayo ES >0 or at physician's discretion if no explicit scoring
LT: Impaired QoL	SIBDQ < 50 points	
LT: MRI, MRE, CT or ultrasound indicating active disease (±8W)	At physician's discretion (e.g. UC/CD: bowel wall thickening, inflammatory stenosis, contrast enhancement, free abdominal fluid; CD: abscess, fistula)	
LT: Treatment associated complications	UC/CD: IBD related anemia (Hb <11 g/dl females, <12 g/dl males), clinically significant extraintestinal manifestations; CD: perianal disease	

ST: Short term, IM: Intermediate, LT: Long term, Hb: hemoglobin, ss: subscore, SF: Stool frequency, AP: Abdominal pain, RB: Rectal bleeding, PRO: Patient related outcomes, W: weeks * IDC only in combination with lack of clinical remission.

Table 1: Definition of IDC based on STRIDE II with Cut-offs based on External Expert Panel.

Conclusion: This study presents the current status of treatment options and management of IBD patients in Portugal, and overall indicate a high proportion of IDC both in UC and CD, indicating the continuous need for strategies to improve long-term outcomes and QoL in IBD.

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Disclosure: H. Tavares de Sousa has received fees from AbbVie, Biogen, Ferring, Janssen, Pfizer and Takeda; P. Ministro has received fees from Abbvie, Ferring, Janssen, Pfizer, Takeda and Tillots; L. Correia has received fees from AbbVie, Ferring, Janssen, Pfizer and Takeda; S. Bernardo has received fees for presentations from Abbvie, Janssen and Takeda; J. Torres has received speaker bureau, advisory board fees from AbbVie, Janssen, Pfizer and BMS and Grant support from AbbVie and Janssen; F. Magro has received fees from AbbVie, Biogen, Falk, Ferring, Galapagos, Janssen, Lilly, Pfizer and Takeda. V. Martins, C. Rodrigues, C. Nascimento, S. Lopes, C. Oliveira have declared no conflict of interests. R. Prata, C. Leitner and T. Heatta-Speicher are AbbVie employees and may own stock or options.

PP0647

BEING YOUNG AND WOMEN ARE RISK FACTORS FOR MALNUTRITION ACCORDING TO GLIM CRITERIA IN INFLAMMATORY BOWEL DISEASE OUTPATIENS

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Introduction: Inflammatory bowel disease (IBD) is often associated with an altered nutritional status where malnutrition is common. The Global Leadership Initiative of Malnutrition (GLIM) made a global standard on the identification and diagnosis of malnutrition.

Aims & Methods: Although the updated 2023 ESPEN guideline of clinical nutrition in IBD recommend malnutrition assessment as part of the patient's standard follow-up, no data are available. A prospective cohort study of consecutive IBD outpatients was conducted and 700 out of 1068 patients were included. Malnutrition Universal Screening Tool (MUST) was performed to screen malnutrition risk. All anthropometric and clinical variables were collected by the same trained investigators. With all variables collected, malnutrition diagnosis was assessed by GLIM criteria. Statistical analysis was made using SPSS v.26. A binomial generalised linear model with logistic regression was used. For all tests a two-sided p value <0.05 was considered significant.

Results: Of 700 IBD patients evaluated, 50% were males with a median age of 50 years old (IQR-interquartile range- 40-60). Little over half of the patients (53.9%) had ulcerative colitis, and most of them (90%) were without disease activity. Female sex (OR IC95%; 0, (0-0.004), p=0.020), age (OR IC95%; 1.63 (1.06-2.50), p=0.26) and CUN-BAE (OR IC95%; 0.057 (0.005-0.615), p=0.018) were associated with an increased risk of malnutrition according to MUST test. According to GLIM criteria, only 6 (0.9%) out of 700 IBD outpatients met criteria of malnutrition. Phenotypic criteria were associated with female sex (p<0.001) and age at diagnosis (p=0.011) while etiologic ones were linked to need of any biologic therapy (p=0.036) and second line biologics (p=0.012). Both etiologic and phenotypic criteria were associated with worse scores in IBDQ-9 questionnaire (p=0.004, p<0.001 respectively).

Conclusion: Female sex and young patients were independent risk factors for malnutrition according to GLIM criteria in IBD outpatients.

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Disclosure: Nothing to disclose.

PP0648

IMPACT OF TWO DIFFERENT TRANSITION PROGRAMS ON TRANSITION READINESS AND QUALITY OF LIFE: A RANDOMISED CONTROLLED TRIAL IN INFLAMMATORY BOWEL DISEASE

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Introduction: Nearly 25% of patients are diagnosed with Inflammatory Bowel Disease (IBD) under 18 years old of age. To date, there are no transition models established and recommended in IBD setting, so each center tends to develop a transition model based on its own needs and experience.

Aims & Methods: To compare the effectiveness on transition readiness and quality of life of two different modes of transition, one based on sending the subject to a first gastroenterological visit in the clinic with the support of a clinical report prepared by the pediatrician (letter-based transition) and the other one characterized by combined visits in the presence of both the pediatrician and adult gastroenterologist (combined-visit-based transition).

From 2018 to 2021, patients diagnosed with IBD, aged between 16 and 19 years, and followed at the Paediatric Gastroenterology and Hepatology Unit of the Azienda Ospedale Università Padova, were randomized to the letter-based transition or the combined- visits-based transition. The transition readiness was verified using the Transition Readiness Assessment Questionnaire (TRAQ), whilst the quality of life was analysed using the Pediatric Quality of Life Inventory TM at the start of the study, at six months and after one year.

Results: The final sample analyzed consisted of 40 patients, 22 assigned to the letter-based group (10 males, mean age 18.6 ± 0.4) and 18 to the combined-visits groups (10 males, mean age 18.6 ± 0.5) with similar age and sex distribution. Twenty-one and 18 reached T2, respectively, and 17 in both groups reached T3. The clinical activity and calprotectin value did not change along the study in both groups (p >0.05). Three azathioprine and 4 anti-TNF therapy were stopped after transition. The TRAQ questionnaire improved significantly during the study both in the letter-based group (from 72.1 ± 12.46 to 82.35 ± 5.88, p 0.002) and in the combined-visits group (from 66.52 ± 15.06 to 76.0 ± 12.83, p 0.008). No significant change was observed in patients' perceived quality of life along the study in the letter-based group (from 83.9±8 to 86.2 ± 9.54, p = 0.17) while it improved in the combined-visits group (from 82.5 ± 8.23 to 89.1 ± 7.63, p <0.05).

Conclusion: Our data suggest that both transition models are able to obtain a marked improvement in transition readiness, while the quality of life improves only in the combined-visits transition. Therefore, despite the letter-based transition approach is a good option interms of costs and time sparing, the combined-visits process should be preferable when possible to improve both transition readiness and quality of life.

Disclosure: Nothing to disclose.

PP0649

UNCONTROLLED DEPRESSION AND FEMALE GENDER INCREASES THE RISK OF SEVERE FATIGUE MORE THAN ACTIVITY DISEASE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE UNDER INFLIXIMAB THERAPY

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Introduction: Fatigue is a significant predictor of worst health-related qualify of life in inflammatory bowel disease (IBD) patients. Nevertheless, the role of fatigue in IBD patients under infliximab (IFX) therapy has been poorly investigated.

Aims & Methods: The aim of the study was to evaluate the potential factors associated with fatigue in patients under maintenance treatment with IFX.

Methods: A prospective observational cohort study was designed. All IBD patients aged 18 and over under maintenance treatment with intravenous (IV) infliximab were consecutively included at the infusion day. Patients completed 3 self-administered questionnaires. Fatigue was assessed with the Fatigue Impact Scale (FIS), quality of life with the Inflammatory Bowel Disease Questionnaire-Short From (IBDQ-9) and anxiety and depression using the Hospital Anxiety and Depression scale (HAD). We considered the maximum total FIS as the highest fatigue perception. Disease activity was defined in Crohn's disease as a Harvey-Bradshaw index >4, and in ulcerative colitis (UC) as a Partial Mayo index >2. Patient demographics and disease characteristics were also collected: age, sex, disease duration, smoking habit, type of IBD, extra-intestinal manifestations, clinical activity, prior surgery, obesity, anemia, treatments (steroids, immunosuppressants, anxiolytics, antidepressants) and presence of anxiety or depression. Multiple linear regression was used to identify the variables associated with the presence of fatigue.

Results: Ninety patients were consecutively included (49 female, median age 42 years, interquartile range 19). Sixty three patients (70%) had Crohn's disease (46.8% fistulising and 25.8% stenosing behaviour) and twenty seven ulcerative colitis (30%). Nearly 27% were smokers, 35 (39%) presented anxiety and 18 (21%) depression. Approximately, 8% of the patients and 7% received treatment for anxiety and depression, respectively, but only 2/18 patients with current depression received antidepressants. Combotherapy was present in 41% of the patients and 75.6% were in clinical remission. Mean fatigue was 32.74 ± SD 17.27. The highest scores for fatigue were associated with female gender (B = 10.936; P= 0.009) and the presence of depression (B = 11.114; P = 0.029). Activity disease almost increased significantly the severity of the fatigue(B = 8.995; P= 0.063). The use of antidepressants not increased the risk (B = -4.995; P = 0.555). Patients with fatigue had significantly reduced the quality of life (r = -0.638; p < 0.001).

Conclusion: Uncontrolled depression and female gender increased the risk of severe fatigue more than disease activity in patients under maintenance treatment with IFX. Fatigue is related to worst health-related qualify of life.

Disclosure: Nothing to disclose.

PP0650

THE RISK OF MILD, MODERATE AND SEVERE INFECTIONS IN IBD PATIENTS: RESULTS FROM A PROSPECTIVE, MULTICENTRE, OBSERVATIONAL COHORT STUDY - PRIQ

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Introduction: Immunomodulators and biologicals play an essential role in current IBD management, but are associated with increased risk of infections. In light of the growing number of treatment options, the benefit-risk balance of drugs is becoming increasingly important in clinical decision making. Post-marketing surveillance studies are pivotal to assess infection risk, yet mainly focus on severe infections. As a result, data on mild and moderate infections are scarce. However, mild and moderate infections take longer to clear in immunosuppressed patients, have been reported to be the most burdensome adverse drug reaction according to patients, and can negatively influence drug adherence.

Aims & Methods: Aim: To assess the incidence of all infections and identify risk factors for the development of infections in IBD patients.

Methods: We previously developed and validated a Patient-Reported Infections Questionnaire (PRIQ), with excellent diagnostic accuracy, covering 15 infection categories with a 3-month recall period. [1] The current prospective, multicentre, observational cohort study was performed between Jun, 1 2020 and Jul, 1 2021, enrolling consecutive IBD patients and using the PRIQ which was implemented in myIBDcoach, an established telemedicine platform. Infection severity was defined as mild (self-limiting or topical treatment), moderate (oral antibiotics, antivirals or antifungals) or severe (hospitalization or IV treatment). Incidence rates (IR) were calculated for all infections, stratified for severity and subtype. Multivariable logistic regression, adjusting for relevant confounders, was performed to identify risk factors for infections.

Results: In total, 629 IBD patients (n=346 CD, n=283 UC, 58.3% female, mean age at cohort entry 48.3 years [SD 14.8], mean disease duration 12.4 years [SD 10.8]) were included which completed 2391 PRIQs during 572 person-years (PY) of follow-up. This resulted in 990 reported infections, corresponding to IRs of 17.3, 11.8, 5.1, and 0.4 per 10PY for all, mild, moderate, and severe infections, respectively. Upper respiratory tract (IR 26.9/100PY) and urinary tract infections (IR 14.8/100PY) were the most commonly reported mild and moderate infections types, respectively (Table 1). Compared to patients without treatment, patients on immunosuppressive treatment more frequently experienced infections of any severity (mild vs. no treatment: IR ratio (IRR) 1.57 [95%CI 1.21-2.06] p<0.001, moderate vs. no treatment: IRR 1.42 [95%CI 1.20-1.69] p<0.001). On multivariable logistic regression, female sex (mild adjusted odds ratio [aOR] 1.96 [95%CI 1.38-2.79]; moderate aOR 1.71 [95%CI 1.15-2.54]), smoking status (mild aOR 1.66 [95%CI 1.15-2.41]; moderate aOR 1.86 [95%CI 1.05-3.28]),

higher BMI (moderate aOR 1.05 [95%CI 1.02-2.00]), and more comorbidities (mild aOR 2.41 [95%CI 1.46-3.98]; moderate aOR 1.82 [95%CI 1.07-3.11]) were all significantly associated with the development of mild and moderate infections.

	All infections		Mild infections		Moderate infections		Severe infections	
Infection type†	*n*	IR [95% CI]	*n*	IR [95% CI]	*n*	IR [95% CI]	*n*	IR [95% CI]
All	990	173.0 [162.4-184.0]	673	118.0 [108.9-126.7]	292	51.0 [45.4-57.1]	25	4.0 [2.9-6.4]
Influenza	131	22.9 [19.2-27.1]	102	17.8 [14.6-21.5]	25	4.4 [2.9-6.4]	4	0.7 [0.2-1.7]
URTI	205	35.8 [31.2-41.0]	154	26.9 [22.9-31.4]	48	8.4 [6.3-11.0]	3	0.5 [0.1-1.4]
LRTI	48	8.4 [6.3-11.0]	14	2.4 [1.4-4.0]	31	5.4 [3.7-7.6]	3	0.5 [0.1-1.4]
COVID-19	46	8.0 [6.0-10.6]	38	6.6 [4.8-9.0]	6	1.0 [0.4-2.2]	2	0.3 [0.06-1.2]
Eye	58	10.1 [7.8-13.0]	53	9.3 [7.0-12.0]	5	0.9 [0.3-1.9]	0	N/A
Oral	76	13.3 [10.5-16.5]	58	10.1 [7.8-13.0]	17	3.0 [1.8-4.7]	1	0.2 [0.009-0.9]
Cold sore	102	17.8 [14.6-21.5]	98	17.0 [14.0-20.8]	4	0.7 [0.2-1.7]	0	N/A
Gastrointestinal	18	3.1 [1.9-4.9]	2	0.3 [0.06-1.2]	8	1.4 [0.6-2.6]	8	1.4 [0.6-2.6]
Urinary tract	95	16.6 [13.5-20.2]	8	1.4 [0.6-2.7]	85	14.8 [12.0-18.3]	2	0.3 [0.06-1.2]
Genital	33	5.8 [4.0-8.0]	19	3.3 [2.0-5.1]	14	2.4 [1.4-4.0]	0	N/A
Skin	80	14.0 [11.2-17.3]	50	8.7 [6.6-11.4]	30	5.2 [3.6-7.4]	0	N/A
Shingles	10	1.7 [0.9-3.1]	1	0.2 [0.009-0.9]	9	1.6 [0.8-2.9]	0	N/A
Warts	68	11.9 [9.3-15.0]	68	11.9 [9.3-15.0]	0	N/A	0	N/A
Tuberculosis	0	N/A	0	N/A	0	N/A	0	N/A
Meningitis	0	N/A	0	N/A	0	N/A	0	N/A
Hepatitis	3	0.5 [0.1-1.4]	0	N/A	2	0.3 [0.06-1.2]	1	0.2 [0.009-0.9]
Other	17	3.0 [1.8-4.7]	8	1.4 [0.6-2.6]	8	1.4 [0.6-2.7]	1	0.2 [0.009-0.9]

n, number of infectious events; IR, incidence rate; PY, person-years; CI, confidence interval; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection. 95%CI calculated using Mid-P exact test

†Elaboration on infection types: URTI includes nasal cold, laryngitis, tonsillitis, sinus infection, ear infection and ‚common' cold. LRTI includes pneumonia and bronchitis.

Time at risk (572.5 PY) based on follow up of 629 IBD patients during 1 year.

Table 1. Incidence rates for all infections, and stratified for infection type and infection severity per 100 PY.

Conclusion: In this real-world prospective study, immune suppressive therapy was associated with mild and moderate infections of any kind in IBD patients. These infections particularly occur in females, smokers, patients with higher BMI and more comorbidities. This information should be considered in personalised treatment selection.

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PP0651

HUMAN EXTRACHROMOSOMAL CIRCULAR DNA IS AN EMERGING BIOMARKER IN INFLAMMATORY BOWEL DISEASE

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Introduction: Inflammatory Bowel Diseases (IBD) are gastrointestinal, auto-inflammatory disorders with a chronic relapsing and remitting course, mainly including Ulcerative Colitis (UC) and Crohn's Disease (CD). They are multifactorial diseases which still lack a clear etiology, making identification of reliable predictors of disease course and therapy response of great interest to the medical community. The existence of extrachromosomal circular DNA fragments (eccDNA) is well established and has become a promising diagnostic and prognostic biomarker for different types of cancer. Herein, we investigate for the first time the role of eccDNA in patients affected by IBD.

Aims & Methods: Consecutive patients with an established diagnosis of IBD and non-IBD healthy controls who underwent colonoscopy for colorectal cancer screening were prospectively enrolled at Fondazione Policlinico Universitario "A: Gemelli" in this monocentric, observational, case-controlled study. In all IBD patients, disease activity was assessed using Partial Mayo Score (PMS) and Mayo Endoscopic Subscore (MES) for UC patients, and Harvey-Bradshaw Index (HBI) and Simple Endoscopic Score for CD (SES-CD) for CD. Colonic biopsies were collected from both inflamed and healthy mucosa of IBD patients and from non-IBD controls. Circular DNA was enriched, sequenced, and eccDNAs were identified with Circle Finder from intestinal biopsies. Circles containing the same gene were grouped together for downstream pathway analysis and defined as Produced per Gene eccDNAs (PpGC). Enrichr analysis was used to assess the pathways different PpGC belonged to.

Results: Forty IBD patients (19 with CD and 21 with UC) and 13 healthy controls (HC) were enrolled. Colonic mucosal samples from patients with IBD showed increased average eccDNAs than did intestinal samples from HC. This increase was observed across all chromosomes, indicating that a

global increase in eccDNA production was across the human genome. Furthermore, there was a slight yet significant tendency for larger eccDNAs in IBD patients compared to HC.

Focusing only on eccDNA which came from genic elements, referred to as "genic eccDNAs", approximately 60% of the functional DNA found on genic eccDNA in both groups were fragments from protein coding genes, 32% from non-coding RNAs and 8% from pseudogenes. Furthermore, even when only taking genic eccDNAs into account, IBD patients still had, on average, significantly more eccDNAs in the intestine when compared to non-IBD controls. Eighty PpGC were more abundant in IBD patients as compared to HC; enrich analysis revealed that pathways involved in cAMP signaling were significantly overrepresented in this gene set.

Considering only PpGCs which appear in at least 25% of patients, we found 157 PpGCs only found in UC patients and 210 PpGCs in CD patients, indicating that there may be some differences in eccDNA production between the two IBD diagnoses.

Moreover, on average, patients with IBD in remission had fewer eccDNAs in their intestines when compared to those with active disease, although the difference was not statistically significant. eccDNAs from the phosphodiesterase genes and genes involved in lipid metabolism were particularly enriched in patients with active UC and CD, compared to patients in remission.

Conclusion: We are the first to uncover an IBD-specific pattern of eccDNA production. Furthermore, we have identified genic hotspots which characterize active vs. inactive disease. We propose that eccDNA identification could be a promising new prognostic marker for IBD patients.

Disclosure: Nothing to disclose.

PP0652

CRP/ALBUMIN RATIO IN PREDICTING EARLY RESPONSE TO STEROIDS IN ACUTE SEVERE ULCERATIVE COLITIS

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Introduction: The first-line treatment for patients hospitalized with Acute severe ulcerative colitis (ASUC) is intravenous corticosteroid therapy, but 30% require second-line ‚rescue' infliximab (IFX) therapy or colon resection due to incomplete response. Identifying patients with acute severe ulcerative colitis who are refractory to corticosteroid therapy remains challenging, as physicians have no markers to predict non-response to steroids on admission.

This study aims to investigate whether the CRP/albumin ratio on days 1 and 3 of hospitalization could predict early response to intravenous steroids.

Aims & Methods: Data from all admissions for acute severe ulcerative colitis over 4 years from January 2019 to December 2022 were retrospectively collected.

All patients initially received intravenous corticosteroids. Demographic, clinical, biological, and endoscopic data were collected; C-reactive protein (CRP) and albumin levels were recorded at baseline and during hospitalization. Receiver operating characteristic statistics were used to determine the optimal stool frequency, Lichtiger index, CRP, albumin, and CRP/albumin ratio (CAR) to predict steroid response.

Results: A total of 81 ASUC patients were admitted. Sixty-six patients (81.5%) were steroid responsive, 8 patients (10%) received rescue IFX and 7 patients (8.6%) required colectomy. By comparing two groups of patients (steroid-responsive and steroid-refractory), baseline stool frequency, Lichtiger index, CRP and CRP/Albumin ratio data didn't show any significant difference between the two groups. While baseline albumin was lower in the steroid-refractory group (Median 26, IQR 18-36, p=0.041). Day 3 stool frequency and Lichtiger index were significantly higher in the steroid refractory group (p<0.001).

By receiver operating characteristic statistics, day 3 CAR was a more accurate marker of steroid responsiveness than day 3 CRP or day 3 albumin alone [area under curve=0.911 (P<0.001)]. The optimal CAR to predict response to steroids on day 3 was 2.67 (sensitivity 80%, specificity 91%).

Conclusion: An elevated CRP and low albumin level on day 3 is an early predictor of steroid-refractory ASUC. When combined in a ratio, their predictive ability improves. In patients with predicted steroid nonresponse, early introduction of rescue IFX at this stage may be more effective, before serum albumin falls profoundly.

Disclosure: Nothing to disclose.

PP0653

IMPACT OF BODY MASS INDEX ON CLINICAL OUTCOMES IN INTESTINAL BEHÇET'S DISEASE

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Introduction: The impact of underweight and obesity on clinical outcomes for intestinal Behçet's disease (BD) is unknown. We aimed to identify the association between body mass index (BMI) and clinical outcomes in patients with intestinal BD.

Aims & Methods: We categorized 760 patients with intestinal BD according to the BMI at diagnosis into four groups (underweight, normal, overweight, obese) at Severance Hospital, Seoul, Korea between 1997 and 2021.We performed a Cox proportional hazard analysis to investigate the predictive capability of BMI for clinical outcomes such as biologics use, surgery, hospitalization and emergency room visit.

Variables		BMI				
		<18.5 (n=130) Underweight	18.5~22.9 (n=384) Normal	23~24.9 (n=152) Overweight	≥25 (n=94) Obese	*p* value for trend
Biologics use	Event	34 (26.2%)	50 (13.1%)	21 (13.8%)	9 (9.6%)	0.001
	Multivariable-adjusted[a]	Reference	0.619 (0.366-1.047)*	0.490 (0.241-0.966)**	0.312 (0.116-0.840)**	
Surgery	Event	45 (34.6%)	87 (22.7%)	35 (23%)	15 (16%)	0.008
	Multivariable-adjusted[a]	Reference	0.706 (0.484-1.029)*	0.669 (0.411-1.088)	0.556 (0.303-1.020)*	
Hospitalization	Event	87 (66.9%)	194 (50.8%)	69 (45.4%)	46 (48.9%)	0.002
	Multivariable-adjusted[a]	Reference	0.667 (0.483-0.922)**	0.589 (0.394-0.879)**	0.515 (0.321-0.828)**	
Emergency room visit	Event	71 (55%)	144 (37.6%)	61 (40.1%)	32 (34%)	0.003
	Multivariable-adjusted[a]	Reference	0.711 (0.513-0.985)**	0.775 (0.523-1.149)	0.602 (0.376-0.963)**	

*p <0.10

**p <0.05

[a]Multivariate Cox proportional hazard analysis, including the confounders such as, age, gender, medical aid, smoking, appendectomy history, family history of BD, marriage status, DAIBD score, extraintestinal manifestation, systemic BD, number of ulcers, shape of ulcers, depth of ulcers, type of ulcers, laboratory findings.

Results: Of the 760 patients, 130 patients were classified into underweight group (BMI<18.5), 384 patients into normal group (BMI 18.5~22.9), 152 patients into overweight group (BMI 23~24.9), and 94 patients into obese group (BMI≥25). Patients with a higher BMI group showed signifi-

cantly lower cumulative rates of biologics use (*p* trend = 0.001), surgery (*p* trend = 0.008), hospitalization (*p* trend = 0.002), and emergency room visits (*p* trend = 0.003) than those with a lower BMI group. In a multivariate analysis, normal BMI group (HR: 0.667, 95% CI 0.483-0.992, *p* =0.014), overweight group (HR: 0.589, 95% CI 0.394-0.879, *p*=0.010), and obese group (HR: 0.515, 95% CI 0.321-0.828, *p*=0.006) were negatively associated with future hospitalization compared to underweight group. Overweight group (HR: 0.490, 95% CI 0.241-0.996, *p* =0.049) and obese group (HR: 0.312, 95% CI 0.116-0.840, *p* =0.021) were negatively associated with future biologics use compared to the underweight group.

Normal BMI group (HR: 0.706, 95% CI 0.484-1.029, *p*=0.070) and obese group (HR : 0.556, 95% CI 0.303-1.020, *p*=0.058) were negatively associated with future surgery compared to the underweight group.

Normal BMI group (HR: 0.711, 95% CI 0.513-0.985, *p*=0.041) and obese group (HR: 0.602, 95% CI 0.376-0.963, *p*=0.034) were negatively associated with future emergency room visit compared to the underweight group.

Conclusion: Underweight could affect poor outcomes in intestinal Behçet's disease. Physicians should pay attention to the patients with underweight and make an effort to improve nutritional status.

Disclosure: Nothing to disclose.

PP0654

TISSUE MICRO-RNAS AS MARKERS OF EARLY DIAGNOSIS AND MONITORING OF COLORECTAL CANCER IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Although the rates of IBD-related-CRC are decreasing over time, probably due to improved medical therapies and colonoscopic screening and surveillance, CRC is still a leading cause of mortality and reason for colectomy in patients with IBD**.** Among the different cancer biomarkers, miRs have emerged as noninvasive tools for diagnosis, monitoring, and prognosis in tissues and biofluids of patients with IBD. Therefore, we aimed to investigate the role of miRNAs in the development and natural course of IBD-related CRC, in order to identify potential early biomarkers for IBD-related CRC screening and progression.

Aims & Methods: The cases were retrospectively collected from the archives of the Surgical Pathology and Cytopathology Unit at the University of Padua. We analysed nine miRs in colonic tissue specimens of patients with IBD with adenoma (group A) or dysplasia (group B), with IBD related-CRC (group C), other than two control groups of patients with sporadic CRC (sCRC WT_MSI and WT_MSS, group D and group E, respectively) and of healthy subjects (group F). In addition, we included tissue samples from a colonoscopy that patients with IBD with adenoma or dysplasia underwent some years before the development of mucosal lesions (from 2 to 5 years before), therefore without evidence of adenoma (group A2) or dysplasia (group B2). Results were analyzed with ThermoFisher Connected™ Software (Applied Biosystems™) and a p-value < 0.05 was considered significant.

Results: We found that, compared to healthy controls, all nine analysed miRs were significantly up-regulated in patients with sCRC, with IBD-related CRC and in IBD patients with adenoma. While, only 3 miRs (miR-135b, mir-21, miR-224) were significantly up-regulated in IBD patients with dysplasia (and in their own controls) compared to healthy controls (p<0.0001). Notably, no differences in miRs expression levels were found in patients with IBD-related CRC compared to those found in patients with sCRC. Moreover, among all miRs analyzed, only miR-135b and miR-21 resulted significantly up-regulated in patients with IBD. Particularly, considering the levels of miR-135b in the tissue samples of IBD patients, we observed an evident increasing trend going from tissue specimens without lesions to those with adenoma or dysplasia and then to those with neoplastic lesions. Finally, miR-21 was significantly up-regulated in patients with IBD-related CRC compared to both IBD patients with adenoma and their own control samples from a previous negative colonoscopy (p=0.003 and p=0.006, respectively). Likewise, a statistically significant difference in miR-21 levels was observed between patients with IBD-related CRC and those with dysplasia (p=0.02).

Conclusion: MiRNAs are attracting a growing interest in the scientific community due to their central role in the etiology of several diseases. We demonstrated that miR-21 and miR-135b are involved in the carcinogenesis process of patients with IBD. Considering their role in cancer development and that they can be detected rapidly and efficiently in tissues, they could be potential candidate biomarkers for diagnostic purpose, prognostic and predictive stratification of patients. In addition, the possibility of controlling upregulation of these miRs could lead to a breakthrough in the prevention of IBD-related CRC, potentially interfering with tumorigenesis. Although further larger and prospective studies are needed, developments in this field could open new therapeutic perspectives in the management of our patients, preventing neoplastic progression toward colon carcinoma.

Disclosure: Nothing to disclose.

PP0655

NATURAL HISTORY AND IMPACT OF IRRITABLE BOWEL SYNDROME-TYPE SYMPTOMS IN INFLAMMATORY BOWEL DISEASE DURING ONE-YEAR OF LONGITUDINAL FOLLOW UP

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Introduction: Little is now about the natural history and impact of irritable bowel syndrome (IBS)-type symptoms on psychological health and quality of life in inflammatory bowel disease (IBD). We aimed to address this in a one-year longitudinal study of secondary care patients.

Aims & Methods: We collected demographic, Rome III IBS-type symptom, psychological, and quality of life data, with questionnaires at 3-month intervals, over 12 months of follow-up in patients with IBD in clinical remission at baseline. We assessed the natural history of Rome III IBS-type symptoms over the 12 months of the study and compared psychological and quality of life data between those reporting Rome III IBS-type symptoms at each of the points of follow-up with those not reporting such symptoms.

Results: Among 206 patients with IBD in clinical remission at baseline (104 (50.5%) women, mean age 56.9 years (range 18-83 years), 79 (38.3%) Crohn's disease), 33 (16.0%) reported Rome III IBS-type symptoms at baseline and 72 (35.0%) reported Rome III IBS-type symptoms at one or more time points. Among the 33 patients with Rome III IBS-type symptoms at

baseline, symptoms resolved in 6 (18.2%) patients, were present throughout in 6 (18.2%) patients, and fluctuated in the remaining 21 (63.6%) patients. Among the 39 patients with new onset of Rome III IBS-type symptoms after baseline, 24 (65.1%) had symptoms at one point in time only, 10 (25.6%) at two points, four (10.3%) at three points, and one (2.6%) at four points. At each point in time, reporting IBS-type symptoms was associated with significantly higher anxiety, depression, or somatoform symptom-reporting scores, and/or lower quality of life scores.

	Baseline		3 months		6 months		9 months		12 months	
	Rome III IBS-type symptoms		Rome III IBS-type symptoms		Rome III IBS-type symptoms		Rome III IBS-type symptoms		Rome III IBS-type symptoms	
	Yes (n=33)	No (n=173)	Yes (n=35)	No (n=171)	Yes (n=25)	No (n=181)	Yes (n=33)	No (n=173)	Yes (n=34)	No (n=172)
Mean HADS-A (SD)	7.8 (4.0)*	4.8 (3.7)	7.7 (4.2)*	4.9 (3.9)	8.5 (4.7)*	4.8 (4.0)	7.1 (3.9)†	4.9 (4.2)	6.1 (4.7)	5.1 (4.2)
Mean HADS-D (SD)	5.0 (3.3)*	2.8 (2.9)	5.4 (3.9)*	2.9 (3.0)	5.6 (4.2)	3.4 (3.5)	5.2 (3.6)†	3.2 (3.4)	4.7 (4.1)	3.3 (3.4)
Mean PHQ-12 (SD)	7.0 (3.6)*	3.8 (3.1)	6.5 (3.9)†	4.2 (3.3)	5.6 (2.8)	4.2 (3.6)	5.9 (3.9)	4.0 (3.1)	5.9 (4.1)	4.1 (3.4)
Mean SIBDQ (SD)	49.8 (8.6)*	60.0 (7.9)	50.2 (10.7)*	59.8 (8.3)	48.8 (12.9)*	59.3 (8.8)	49.8 (10.9)*	58.4 (9.8)	52.0 (9.8)†	58.1 (10.1)

Conclusion: In this 12-month follow-up study, one-third of patients with IBD reported presence of Rome III IBS-type symptoms at any point in time. Reporting such symptoms was associated with significant impacts on psychological health and/or quality of life.
Disclosure: none

PP0656

SERIC HAPTOGLOBIN KINETICS MAY PREDICT CLINICAL OUTCOME IN PATIENTS WITH IBD UNDERGOING BIOLOGICS

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Introduction: A recent study(1) showed that seric haptoglobin was a relevant biomarker to predict a relapse in patients with Crohn's Disease (CD) who had stopped Infliximab (IFX). We dosed seric haptoglobin levels among patients with CD or Ulcerative Colitis (UC) undergoing treatment by IFX or Vedolizumab (VDZ) to see if it could help predict a short-term relapse.
Aims & Methods: We collected serum corresponding to 4 clinically relevant times of visit in our unit from patients under IFX or VDZ. The cases were patients who had required an optimization : T1 was the week 2 of induction, T2 was the last time the patient was asymptomatic, T3 was the day of the optimization for a clinical relapse, T4 was a time the patient was in remission. In control patients who had not required an optimization, T1 corresponded to the week 2 of induction, T2 was an intermediary time and T3 another time when patient was still in clinical remission. Clinical remission was defined for CD by CDAI score < 150 and for UC by clinical Mayo score < 3. Clinical relapse was defined by CDAI > 220 for CD or by partial Mayo score > 4 with CRP > 5mg/L or fecal calprotectin (FC) > 250 µg/g stools with a modification of treatment. We practiced dosage of haptoglobin with Optilite kits that are designed for in-vitro haptoglobin dosage.
Results: 23 cases patients who had needed optimization and 17 control patients who had not were included in our study. We could not bring light to a cut-off of haptoglobin level that was associated with a relapse. Yet, our data showed that a positive haptoglobin delta > 0,1 g/L between T2 and T1 among cases could predict a relapse with equivalent performance than a FC level > 250 µg/g of stools in T2. Indeed, AUC of those two parameters showed no statistical difference : for a positive delta of haptoglobin > 0,1 g/L, AUC was 73,7% and 84% for a FC > 250 µg/g of stools (*p= 0,401*). A positive delta of haptoglobin level between T2 and T1 showed a sensibility (Se) of 68,8%, a specificity (Sp) of 78,6%, a positive predictive value (PPV) of 78,6% and a negative predictive value (NPV) of 68,8% to predict a relapse in T3. Moreover, we found that when haptoglobin level in T2 was <0,6 g/L comparing to T1, we could diagnose a clinical remission with a Sp and a PPV of 100%, a Se of 68,4% and a NPV of 50%, with an AUC of 79,4% that was not statistically different from a CF level <250 µg/g of stools in T2.
Conclusion: Haptoglobin level kinetics seems to be a promising biomarker in the monitoring of IBD among patients undergoing IFX or VDZ.
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Disclosure: Nothing to disclose.

PP0657

USING MACHINE LEARNING METHODS, CAN ANTIBIOTICS PREDICT A FUTURE RELAPSE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE? – A POPULATION-BASED NESTED CASE-CONTROL STUDY USING MACHINE LEARNING METHODS

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Introduction: Inflammatory bowel disease (IBD) is a chronic intestinal disease with unknown causes. Symptoms include pain and bloody diarrhoea. Little is known about environmental factors that trigger flare-ups, including the effects of commonly used medications. Recent studies suggest a link between microbial factors and IBD, making it important to investigate the predictive level of antibiotics on flare-ups. New machine learning methods may be able predict IBD flare-ups by analysing patient data to identify contributing factors.
Aims & Methods: We aimed to investigate whether certain antibiotics increase the risk of flares in patients with IBD. We utilized a previously described[1] cohort of all patients with IBD in Denmark between 1974 and 2018. The cohort is based on the Danish Nationwide Patient Registry, which registers all healthcare related visits, treatments and procedures on an individual level. We utilized data between 1994 and 2018, and two distinct cohorts were created for the purpose of identifying flares. The first cohort was characterized by having an IBD-related hospital stay. The second cohort was characterized by experiencing a flare of IBD in need of systemic steroids. Patients were matched 1:5 using K-nearest neighbour. Antibiotics were grouped into the 3rd level of the Anatomical Therapeutic Chemical (ATC) classification system, with anthelmintics grouped into the 2nd level due to low numbers. All were given within 60 days before the outcome.
Cohorts were divided into an 80/20 training/testing set and trained using a 5-fold cross-validation with eXtreme Gradient Boosted decision tree (GBDT) framework with variables including year of remission/flare, sex,

age at diagnosis, year of diagnosis, type of IBD, socioeconomic status[2], subtypes of IBD-medication, subtypes of biologics and subtypes of antibiotics. The final model was chosen based on the area under the receiver operating characteristic curve (AUROC). The final model was evaluated on the test set (i.e. unseen data for the model). Evaluation of the models was reported as accuracy (ACC), positive predictive value (PPV), and negative predictive value (NPV).

Results: There were in total 69,908 IBD patients in the original cohort. After applying the abovementioned algorithm, a total of 15,636 and 5,178 patients were included in the cohort for hospitalisation and steroid use, respectively.

The models achieved an AUROC of 0.71 (SD: 0.03) and 0.85 (SD: 0.008) for predicting a course of steroids and need for IBD-related hospitalization, respectively, on the training set. On the test-set, the models achieved an ACC of 82.72%, with a PPV of 36.36% and a NPV of 83.73% on predicting a course of steroids, and an ACC of 85.23%, with a PPV of 60.14% and a NPV of 87.80% on predicting IBD-related hospitalization. Quinolones and agents against amoebiasis and protozoal were identified as top 10 most important variables for making accurate predictions and for splitting decision trees. Other antibiotics, such as tetracyclines, betalactam, and intestinal anti-infectives, were also useful as splitting variables.

Conclusion: This study demonstrated the importance of antibiotics, particularly quinolones and agents against amoebiasis and protozoal, in predicting an IBD-related flare. The GDBT-trained models achieved a high accuracy in predicting hospitalization and steroid courses, with AUROC of 0.85 and 0.71, respectively. These findings highlight the impact antibiotics on the subsequent risk for a severer flare-up of IBD flare and may guide future research on the role of microbial factors in IBD.

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PP0658

GRANULOCYTE BIOMARKERS IN STOOL AND SERUM AND THEIR ASSOCIATION WITH DISEASE ACTIVITY AND LOCALIZATION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Both patients and clinicians would benefit from less invasive means than endoscopy for detection of gut inflammation in inflammatory bowel disease (IBD), such as faecal or serological biomarkers.

Aims & Methods: The aim of this study was to investigate the presence of the neutrophilic proteins: calprotectin (CP), myeloperoxidase (MPO), neutrophil gelatinase-associated lipocalin (NGAL) and the eosinophilic protein: eosinophil-derived neurotoxin (EDN) in faecal and serum samples from IBD patients with ulcerative colitis (UC) and Crohn's disease (CD) in relation to disease activity and intestinal inflammation localization. Their diagnostic potential in IBD was studied using irritable bowel syndrome (IBS) patients as controls.

Faecal (f) and serum (s) samples from 97 IBD (median: 38y, range 18-79y) and 100 IBS (median: 36y, range 18-75y) patients from the outpatient Gastroenterology Clinic, Uppsala University Hospital were included in the study. Active disease was defined as having a Partial Mayo score ≥ 2 (UC) or Harvey-Bradshaw score ≥5 (CD). Disease localization was obtained from patient journals.

CP and EDN were measured by commercial EliA and ImmunoCAP assays, respectively. MPO and NGAL were measured with in-house research assays based on the ImmunoCAP technology. All analyses were done using the automated Phadia 250 instrument.

Results: All four biomarkers were elevated in IBD compared to IBS in faecal samples (p<0.001) and serum (p<0.01), and most biomarkers were also elevated in the separate UC and CD groups (Table 1). Faecal EDN were higher in CD compared to both UC (p=0.016) and IBS.

	UC N=59	CD N=38	IBS N=100	p-value (UC vs. IBS)	p-value (CD vs. IBS)
fCP	305.8 mg/kg	165.8 mg/kg	16.51 mg/kg	<0.0001	<0.0001
fMPO	3.74 mg/kg	2.42 mg/kg	0.10 mg/kg	<0.0001	<0.0001
fNGAL	7.30 mg/kg	6.78 mg/kg	2.36 mg/kg	<0.0001	<0.0001
fEDN	0.50 mg/kg	1.79 mg/kg	0.29 mg/kg	0.049	<0.0001
sCP	4186 µg/L	4124 µg/L	3037 µg/L	0.0145	ns
sMPO	291.6 µg/L	291.2 µg/L	151.3 µg/L	0.0006	0.0038
sNGAL	240.2 µg/L	239.5 µg/L	162.2 µg/L	<0.0001	0.0004
sEDN	29.07 µg/L	24.54 µg/L	19.4 µ/L	0.0020	ns

Table 1. Biomarker levels in UC and CD patients in comparison to IBS patients.

Four biomarkers were elevated in active UC vs remission: fCP (610.9 mg/kg vs 45.5 mg/kg, p=0.0180), fMPO (6.84 mg/kg vs 1.30 mg/kg, p=0.0479), sCP (4599 µg/L vs 3128 µg/L, p=0.0194) and sNGAL (298.3 µg/L vs 189.3 µg/L p=0.0012). No association was observed between the biomarkers and disease activity in CD.

Patients with extensive UC had significantly higher levels, compared to patients with left-sided UC, of fCP (851.6 mg/kg vs 148.3 mg/kg, p=0.0135), fMPO (17.67mg/kg vs 2.84 mg/kg, p=0.0493) and fEDN (1.34 mg/kg vs 0.36 mg/kg, p=0.0146). None of the biomarkers were associated with disease localization in CD.

Conclusion: Faecal and serum CP, MPO, NGAL and EDN may be used as diagnostic biomarkers to differentiate patients with IBD from IBS. Our study indicates that fMPO may be used as an alternative to fCP as disease activity marker in UC, and that sCP and sNGAL are promising novel serum markers for disease activity. In addition to the neutrophil markers, fEDN could be of value for characterization of extensive disease in UC patients. The higher fEDN levels in CD compared to UC observed in the present study indicates an important role of activated eosinophils in the clinical manifestation of CD.

The biomarkers MPO, NGAL and EDN measured both in faecal and serum could, in addition to CP, potentially aid in the clinical decision-making in IBD.

Disclosure: H Ekoff, N Rydell and R Movérare are employed by Thermo Fisher Scientific.

PP0659

DISEASE OUTCOMES CAN BE PREDICTED BY MEMBERSHIP OF NOVEL SYMPTOM CLUSTERS IN INFLAMMATORY BOWEL DISEASE: RESULTS FROM A PROSPECTIVE LONGITUDINAL FOLLOW-UP STUDY

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Introduction: Inflammatory bowel disease (IBD) exerts a significant socioeconomic burden in Western nations. Drugs are a consistent driver of direct healthcare costs. However, healthcare utilisation, which varies considerably between individuals, contributes substantially. Predicting the patients who are more likely to be higher utilizers of healthcare is challenging, as symptom burden does not always reflect underlying disease activity.

Aims & Methods: We aimed to establish whether model-based clustering could be used to identify novel subgroups, or clusters, of patients with IBD, and if baseline cluster membership could predict adverse disease outcomes during longitudinal follow up. We recruited patients with a diagnosis of Crohn's disease (CD) or ulcerative colitis (UC) between 2012 and 2015. In addition to baseline demographic data, we collected data regarding somatoform symptom-reporting using the patient health questionnaire-15, anxiety or depression using the hospital anxiety and depression scale, and stool frequency, extracolonic features, and general wellbeing derived from overlapping components of the Harvey Bradshaw Index for patients with CD, and the simple clinical colitis activity index for patients with UC, all of which were used as variables for modelling. Using Latent-GOLD version 6.0, we performed latent class analysis (LCA) to establish the novel clusters and select the optimal model. We measured clinical outcomes during longitudinal follow up, including flare or glucocorticosteroid prescription, treatment escalation, hospitalisation, and intestinal resection. We then performed multivariate Cox regression analysis, controlling for all baseline characteristics, to establish if individual cluster membership was an independent predictor for these outcomes, expressing results as hazard ratios (HRs) with 95% confidence intervals (CIs).

	Cluster 1: Below average levels of gastrointestinal and psychological symptoms (n=132)	Cluster 2: Average levels of gastrointestinal and psychological symptoms (n=352)	Cluster 3: Highest levels of gastrointestinal and psychological symptoms (n=208)	*p* value for trend
Multivariate HR for glucocorticosteroids/ flare (95% CI)	1.00 (Reference)	1.50 (1.07 – 2.09)	2.13 (1.46 – 3.10)	<0.001
Multivariate HR for escalation (95% CI)	1.00 (Reference)	1.61 (1.17 – 2.22)	1.92 (1.34 – 2.76)	0.001
Multivariate HR for hospitalization (95% CI)	1.00 (Reference)	1.07 (0.66 – 1.72)	1.61 (0.97 – 2.68)	0.048
Multivariate HR for intestinal resection (95% CI)	1.00 (Reference)	0.98 (0.49 – 1.98)	1.70 (0.82 – 3.56)	0.10
Multivariate HR for escalation, hospitalization, or intestinal resection (95% CI)	1.00 (Reference)	1.51 (1.11 – 2.05)	2.05 (1.45 – 2.88)	<0.001
Multivariate HR for glucocorticosteroids/ flare, escalation, hospitalization, or intestinal resection (95% CI)	1.00 (Reference)	1.48 (1.09 – 2.01)	2.06 (1.45 – 2.93)	<0.001

Table 1- Disease outcomes according to cluster membership at baseline.

Results: Of the 760 patients recruited, 692 (91.1%) provided complete baseline data (mean age 43.6 (age range 17 to 89 years), 382 (55.2%) female, 647 (93.8%) Caucasian, and 394 (56.9%) with CD). The best LCA solution was obtained using a three-cluster model.

Cluster 1 was defined by below average gastrointestinal and psychological symptom burden, cluster 2 by average gastrointestinal and psychological symptom burden, and cluster 3 by above average gastrointestinal and psychological symptom burden. Proportions with faecal calprotectin <250mcg/g at baseline were similar between clusters.

Compared with cluster 1, patients in cluster 3 were at significantly increased risk of glucocorticosteroid prescription or flare, escalation, a composite of escalation, hospitalization, or intestinal resection, or any of the endpoints of interest (table 1).

Effect sizes increased when only including individuals in biochemical remission at baseline. Healthcare utilization was highest in cluster 3.

Conclusion: It is feasible to derive novel clusters of patients with IBD, based not only on gastrointestinal symptoms, but also on measures of psychological health. The cluster with the highest psychological symptom burden identifies patients at higher risk of adverse disease outcomes who are high volume users of healthcare.

Disclosure: None.

PP0660

SYSTEMIC INFLAMMATORY PROTEIN PROFILES OF INFLAMMATORY BOWEL DISEASE PATIENTS - A PRELIMINARY STUDY

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Introduction: A key feature of IBD pathogenesis is response dysregulation of both the innate and adaptive immune system[1,2]. Hence specific inflammatory protein profiles may be a promising biomarker approach for diagnosis and personalized therapy in IBD. Serum proteome of IBD, particularly in multi-ethnic Asian patients, remains less defined.

Aims & Methods: We aim to investigate the systemic inflammatory protein profiles in multi-ethnic Asian patients with IBD and compare them to healthy controls.

The study cohort was made up of 92 patients with IBD (50.0% Ulcerative colitis (UC), 43.5% Crohn's disease (CD), 6.5% Unclassified IBD)), and 42 control subjects, who are asymptomatic patients undergoing screening colonoscopy with no endoscopic pathology. Serum protein profiling was performed using the *Olink* Target 96 Inflammation assay. A partial-least square discriminant analysis was undertaken to identify additional discriminative inflammatory proteins. Univariate t-test analyses, with false discovery rate correction, were also performed to identify proteins unique to either UC or CD.

Results: Participants with IBD were younger (42.0 (±14.7) in UC, 43.2 (±15.1) in CD, p<0.01), with greater representation of South Asian ethnicity (32.5% amongst UC, 19.6% amongst CD, p<0.01) and males (75.0% amongst UC, 69.6% amongst CD, p=0.03), as compared to controls.

We found 18 proteins were differentially abundant amongst IBD patients (p<0.05). Half (n=9) of these inflammatory proteins (AXIN-1, CD8A, CXCL1, EN-RAGE, FGF-23, HGF, IL17A, OSM, TGF-alpha) were elevated in both UC and CD. The other six proteins were elevated only in patients with UC (4E-BP1, CCL11, IL-18R1, IL-20, MMP-10, TRANCE). Of the remaining three, two were less abundant in patients with CD (DNER, SCF) and TNF was elevated

only in patients with CD. Of interest, three immunoproteins were differentially abundant in participants with either UC or CD (i.e. CCL11, MMP10, TRANCE).

Molecular functions	Both UC and CD	UC only	CD only	UC vs CD
Cytokine mediated signaling (GO:0019221)	IL17A CXCL1 OSM HGF	CCL11 TRANCE IL20	TNF	CCL11 TRANCE
Positive regulation of protein kinase B signaling (GO:0051897)	FGF23 HGF OSM TGF-alpha	TRANCE	SCF* TNF	TRANCE
Immune response (GO:0006955)	CD8A CXCL1 IL17A OSM	IL-18R1 TRANCE		TRANCE
Inflammatory response (GO:0006954)	CXCL1 EN-RAGE IL17A	CCL11 IL-18R1	TNF	CCL11
MAPK cascade (GO:0000165)	FGF-23 HGF TGF-alpha		SCF* TNF	
Others	AXIN1^	MMP-10# 4E-BP1$	DNER*@	MMP-10#

*Table 1: List of immunoproteins differentially abundant (p<0.05) in varying IBD subtypes, grouped by their key common molecular functions. *indicates that the immunoprotein of interest to be less abundant compared to controls. ^AXIN1 functions - Activation of protein kinase (GO:0032147), WNT signaling process (GO:0016055). #MMP-10 function - extracellular matrix organization (GO:0030198). $4E-BP1 function - TOR signaling (GO:0031929). @DNER function - Notch receptor processing (GO:0007220).*

Conclusion: Our pilot study in a multi-ethnic Asian population found distinctive serum protein profile in IBD patients. While some protein changes were shared in both UC and CD, other changes were specific for either UC or CD, suggesting different disease pathways in these two IBD subtypes. We reaffirmed that inflammatory proteins, such as EN-RAGE[3], MMP-10[4] and OSM[5], were differentially abundant in IBD, consistent with previous reports in predominantly Caucasian cohorts.

Further studies with large sample sizes would be required to validate these biomarkers for IBD activity, and prognosis for biologic therapy response.

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Disclosure: Nothing to disclose.

PP0661

THE PREDICTIVE VALUE OF IRON DEFICIENCY ANAEMIA AND THE SEVERITY OF ANAEMIA ON THE ONE-YEAR DISEASE COURSE OF INFLAMMATORY BOWEL DISEASE

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Introduction: Anaemia develops through several pathomechanisms (e.g., occult bleeding, mucosal inflammation, medications) in inflammatory bowel disease (IBD). In true iron deficiency anaemia (IDA) biochemical markers are not elevated, however, due to the pathomechanism, activity at some degree is presumed.

Aims & Methods: Our aim was to compare the one-year disease course of IBD patients with IDA compared to non-anaemic patients. This was a retrospective, double centre, cohort study, including a tertiary referral IBD centre and a secondary IBD centre. The study was carried out between June 2020 and November 2022. IDA was defined as CRP >10 µg/ml, ferritin <30 µg/ml and transferrin saturation <20 % with the presence of anaemia. Biochemical activity was defined as CRP >10mg/l, and severe anaemia as haemoglobin <100 g/l. Baseline laboratory data was obtained. Outcomes were all complications during the one-year follow-up period, including introduction of new treatment, treatment escalation, corticosteroid treatment and major complications (hospitalization and abdominal surgery).

Results: In total, 713 consecutive patients (median age 43 years [IQR: 33 - 57]; male/female ratio 335/378; CD/UC ratio 402/311) were involved in our study, 195 patients (27.3 %) from the secondary and 518 patients (72.7 %) from the tertiary referral centre. Median follow-up period was 1.06 [IQR: 0.98 – 1.13] years. IDA (OR: 2.745; p<0.001) increased the risk of all complications, including major complications (OR: 2.606; p=0.002), except abdominal surgery. The anaemia increased the risk of all outcomes, and the severity of anaemia increased the prevalence of major complications (p<0.001). CRP level was associated with the severity of anaemia (p<0.001).

Conclusion: IDA was a predictor of worse one-year outcomes, including introduction of new therapeutic agent, treatment escalation, corticosteroid admission and major complications despite the absence of inflammation. In conclusion, IDA should be involved in the treat to-target approach, and should be monitored tightly. Furthermore, due to the worse one-year outcomes, we suggest therapeutic intervention, in addition to the iron therapy. In addition, the severity of anaemia correlates with the prevalence of major complications.

Disclosure: Nothing to disclose.

PP0662

RECOMBINANT CALPROTECTIN AS A PROMISING TOOL TO HARMONIZE MRP-8/MRP-14 IMMUNOASSAYS

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Introduction: Calprotectin is a major granulocyte-derived alarmin protein that natively occurs as a dimeric and tetrameric Mrp-8/Mrp-14 complex. While serum calprotectin is an emerging biomarker for rheumatoid arthritis and juvenile idiopathic arthritis, fecal calprotectin is already established as the gold standard for diagnostics and monitoring of inflammatory bowel diseases. However, standardization of fecal calprotectin assays differs significantly among providers leading to varying clinical cut-offs. One suspected reason is that the oligomeric state of calprotectin can lead to different quantitative results. However, controlling calprotectin's oligomeric state has been challenging.

Aims & Methods: The aim of this work was to produce pure calprotectin as calibrator material with a controllable oligomeric state. Recombinant Mrp8/Mrp14-fusion protein was expressed solubly in E. coli and the oligomeric state assessed by size-exclusion chromatography and label-free differential scanning fluorimetry. Direct comparison to native calprotectin regarding antibody affinities were measured and its use as calibrator material in various immunoassay formats was tested.

Results: The fusion protein was purified as a calprotectin dimer mimic and could successfully be transformed into a calprotectin tetramer upon calcium addition. Affinities to monoclonal and polyclonal calprotectin antibodies are comparable to native calprotectin. Spiking of different concentrations of recombinant calprotectin showed linear correlations in ELISA and turbidimetric assays. Turbidimetric measurements of 17 human serum samples based on native and recombinant calprotectin calibrators revealed a perfect correlation (slope=1.009; R^2=0.999).

Conclusion: The recombinant protein shows immunological properties comparable to native calprotectin and it can be purified in large quantities. Its oligomeric state can be controlled by calcium addition at similar concentration levels as native calprotectin. It therefore presents a promising tool to overcome the prevalent fecal calprotectin standardization problem and prevent future standardization discrepancies for serum calprotectin.

Disclosure: The authors Alexander Ohmann, Dmitrii Guschin, Joana Afonso and Christian-B. Gerhold are employees of BÜHLMANN Laboratories AG.

PP0663

MICROBIAL SIGNATURE OF PATIENTS WITH NEWLY DIAGNOSED CROHN'S DISEASE IDENTIFIES PATIENTS WITH COMPLICATED DISEASE COURSE

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Introduction: Dysbiosis is a hallmark of Crohn's disease (CD). However, its relation to CD course is still unclear. We asked whether microbial signatures identify CD phenotype.

Aims & Methods: A cohort of patients with newly diagnosed CD (all-comers) were recruited and prospectively followed. Clinical data, inflammatory and serologic markers, dietary habits, microbial and fungal composition were detected. Complicated disease course was defined as steroid dependency, CD-related hospitalization, or surgery, and >1 biologics/year. Unsupervised analysis was used to construct baseline microbial clusters. Linear mixed effect models were used to evaluate the clinical, dietary, and fungal associations with microbial clusters, adjusted for treatment.

Results: A total of 251 patients with newly diagnosed CD were recruited (females- 50.6%, median age- 28 [IQR 22-39]) and followed up for a median of 25 months (IQR 14.5-39.8). During follow-up 131 (52.2%) patients were treated with biologics (93.8% with anti-tumor necrosis factor). Sixty-eight (27.1%) patients had complicated disease course, median time to first complication 3.9 months (IQR 2.3-7.7). Two baseline distinct microbial clusters were noticed. A "pathogenic cluster" identified patients with a complicated disease course (52.6% vs. 20.8%, p<0.001). This cluster was characterized by an increase of potentially harmful bacterial taxa including *Escherichia coli, Klebsiella, Gemmella*; and depletion of beneficial bacterial taxa including *Faecalibacterium, Lachnospiraceae* and *Roseburia*. The "pathogenic cluster" had lower Shannon diversity and higher microbial dysbiosis index (both, p<0.001). Additionally higher abundances of multiple fungal taxa including *Cladosporium* and *Aspergillus* were observed in the "pathogenic cluster" as well as a trend towards higher ASCA titer levels (p=0.08). Baseline macro and micronutrients composition were comparable between microbial clusters. Of note, in a sub-cohort of 109 patients, who presented with uncomplicated phenotype, only 11 patients developed complicated disease course. However, no specific bacterial signature was detected.

Conclusion: A distinct microbial cluster identified patients with newly diagnosed CD who had complicated disease course. Thus, baseline microbial signatures might be used to predict CD course.

Disclosure: Nothing to disclose.

PP0664

NON-ALCOHOLIC FATTY LIVER DISEASE AND INFLAMMATORY BOWEL DISEASE – MORE QUESTIONS, TROUBLING ANSWERS

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Introduction: Non-alcoholic liver disease (NAFLD) is a leading cause of liver-related morbidity and mortality having an overall prevalence of about 30%. Inflammatory bowel diseases (IBD) are caused by a dysregulated immune response in the hosts, favored by genetic susceptibility. In addition to symptoms related to the digestive tract, about 40% of patients with IBD also experience extraintestinal manifestations. Although, NAFLD has been frequently associated with IBDs, the relationship between these two pathologies remains unclear.

Aims & Methods: The aim of this study was to investigate the prevalence of NAFLD among IBD patients, as well as the factors that connect these two conditions.From January 2022 to November 2022, consecutive IBD patients were enrolled from a tertiary care center hospital in Iasi. All patients' demographic information, clinical characteristics including blood pressure, biological parameters, and anthropometric measurements were collected. Following informed consent, participants underwent a fibroscan evaluation for liver stiffness measurement (LSM) and controlled attenuation parameter (CAP).

Results: A total of 93 patients with IBD were enrolled (65,3% men, 55,6% with ulcerative colitis). 45 (48,3%) of them were diagnosed with NAFLD, with a mean CAP score of 283 ± 33.4 vs. 215 ± 23.7 in patients with IBD only. Regarding liver fibrosis, mean LSM value in the NAFLD group was 6.8 ± 1.9 kPa *vs*. 5.7 ± 2.3 kPa in the non-NALFD group. Subjects with NAFLD exhibited higher body mass indexes than those with IBD only (26.2 *vs*. 33.1, $p<0.05$). In addition, the prevalence of diabetes was much greater among this group (27.5% *vs*. 0%; $p=0.0001$), as was the prevalence of elevated HbA1c levels in the absence of a diabetes diagnosis (14% *vs*. 7.35%; $p=0.23$). They also had a non-significantly higher mean systolic blood pressure and greater incidences of hypertension. Age ($\beta=0.357$, $p=0.034$), body mass index (BMI) ($\beta=0.185$, $p=0.048$), disease duration ($\beta=0.297$, $p=0.037$), C - reactive protein ($\beta=0.321$, $p=0.013$), fasting plasma glucose ($\beta=0.269$, $p=0.018$) and triglycerides ($\beta=0.273$, $p=0.021$) were strongly associated at the multivariate analysis with the diagnosis of NAFLD in our cohort of patients with IBD. Advanced fibrosis (LSM > 9.7 kPa) was associated with age, BMI and the level of triglycerides. After adjusting for classic metabolic risk factors, age and gender the multivariate logistic regression analysis showed that the presence of IBD (odds ratio, 2.45; 95% confidence interval,1.17–4.391; $p < 0.001$). Also, in regard to age and male gender they were independent risk factors for NAFLD. Of note, the 10-year risk of myocardial infarction or death estimated by the Framingham risk scores for hard coronary heart disease was higher in the NAFLD group (2.32% *vs*. 4.27%, $p=0.0024$).

Conclusion: NAFLD is an intricate condition that has become more common in IBD patients. The connection between these two pathologies is not fully understood, although metabolic disorders, age and male gender have a notable role. Current evidence in the literature suggests a minor risk for the progression of liver fibrosis, the cardiovascular risk appears to be of more concern. Given the information presented above, patients with IBD should be assessed using a multidisciplinary approach.

Disclosure: Nothing to disclose.

PP0665

PROACTIVE NATIONWIDE IBD PATIENT MONITORING AND MANAGEMENT USING PROMS - IMPLEMENTATION AND INITIAL RESULTS

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Introduction: Patient-reported outcome measures (PROMs) are recommended for assessing patient-centered outcomes and have been suggested as a tool for quality improvement (QA), which is crucial for IBD related outcomes and as clinical trials' endpoints. Real world use of IBD PROMS as a monitoring tool that enables quick access to caregivers, is still rare. Maccabi Healthcare Services (MHS), a state-mandated healthcare provider with over 2.6 million members, emphasizes patients' cooperation in improving their health and quality of life.

Aims & Methods: 1. To implement an IBD PROMS platform according to an operational process, which triggers a response from an IBD nurse and a multidisciplinary team, for routine HMO clinical use.

2. To compare the characteristics of responders and non-responders and study immediate actions.

We have used pre-existing research on the IBD PROMS platform (1) to implement validated questionnaires (IBD control PROMIS-10 measures and general health and nutritional items).

Questionnaires translated into four languages were sent every 3 months to IBD registry members (defined by EPI-IRN criteria) via text messages.

The calculated results and scores are directed to the electronic medical record (EMR) and are accessible to all caregivers. Digital alerts are sent to an IBD nurse in cases of "red flags" or low scores.

A steering committee designed an actionable plan defining specific nurse responses for each red flag, and whether to consult with the treating physician, dieticians or social worker. A pilot study with patients from 6 gastroenterologists included 2 rounds of PROMS.

Descriptive statistics were used to compare the responders to at least one questionnaire to non-responders for demographic and clinical characteristics, as well as for immediate reactions. An automated, language-specific, personalized messaging system according to patient response was accessible to the responders, with relevant information and general recommendations.

Results: Overall participation rate of the pilot study was 137/777(17.6%). Thirty one (23%) patients had red flags and 52(38%) had sub-threshold IBD-control scores.

Opening rate of the personalized messaging system was 41%. Comparison between responders and non-responders is shown in Table 1.

Responders tended to be significantly older and with a higher BMI. Medical treatment including biologics was not significantly different between responders and non-responders.

More disease related laboratory tests were performed among responders after their initial response.

Conclusion: IBD PROMS has been successfully assimilated and operated at MHS EMR by a multidisciplinary team, using a supporting personalized automated platform.

Significantly higher rate of disease monitoring actions such as calprotectin tests was detected for responders.

Responders did not necessarily have a more active or severe disease. The response rate should be increased via robust education and training.

Parameter (units, normal range)	Total (n=777)	No questionnaire completion (n=640)	Completed the questionnaire (n=137)	P value
Age (years)	41.43±16.65	39.85 ±16.04	48.80 ±17.50	< 0.001
Gender (male) %	43.60	44.10	41.60	0.599
Socio economic status (SES, 1-10)	7.27±1.80	7.26±1.82	7.33±1.71	0.670
Last BMI (Kg/m^2)	24.33±5.84	24.11 ±5.97	25.34 ±5.10	0.026
BMI test in the last 3-month %	4.40	0.00	24.80	< 0.001
Albumin (g/dl)	4.18±0.59	4.17 ±0.61	4.23 ±0.48	0.297
Albumin test in the last 3-month %	32.00	31.30	35.80	0.304
Last CRP (mg/dl)	0.57±1.46	0.57 ±1.53	0.55 ±1.03	0.855
CRP test in the last 3-month %	30.60	29.10	38.00	0.040
Last calprotectin (µg/g-stool)	236.43 ±646.73	246.40 ±659.60	189.87 ±582.85	0.353
Calprotectin test in the Last 3-month %	19.40	17.80	27.00	0.014
Colitis as of today % (n=301/777)	38.70	38.80	38.70	0.989
Crohn's as of today % (n=451/777)	58.00	58.00	58.40	0.927
‚Inflamed bowl disease' medicine purchase last 3-month %	27.80	26.90	32.10	0.214
‚Biological medicine' purchase last 3-month %	33.50	33.90	31.40	0.571
Hospitalization last 1-year %	8.90	8.40	10.90	0.348
Gastroenterologist doctor last 3-month %	35.50	34.70	39.40	0.294

Table 1: Characteristics of the study population and comparison between responders and non-responders (Mean ±SD, unless stated otherwise)

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PP0666

USTEKINUMAB AND VEDOLIZUMAB AS FIRST-LINE BIOLOGICAL THERAPY FOR INFLAMMATORY BOWEL DISEASE IN CLINICAL PRACTICE. A MULTICENTER STUDY BASED ON THE ENEIDA REGISTRY

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Introduction: The use of ustekinumab (UST) and vedolizumab (VDZ) as first line therapies for inflammatory bowel disease (IBD) is increasing due

to safety reasons and contraindications of anti-TNFs. However, there are no studies assessing their efficacy and safety in clinical practice in this setting.

Aims & Methods: Aims: Therefore, our aims were to describe the features of those patients not previously exposed to biologicals who were treated with VDZ or UST and to evaluate their efficacy and safety profile in this scenario.

Methods: Observational, retrospective and multicenter study based on the ENEIDA registry (a large, prospectively maintained database of the Spanish Working Group in IBD –GETECCU). All IBD patients not previously exposed to biological agents who started VDZ or UST as first-line biological treatment, were identified from the database. Disease activity at baseline and different time points from the beginning of UST/VDZ use, as well as development of side effects, were carefully reviewed from medical records. Descriptive statistics were used, followed by non-parametric comparisons by chi-square test.

Results: Out of 29,450 IBD patients ever exposed to any biological drug included in the ENEIDA registry at the time of data extraction, 406 patients met the inclusion criteria, 149 (36.7%) treated with UST and 257 (63.3%) with VDZ, as first line biological therapy.

At baseline, 46.3% UST and 41.8% VDZ were women (P=ns), median age at the beginning of UST was 60 years (IQR 45-73) and, 61.5 years (IQR 47-71) in VDZ. UST was more frequently used in Crohn's disease (CD) (92.6% vs. 41%; P<0,001); conversely, VDZ was used significantly more often in ulcerative colitis (UC) (7.4% UST vs 59% VDZ; P<0,001). A higher proportion of extensive UC (81.8% UST vs 45;7% VDZ, P=0.029) and perianal disease (14.1% UST vs. 5.5% VDZ; P=0.002) was observed in the UST group. A past history of malignancy was common and evenly observed in both study groups (UST 33% vs VDZ 35.7%; P=ns), as were other comorbidities (47.7% UST vs 53.3% VDZ; P=ns). Concomitant immunosuppressants were used in 14% with UST and 13.9% with VDZ (P=0.671), and 32.4% and 49% were concomitantly treated steroids at the beginning of UST and VDZ, respectively (P=0.001). No differences were observed regarding disease clinical activity at baseline as assessed by the Harvey Bradshaw index (HBI) in CD and partial Mayo score (PMS) in UC. Endoscopic assessment was available in 106 (54.3%) CD patients and 132 (65.4%) UC patients, most of them having endoscopic activity (90% UST vs 91,8% VDZ ;P=ns).

During follow-up 37.8% UST vs. 46.5% VDZ required dose-escalation (P=0.024). No differences were observed regarding early and long-term clinical remission between UST and VDZ for both diseases (UC: week 14, 50% UST vs 68.5% VDZ; week 56, 83.3% UST vs 89% VDZ) (CD: week 14, 96.7% UST vs 92.7% VDZ; week 56, 74.6% vs 61.9% VDZ).

At the end of follow-up (median 21 months [IQR 13-41]) UST vs. 20.5 months [IQR 8-38.7]), treatment persistence was significantly higher among UST users (67.8% vs 43.2%; P=0.006).

Only 1.5% of patients discontinued UST because of adverse effects compared to 5.1% with VDZ (P=0.053).

Conclusion: In clinical practice, VDZ and UST are used as first-line therapies at older ages than anti-TNFs and mostly in patients with comorbidities or a past history of malignancy. Even in this scenario, both treatments have a good safety profile and a high persistence of treatment, although UST shows a higher persistence and a lower rate of treatment discontinuation due to side effects.

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PP0667

REAL-WORLD UPTAKE OF STANDARD INDICES IN THE REPORTING OF ENDOSCOPY AND HISTOLOGY OF ULCERATIVE COLITIS: RESULTS OF A GLOBAL SURVEY

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Introduction: Treatment targets of ulcerative colitis (UC) have evolved to include not only endoscopic but also histologic remission. However, the concept of histological activity is still in its early days. We aimed to capture the attitudes towards UC histology and the uptake of standardized reporting of endoscopy and histology of UC in daily practice.

Aims & Methods: We conducted a cross-sectional survey of physicians involved in the care of IBD worldwide. The survey included 21 questions divided into 3 sections. The first recorded demographics, specialty, and level of experience of participants; the second covered clinical practices and attitudes towards the use and reporting of endoscopy, and the third of histology.

Results: Participants: In total 359 physicians, from 60 countries (54.4% Europe, 24.4% Asia, 12.9% South America, 3.7% North America, 3.2% Africa, and 1.4% Oceania) responded; 87% were gastroenterologists, the remainder other specialists involved in the care of IBD. The majority practiced in academic hospitals (54.5%) or tertiary centers (22.1%), and only around one-fifth worked in secondary hospitals (12.8%) or local practices (8.1%).

Endoscopy: When performing endoscopy in quiescent UC, 72.1% of respondents reported taking biopsies also to assess microscopic activity, while 16.8% only for dysplasia detection, and 10.4% just in case of suspicious lesions; the average number of biopsies was 10.8 (SD 7.34, range 0 to 36). In the case of active UC, the percentage of operators collecting biopsies increased to 93.6%.

Endoscopy reports included a validated score in 91.9% of cases. Mayo was nearly always used (90%), with a large difference from the second most common score UCEIS (26.5%); other indices accounted for 1.7%. Of note, except for 1 respondent, all scores different from Mayo were used in addition to, and not instead of, Mayo. When restricting the analysis to participants working in high-volume centers (>500 UC patients cared for per year) all but one (117/118) reported using the Mayo score to grade endoscopic activity, and 32% (38/117) used also other scores in addition to Mayo, mainly UCEIS.

Histology: Centers represented in the survey were roughly equally split between those with a pathologist dedicated to IBD (46.2%) and those without (51%). UC histology was used by nearly all respondents (90.5%) for initial diagnosis, 72% to monitor disease course, 62.4% to determine microscopic extension, 59.9% to confirm deep remission when considering stopping treatment, and 42.3% to increase/optimize treatment. Nevertheless, 77.2% of participants reported that standard histological indices were not routinely available, although 21.7% of these used scores in selected cases, such as clinical trials or research. Among those who used (or worked in a center that used) standard scores (160/357) the choice of which index was mixed: 64.4% (103/160) used the Nancy index, followed by Geboes 31.9% (51/160), and Robarts 20.6% (33/160), a minority applied other scores.

The majority of respondents welcomed as useful or very useful an artificial intelligence system to automate scoring of endoscopy (69%) or histology (73%).

Conclusion: UC histology reports are less standard than endoscopy ones. Most physicians consider histological activity useful when managing UC and would welcome artificial intelligence systems to automate endoscopic and histological scoring.

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SG has served as consultant, Steering committee member, Advisory Board Member and Drug Monitoring committee member for Janssen, Pfizer, Takeda, Abbvie, BMS, Gilead, Galapagos, Celltrion, Eli Lilly, Ferring.

SD has served as a speaker, consultant and advisory board member for Schering Plough, Abbott (AbbVie) Laboratories, Merck and Co, UCB Pharma, Ferring, Cellerix, Millenium Takeda, Nycomed, Pharmacosmos, Actelion, Alfa Wasserman, Genentech, Grunenthal, Pfizer, AstraZeneca, Novo Nordisk, Vifor and Johnson and Johnson.

Remaining authors declare no relevant conflict of interest.

PP0668

PREDICTING *CLOSTRIDIOIDES DIFFICILE* INFECTION IN PAEDIATRIC INFLAMMATORY BOWEL DISEASE PATIENTS ACCORDING TO GUT MICROBIAL COMPOSITION AND SHORT CHAIN FATTY ACIDS PRODUCTION

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Introduction: Children with inflammatory bowel diseases (IBD) are particularly vulnerable to *Clostridioides difficile* infections (CDI) and experience significantly worse health outcomes including increased hospitalisation and shorter time to their first bowel resection. Previous studies have correlated these outcomes to specific gastrointestinal microbiome features. However, data regarding features that may predispose PIBD patients to CDI is lacking. Furthermore, it is not known whether CDI has long-term impacts on the microbiome of PIBD patients in remission.

Aims & Methods: Our primary aims were to investigate whether PIBD-CDI patients had a distinct microbiota at baseline compared to PIBD controls, to examine whether PIBD-CDI patients had a distinct microbiome during remission than those without CDI, and whether there were changes in their stool short chain fatty acids (SCFA) composition. Finally, we aimed to assess whether PIBD patients with CDI had worse outcome.

Patients aged 2-17 years and newly diagnosed with IBD between November 2014 and March 2019 were invited to participate. Each patient was requested to submit 4 stool samples in an interval of six months between samples and follow up continued until June 2021. Patients were divided into those that developed CDI (IBD-CDI) and those who did not (IBD controls). DNA was extracted from stool samples and the microbiota of each was profiled using 16S rRNA amplicon sequencing on an Illumina MiSeq. SCFA were quantified from the stool samples. Data analysis was further divided into 2 cohorts: Cohort 1 represented microbiome data from samples of patients who developed CDI and were collected prior to the infection. Cohort 2 represented microbiome data from samples of patients in remission who had CDI. Microbial composition and SCFAs were compared to non-CDI controls within each cohort. Hazard ratio (HR) was calculated to progression to biologic treatment and surgeries in patients who had a CDI compares to those who did not. Random forest classification model was used to predict CDI using microbial composition.

Results:

Patients who had CDI were more likely to progress to a biologic therapy (HR 1.85 P =0.06) and had significantly more hospitalisations (RR 2.20, P< 0.001) and surgery (HR 3.15, P= 0.019).

Cohort 1:

Patients who did not develop CDI had higher abundance of *Bifidobacterium bifidum*, *Blautia hydrogenotrophica*, *Clostridium sensu stricto* 2 *cadaveris*, *Eubacterium*, *Ruminococcus torques* group, and *Lachnoclostridium*.

The *Eubacterium, Blautia hydrogenotrophica*, *Ruminococcus torques group* and *Lachnoclostridium* were associated with high levels of stool SCFAs.

Random forest classification model was able to predict patient who did not develop CDI.

Cohort 2:

Patients post CDI had significantly lower beta diversity.

The *Oscillospirales* CAG 352, NK4A214 group and UCG 002 were all less abundant in post-CDI patients, and were associated with higher SCFA production. Specifically, propionic acid (CAG 352), isovaleric and isobutyric acid (NK4A214 and UCG 002). Additionally, *alistipes* was associated with higher levels of isovaleric and isobutyric acids.

Conclusion: We were able to predict paediatric IBD patients that were protected from CDI based on baseline microbial composition. Paediatric IBD patients who developed CDI during the course of the disease developed more severe outcome with more surgeries and hospitalisations. They had long term changes to their microbiome.

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PP0669

REAL WORLD ENDOSCOPIC AND HISTOLOGIC OUTCOMES IN INFLAMMATORY BOWEL DISEASE PATIENTS: A RETROSPECTIVE COHORT STUDY

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Introduction: Histologic activity has emerged as an aspirational therapeutic goal in IBD management. It is not yet a formal treatment-target in either CD or UC. However, it could be used as an adjunct to mucosal healing to represent a deeper level of healing. Recent studies show that histologic healing is associated with decreased risk of clinical relapse, medication escalation and corticosteroid use, both in ulcerative colitis and Crohn's disease [1,2]. We investigated histologic remission (HR) rates and potential predictors of achieving histologic remission in an IBD cohort.

Aims & Methods: We conducted a retrospective subgroup analysis of data collected from IBD patients enrolled in an ongoing prospective cohort study. Clinical, biological, endoscopic data (including the Mayo endoscopic subscore and SES-CD score) and histopathology results were available at multiple time-points for the enrolled patients (annual visits). Mucosal healing was defined as SES-CD <3 or Mayo endoscopic score=0[3]. Histologic healing was defined as microscopic normalization of mucosal biopsies.

Results: 219 patients (88 CD, 131 UC) were enrolled in our study and were prospectively followed for a median length of 2 years (range 0-5 years), totaling 452 study visits. Mucosal healing was recorded for 51 (27 UC, 24 CD, 23,2%) patients at 76(16%) different study visits. Overall, only 35(15%) patients achieved histologic healing. In the mucosal healing subgroup, histologic remission was achieved in 30(58%) patients. After logistic regression analysis, none of the investigated factors was associated with histologic remission.

Conclusion: Mucosal healing and endoscopic remission rates are low in real-life settings. Frequently used patient and disease related factors, including mucosal healing are not reliable predictors for histologic remission.

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PP0670

CORRELATIONS BETWEEN THE INFLAMMATORY BURDEN AND QUALITY OF LIFE IN A PROSPECTIVE COHORT OF INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction: Therapeutic goals in inflammatory bowel diseases (IBD) have undergone considerable change in recent years, with a shift of focus from simply achieving clinical remission. Patient-related outcomes (PROs) have also become increasingly important as adjunctive tools in assessing the efficacy of medical therapy from the patients' standpoint. Health-related quality of life (HRQoL) questionnaires, correlate well with disease activity and can detect meaningful clinical changes in IBD patients who either suffer a relapse of disease or achieve remission [1,2].

Aims & Methods: We aimed to assess the utility of SIBDQ in the long-term follow-up of IBD patients compared to the conventionally used markers such as clinical indices, CRP levels and endoscopic activity scores. Patients were scheduled for evaluation every 12 months, but additional evaluations were performed as required in case of worsening clinical condition. The main data collected at each study visit included clinical aspects (disease activity, on-going medication, quality of life assessement-The Short Inflammatory Bowel Disease Questionnaire), endoscopic and histological findings.

Results: In a prospective setting, 176 patients were included in the study (65 Crohn's and 111 UC patients) , with a mean follow-up time of 16 months and 1.3 study visits per patient. Clinical activity was associated with significantly lower SIBDQ (median 4.3 vs 5.7 in those without clinical activity, p<0.001 mann whitney u) and increased inflammatory burden (median CRP levels 1,99 mg/L vs. 7.2mg/L, p<0.001 mann whitney u). SIBDQ scores were also significantly higher in patients showing mucosal healing compared to those with active ongoing inflammation (5.8 vs 4.9, p<0.001 MWU), while inflammatory burden was also significantly different between patients with and without ongoing mucosal activity (1.6 mg/L vs 4.2 mg/L, p< 0.001 MWU). SIBDQ significantly improved over time, with a median of 4.7, 5.4 and 5.8 at visits 1, 2 and 3 respectively (p<0.001 MWU), which was also consistent with a decrease in the overall inflammatory burden in the cohort (median CRP levels of 4.2, 3.4 and 2.5 mg/L respectively).

Conclusion:

Clinical activity is associated with significantly lower quality of life and increased inflammatory burden. QoL scores are significantly higher in patients showing mucosal healing compared to those with active ongoing inflammation.

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PP0671

UNVEILING THE KEY GENES, ENVIRONMENTAL TOXINS, AND DRUG EXPOSURES IN MODULATING THE SEVERITY OF ULCERATIVE COLITIS: A COMPREHENSIVE ANALYSIS

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Introduction: As yet, the genetic abnormalities involved in the exacerbation of Ulcerative colitis (UC) have not been adequately explored based on bioinformatic methods.

Aims & Methods: The gene microarray data and clinical information were downloaded from Gene Expression Omnibus (GEO) repository. The scale-free gene co-expression networks were constructed by R package "WGCNA". Gene enrichment analysis was performed via Metascape database. Differential expression analysis was performed using "Limma" R package. The "randomForest" packages in R was used to construct the random forest model. Unsupervised clustering analysis performed by "ConsensusClusterPlus"R package was utilized to identify different subtypes of UC patients. Heat map was established using the R package "pheatmap". Diagnostic parameter capability was evaluated by ROC curve. The"XSum"packages in R was used to screen out small-molecule drugs for the exacerbation of UC based on cMap database. Molecular docking was performed with Schrodinger molecular docking software.

Results: Via WGCNA, a total 77 high Mayo score-associated genes specific in UC were identified. Subsequently, the 9 gene signatures of the exacerbation of UC was screened out by random forest algorithm and Limma analysis, including BGN,CHST15,CYYR1,GPR137B,GPR4,ITGA5,LILRB1,SLFN11 and ST3GAL2. The ROC curve suggested good predictive performance of the signatures for exacerbation of UC in both the training set and the validation set. We generated a novel genotyping scheme based on the 9 signatures. The percentage of patients achieved remission after 4 weeks CS-IV treatment was higher in cluster C1 than that in cluster C2 (54% *vs*. 27%, Chi-square test, p=0.02). Energy metabolism-associated signaling pathways were significantly up-regulated in cluster C1, including the oxidative phosphorylation, pentose and glucuronate interconversions and citrate cycle TCA cycle pathways. The cluster C2 had a significant higher level of CD4+ T cells. The"XSum"algorithm revealed that Exisulind has a therapeutic potential for UC. Exisulind showed a good binding affinity for GPR4, ST3GAL2 and LILRB1 protein with the docking glide scores of –7.400 kcal/mol, –7.191 kcal/mol and –6.721 kcal/mol, respectively.We also provided a comprehensive review of the environmental toxins and drug exposures that potentially impact the progression of UC.

Conclusion: Using WGCNA and random forest algorithm, we identified 9 gene signatures of the exacerbation of UC. A novel genotyping scheme was constructed to predict the severity of UC and screen UC patients suitable for CS-IV treatment. Subsequently, we identified a small molecule drug (Exisulind) with potential therapeutic effects for UC. Thus, our study provided new ideas and materials for the personalized clinical treatment plans for patients with UC.

Disclosure: Nothing to disclose.

PP0672

FAECAL CALPROTECTIN IS A NON-SPECIFIC MARKER OF INFLAMMATION IN ADULTS OVER THE AGE OF 50

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Introduction: Faecal calprotectin (FC) is a well-established marker of gastrointestinal inflammation with multiple studies showing elevated levels in patients with Inflammatory Bowel Disease (IBD) relative to control groups such as patients with Irritable Bowel Syndrome (IBS) (1).

Multiple national and speciality guidelines therefore recommend its use to help identify patients with gastrointestinal (GI) symptoms who may benefit from further investigation (2).

However, there is uncertainty surrounding the role of FC in older adults due to a higher likelihood of colorectal cancer. Clinical guidelines often advocate a much lower threshold for endoscopic investigation with increasing age and studies of FC have therefore often excluded older adults, resulting in a lack of relevant data in the literature (3)(4). Despite this a large number of FC tests continue to be performed in this group and evaluation of its performance is therefore important.

Aims & Methods: Our retrospective study investigated patients over the age of 50 who had a FC test performed followed by a colonoscopy at our centre in Northwest London between May and October 2021. Patients with existing IBD were excluded. Endoscopy reports and electronic medical records of eligible patients were reviewed to establish both the indication for FC testing and any diagnoses made based on colonoscopy results as well as other clinical investigations and assessments performed.

Results: In total 247 patients were eligible for inclusion in the study (54% women, 46% men). The average age was 61 years (range 50-93) and the median FC value was 83µg/g (range 20-11603µg/g). The most common indication given for FC testing was diarrhoea in 35% (86/247) of cases. In total 16 patients (6%) were diagnosed with IBD and a further 39 (16%) with other significant organic GI pathology (defined as colorectal cancer, colonic polyps >1cm, microscopic colitis or infectious colitis). Using a cut-off value of 50µg/g gave FC a sensitivity of 93.8% (95% CI 71.7%-99.6%) but a specificity and positive predictive value (PPV) of 46.4% (39.4-53.4%) and 12.7% (7.9-19.9%) respectively for differentiating between IBD and patients with no significant organic GI pathology (including functional disorders) (p=0.0013). Increasing the FC cut-off to 150 µg/g improved the specificity of FC to 70.3% (63.5-76.3%) but the PPV remained low at 18.6% (11.2-29.2%).

In patients where a FIT test was performed the sensitivity of a FIT test for IBD vs no significant organic pathology, using a cut-off of 10 µg/g, was 75% (40.9-95.6%) and specificity 71.3% (62.7-78.6%) (p=0.0121). When looking at FC performance for significant GI pathology vs non-significant pathology a similar picture was seen with a sensitivity of 78.2% (65.6-87.1%), specificity of 46.4% (39.4-53.4%) and PPV of 29.5 (22.7-37.3%), using a FC cut-off of 50µg/g.

In total there were 5 patients diagnosed with colorectal cancer, all of which had a FC>50 µg/g but only 3 of which had a level over 150µg/g. 4 of these patients had a FIT test prior to their colonoscopy which was positive in all cases.

Conclusion: These data suggest that whilst FC remains a sensitive test for IBD in this age group it has a low PPV and specificity, particularly at the recommended cut-off of 50 µg/g. A possible reason for this is the high prevalence of other colonic pathology, such as colorectal polyps and di-

verticular disease, in this cohort that has the potential to cause mild elevations in FC levels. Further prospective studies are therefore needed to establish if there is a clear role for FC in diagnostic pathways for older adults.

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Disclosure: Nothing to disclose.

PP0673

DERMAL LESIONS ASSOCIATED WITH ANTI-TUMOR NECROSIS FACTOR THERAPY IN PATIENTS WITH INFLAMMATORY BOEWL DISEASES: INSIGHTS FROM A IBD TERTIARY CENTER IN POLAND - A SINGLE-CENTER, RETROSPECTIVE STUDY

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Introduction:
Dermal lesions are often among patients with inflammatory bowel diseases (IBD), partialy could be associated with biological therapies [1,2]. Their occurrence frequently leading to dermatological consultations and causes diagnostic and therapeutic difficulties [3,4].

Aims & Methods: This is a retrospective, single-center analysis of occur dermal lesions in IBD patients treated with TNF at a tertiary center in Poland. A total of 541 IBD patients treated with TNF (case group) and 805 IBD patients without TNF therapy (control group) were included in the study since 2016 till 2022 in the study. The mean follow-up time last in the case group 19.86 vs. 20.78 months in the control group, p<0,46.

Results: Regular visits to the dermatologist during observation were performed in 531 (98,15%) cases vs. 92 (11.43%) controls, p<0,00001. Dermal lesions were presented in 34.75% (188) vs. 16.89% (136) during follow up, p<0,00001. The following dermal lesions were reported in the both groups: erythema nodosum 10 (1.8%) vs. 21 (2.6%), p<0,36; pyoderma gangrenosum 14 (2.58%) vs. 17 (2.11%), p p<0,57; psoriasis 9 (1.66%) vs. 9 (1.12%), p<0,39; hidradenitis suppurativa 9 (1.66%) vs. 15 (1.86%), p<0,79; vitiligo 4 (0.74%) vs. 5 (0.62%), p<0,79; phlebitis 1 (0.18%) vs. 1 (0.12%), p<0,78; urticaria 5 (0.92%) vs. 11 (1.37%), p<0,46; infusion reactions and injection site reaction 30 (5.55%) vs. 0 (0%)0, p<0,00001; xerosis and eczema 46 (8.5%) vs. 44 (5.47%), p<0,28; cutaneous infections 42 (7.76%) vs. 0 (0%), p<0,00001; psorasiform reactions 8 (1.48%) vs. 0 (0%), p<0,002; cutaneus malignancies 2 (0.37%) vs. 9 (1.12%), p<0,13; lupus-like symptoms 4 (0.74%) vs. 0 (0%), p<0,07; vasculitis 1 (0.18%) vs. 0 (0%), p<0,77; alopecia areata / totalis 2 (0.37%) vs. 2 (0.25%), p<0,96; lichenoid drug reactions 2 (0.37%) vs. 0 (0%), p<0,35. In 9 (1.66%) cases anti-TNF therapy led to drug change because of dermal lesions (alopecia, lupus-like syndrome, vasculitis or melanoma).

Conclusion: Dermal lesions during TNF therapy are common and often require dermatological consultation. Despite the lack of clear guidelines on dermatological supervision during biological therapy, its regular conduct seems to be justified and may facilitate the initiation of appropriate management at an early stage. Despite the commonness of dermal lesions, they are rarely the reason for changing treatment.

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PP0674

URINARY LITHOGENIC PROFILE AND GUT AND URINARY MICROBIOTA IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Nephrolithiasis (NL) is a common extra-intestinal complication of inflammatory bowel diseases (IBD) with significant morbidity and mortality[1]. Its pathogenesis and risk factors still need to be completely elucidated. Because of intestinal malabsorption, enteric hyperoxaluria is a critical pathogenic mechanism responsible for the development of NL in IBD patients[2]. Growing evidence has highlighted the association between gut microbiota and NL, particularly emphasising the role of some oxalate-degrading bacteria, such as *Oxalobacter formigenes*, representing the mainstay of the so-called "gut-kidney axis"[3]. More recent studies also hypothesize the involvement of urinary microbiota[4], but no data on IBD patients are currently available. Thus, our study aims to analyse the urinary lithogenic profile in IBD patients and its relationship with gut and urinary microbiota.

Aims & Methods: Consecutive adult patients with IBD were prospectively enrolled. The presence of ileoanal pouch, ileostomy, colostomy or short-bowel syndrome were exclusion criteria. Demographic and clinical data,

including previous episodes of NL, were collected. Disease activity was evaluated using Harvey-Bradshaw index for Crohn's disease (CD) and Mayo score for ulcerative colitis (UC). All patients underwent abdominal ultrasound for NL detection. Blood tests of kidney function (notably creatinine, blood urea nitrogen, creatinine clearance, and electrolytes) were also measured, together with a 24h-urine collection for lithogenic profile analysis, including calcium oxalate relative saturation ratio (RSRCaOx). In a subgroup of patients, urinary and faecal microbiota were also analysed through 16S rRNA sequencing.

Results: 48 patients (52.1% men, mean age 42.6±17.4 years) were enrolled. Twenty-five patients were affected by CD and 23 by UC and 10 presented active disease at enrollement. NL was more frequent in CD than in UC (32% vs. 13%). In CD, 24-h urinary volume was lower and 24-h oxaluria was higher than in UC. Moreover, 24-h oxaluria was higher in patients with previous or present NL. Gut microbiota analysis was performed on 22 patients, stratified based on median RSRCaOx (higher or lower than the median). Significantly different β-diversity was observed between the two groups (p =0.025) and patients with an elevated RSRCaOx showed a higher relative abundance of Bacteroidetes and a lower abundance of Firmicutes (p value <0.05). No statistically significant difference was found in urinary microbiota composition between patients with high or low levels of RSRCaOx.

Conclusion: NL is more common in CD patients, who generally present lower urine volume and higher 24-h oxaluria than UC patients. Furthermore, NL is more frequent in IBD patients with higher oxaluria levels, confirming oxalate excretion's crucial role in NL pathogenesis. Again, our study reports an association between urinary stone development and Firmicutes/Bacteroidetes imbalance in the gut microbiota, suggesting possible further studies to identify patients at higher risk of NL.

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Disclosure: Nothing to disclose.

PP0675

CADE-IBD: A REALITY OR A DREAM? PROSPECTIVE EVALUATION OF A NOVEL NEURAL NETWORK FOR DETECTION OF NEOPLASIA IN IBD COLON

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Introduction: Patients with inflammatory bowel disease (IBD) have a higher risk of colorectal cancer requiring regular surveillance colonoscopy. However, neoplasia in IBD is subtle and difficult to detect so the use of chromoendoscopy is recommended, with or without multiple biopsies. Computer Aided Detection (CADe) is becoming increasingly used for polyp detection in standard colonoscopy, but its use has so far been restricted to non-colitic bowel.

We developed a novel CADe-IBD algorithm and prospectively evaluated it's performance for detection of neoplasia in IBD colon.

Aims & Methods: A dedicated CADe-IBD algorithm was developed. The study was conducted in two phases. In the first phase the system was tested on still images obtained from IBD colons. Three experts jointly reviewed the images to classify them into neoplastic or non-neoplastic to establish the ground truth alongside histology. Images were tested on both the dedicated CADe-IBD algorithm and a generic colon CADe system. In the second phase, the CADe-IBD algorithm was used in real-time in a select group of 30 IBD patients undergoing surveillance colonoscopy. Ground truth was established by a combination of expert endoscopists performing the procedure in real time followed by an independent review of the recorded videos by three additional experts. All lesions identified during colonoscopy were biopsied or removed to obtain histology.

Results: The image based test set consisted of 1,111 images (45 neoplastic lesions, 40 non-neoplastic and, 1026 colitic bowel with no lesions). The CADe-IBD algorithm demonstrated an overall sensitivity of 90.6% and specificity of 94.6% for lesion detection which was significantly better than the generic CADe engine (p<0.001) where the sensitivity and specificity was 69.4% and 94.5% respectively.

Further sub-analysis was performed based on lesion morphology (polypoid vs non-polypoid), presence of background inflammation and histology. Sensitivity results are summarised in table 1.

Real-time performance was assessed in 30 consecutive patients. 15 patients were male. Median age was 60. 80% (n=24) patients had Ulcerative Colitis, 20% (n=6) patients had Crohns colitis. There was mild patchy inflammation in 46.6% (n=14) of patients.

A total of 136 lesions were identified. 18.4% (n=25) were neoplastic, the remaining were non-neoplastic (hyperplastic, pseudo polyps or inflammatory lesions). The overall sensitivity for lesion detection was 90.4%. 25 neoplastic lesions (8 polypoid and 17 non-polypoid) were identified in 11 patients. The real-time sensitivity for neoplasia detection was 100%.

	Lesion morphology (Paris classification)		Background mucosal inflammation		Histology
	Non-polypoid (IIa/IIb)	Polypoid (Is)	Mayo 0	Mayo 1	Neoplastic
CAD-IBD algorithm	89.7%	91.3%	89.4%	94.7%	91.1%
Generic CADe algorithm	48.7%	87.0%	69.7%	68.4%	66.7%

Table 1. Sensitivity for CADe-IBD and generic CADe.

Conclusion: This is the first real-time use of a dedicated CADe algorithm for neoplasia detection in IBD colon. Our image based data proves the superior performance of dedicated CADe-IBD algorithm in detection of IBD neoplasia as compared to a generic CADe engine. The sub-analysis suggested that this may be due to its better performance for detection of flat lesions and lesions in the presence of inflammation.
Real-time data demonstrates the feasibility and efficacy of this algorithm. We believe that if proven in larger series this can transform clinical practice.
Disclosure: Professor Bhandari has received research grants or is the advisory board for Fujifilm, Boston, Olympus, Pentax, 3-D matrix, NEC (Japan), Medtronic

PP0676

NEOPLASIA CHARACTERISATION IN IBD COLON: AN INTERNATIONAL MULTI-CENTRE STUDY OF ENDOSCOPIST PERFORMANCE AND A GENERIC COLON CADX ALGORITHM PERFORMANCE

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Introduction: Surveillance colonoscopy in patients with Inflammatory Bowel Disease (IBD) poses a unique challenge due to the subtle nature of flat dysplasia. But this challenge is further compounded by the number of additional lesions seen as a result of inflammation, such as pseudo-polyps and inflammatory polyps which can result in additional biopsies or unnecessary resection. Computer aided diagnosis (CADx) could improve lesion characterisation in this cohort of patients but a dedicated CADx algorithm has yet to be developed. Here we compare the performance of endoscopists and an existing generic colon CADx algorithm on lesion characterisation in IBD patients.
Aims & Methods: In phase 1, endoscopist performance on image based characterisation was assessed using still images of lesions in patients with IBD. Frames were taken in both white light imaging (WLI) and Image Enhancement (IE). Images were checked by an independent reviewer for the quality of images. Characterisation was then performed by 12 endoscopists (6 experts who regularly perform IBD surveillance and 6 non-expert) who categorised them as neoplastic (adenoma with low or high grade dysplasia) or non-neoplastic (hyperplastic, regenerative, inflammatory or pseudo-polyps).

In phase 2, an existing generic colon CADx algorithm was used in video based analysis of prospectively collected IBD colonoscopy videos. Lesions were characterised as neoplastic or non-neoplastic. Ground truth in both phases was histology.
Results: In phase 1, 57 lesions (34 neoplastic, 23 non-neoplastic) were characterised by endoscopists. For non-experts, sensitivity, specificity and accuracy were 73.0%, 55.3% and 65.9% respectively on white light and 73.9%, 49.1% and 64.7% on IE. For expert endoscopists, sensitivity, specificity and accuracy were 70.1%, 66.7% and 68.7% respectively on WLI and 78.3%, 60.8% and 72.0% on IE.

In phase 2, full withdrawal videos in 20 patients undergoing surveillance colonoscopy were collected. 17 patients had Ulcerative Colitis, 3 patients had Crohn's disease. 86 lesions were identified (21 neoplastic, 65 non-neoplastic). Video based CADx performance for sensitivity, specificity and accuracy was 88.89%, 80.64% and 74.44% respectively.

	Non-expert		Expert		CADx
	WLI	IE	WLI	IE	
Sensitivity (%)	73.0	73.9	70.1	78.3	88.9%
Specificity (%)	55.3	49.1	66.7	60.8	80.6%
Accuracy (%)	65.9	64.7	68.7	72.0	74.4%

Table 1. Performance of endoscopists vs CADx.

Conclusion: Our data highlights the challenges of lesion characterisation IBD patients, with a low sensitivity and specificity in both experts and non-experts. In particular, non-experts have a very low specificity meaning there may be a high number of unnecessary resections/biopsies performed. A generic CADx algorithm performed better than endoscopists and with dedicated training of this algorithm with IBD lesions could further improve characterisation and reduce the number of non-neoplastic lesions which are removed.
Disclosure: Professor Bhandari has received research grants or is the advisory board for Fujifilm, Boston, Olympus, Pentax, 3-D matrix, NEC (Japan), Medtronic.

PP0677

TIME TO INFLAMMATORY BOWEL DISEASE DIAGNOSIS FOR PATIENTS PRESENTING WITH ABDOMINAL SYMPTOMS IN PRIMARY CARE AND ASSOCIATION WITH EMERGENCY HOSPITAL ADMISSION AND SURGERY; A RETROSPECTIVE COHORT STUDY

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Introduction: Making an Inflammatory Bowel Disease (IBD) diagnosis can be challenging as symptoms may mimic more common conditions such as irritable bowel syndrome or haemorrhoids. This can lead to delays in IBD diagnosis, which can be associated with the need for more complex treatment or surgery.
Aims & Methods: This study aims to quantify the time to diagnosis for IBD and examine associations with patient characteristics and faecal calprotectin (FC) and its impact on surgery and emergency hospital admissions. A retrospective cohort study was conducted using Clinical Practice Research Datalink (CPRD AURUM) from 1st Jan 2007 to 31st Dec 2019. Adult patients were followed from when they first presented with symptoms, signs, test results or alternative diagnosis potentially related to IBD in primary care in the 3 year period prior to IBD diagnosis. The association between patient level factors and FC with the time to IBD diagnosis were examined using logistic regression analysis. We examined changes in time to IBD diagnosis over the 10 year study period. The association of time to IBD diagnosis with IBD related surgeries and emergency admissions was also examined.
Results: Of 28,092 IBD patients: 60.0% ulcerative colitis (UC) and 40.0% Crohn's disease (CD). Median age 43(IQR 30-58) years; 51.9% female. Median time to diagnosis 15.6 (IQR 4.3- 28.1) months; UC 13.8 (3.2-27.1) months and CD 17.8 (6.5-29.2) months.
Factors associated with over 12 months to IBD diagnosis: female ((OR 1.64(95%CI 1.56-1.72)); Black (1.45(1.20-1.76)) or Asian ethnicity (1.55(1.40-1.72); older age compared to 18-30 years (>70 1.14(1.03-1.27));

obesity (1.09(1.01-1.17)); smoking (1.13(1.06-1.20)); lower socioeconomic status (1.15 (1.06-1.25)); anxiety (1.15(1.07-1.24)); depression (1.19(1.11-1.28)); non-steroidal anti-inflammatory drugs (NSAIDs) (1.45(1.33-1.59)); loperamide (1.56 (1.31-1.86)) and increasing comorbidity Charlson score >2 (1.46(1.32-1.61)).

Only 11.3% of IBD patients had FC testing. Time to diagnosis from FC date was median 4.0 (IQR 1.8- 8.8) months. Higher FC levels were associated with decreasing time to IBD diagnosis: 500-1000 (0.76 (0.66-0.89)),>1000 (0.61(0.51-0.72)).

No improvement in time to IBD diagnosis was observed over the last 10 years: 2010-2011 (14.4 (3.6 -27.6) months) compared to 2018-2019 median (15.6 (4.8-28.8) months).

Patients with time to diagnosis in highest quartile were at lower risk of surgery within a year of diagnosis (HR 0.91(0.81-1.03) but had more IBD related emergency admissions after diagnosis (IRR 1.06 (1.01-1.11).

Conclusion: Longer times to diagnoses were associated with females, minority ethnicities, increasing age, increasing comorbidity, deprivation, obesity, anxiety, depression, NSAIDs and loperamide use. Faecal calprotectin testing reduced time to diagnoses. Higher number of IBD related emergency admissions were observed in patients with a prolonged time to diagnosis.

Disclosure: No conflict of interest to declare.

PP0678

DEVELOPMENT OF A RISK PREDICTION TOOL FOR INFLAMMATORY BOWEL DISEASE (IBD) IN PATIENTS PRESENTING IN PRIMARY CARE WITH ABDOMINAL SYMPTOMS, A UK BASED STUDY.

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Introduction: There are no prediction models for a diagnosis of inflammatory bowel disease (IBD) in primary care. Our aim was to develop an IBD risk prediction tool to reduce the length of time patients have undiagnosed IBD symptoms and improve IBD clinical outcomes.

Aims & Methods: We developed and internally validated a risk prediction tool for the diagnosis of IBD, ulcerative colitis (UC) and Crohn's disease (CD).

A population-based retrospective open cohort study using Clinical Practice Research Datalink (CPRD) database was undertaken between 1st January 2010 and 31st December 2019 of all the patients aged 18 years or older. Patients were followed from first presentation with lower gastrointestinal (GI) symptoms potentially related to IBD to IBD diagnosis. Candidate predictors were chosen based on clinical and substantive knowledge. Cox proportional hazards regression with backward elimination was used for model development of IBD, UC and CD risk prediction models. The predictive performance of the models was assessed using discrimination (C-statistic). Internal validation using 1000 bootstrap sampling repetitions was used to estimate the optimism-corrected measures of predictive performance.

Results: Of 2,056,398 patients with lower GI symptoms: 11,192 patients had an IBD diagnosis (7033 UC (62.8%) and 4138 CD (37.0%)). The final IBD model included demographic factors (age, sex, ethnicity, smoking, index of multiple deprivation, body mass index, Charlson comorbidity index, loperamide use) co-existing conditions (anxiety, depression, irritable bowel syndrome (IBS), haemorrhoids), extraintestinal (EIM) manifestations (mouth ulcers, ophthalmic, primary sclerosing cholangitis, dermatological), laboratory investigations (low haemoglobin (Hb), low Mean Corpuscular volume (MCV), low albumin, low ferritin, raised C-reactive protein (CRP), raised Erythrocyte Sedimentation Rate (ESR), raised calprotectin level). The UC model included all above except mouth ulcers, IBS, ophthalmic EIM. Depression and ferritin were excluded in the CD model though low vitamin B12 level was included. The risk score for each patient was the sum of individual risk factors. In the development dataset, models showed moderate discrimination.

For the IBD prediction tool: C-statistic 0.71 (95% CI 0.70-0.71),UC prediction tool: C-statistic 0.70 (95% CI 0.69-0.70) and CD prediction tool: C-statistic 0.75 (95% CI 0.74-0.76). The C-statistics of the models showed that the IBD, UC and CD prediction tools reliably differentiated patients with and without IBD,UC and CD respectively.

Conclusion: A risk score of patient demographics, symptoms and investigations performs well for IBD,UC and CD and may help in prioritising suspected IBD referrals in symptomatic subjects in primary care.

Disclosure: No conflict of interest to declare

PP0679

REDUCING DIAGNOSTIC DELAY OF EXTRA-INTESTINAL MANIFESTATIONS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASES: A COMPARATIVE STUDY OF A MULTIDISCIPILINARY IMMUNE-MEDIATED DISEASES OUTPATIENT CLINIC AND CONVENTIONAL REFERRAL SPECIALISTS

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Introduction: Extraintestinal manifestations (EIMs) can occur in up to 47% of patients diagnosed with inflammatory bowel disease (IBD); hence the early detection of EIMs in IBD patients is crucial to prevent a disabling disease clinical course.

However, there is a substantial variation in the reported time to diagnosis of EIMs due to a lack of a standardised approach. The clinical characteristics leading to the diagnosis were rarely specified, and the diagnostic accuracy could depend on the experience of the individual specialist.

Conversely, care for IBD patients with EIMs should be multidisciplinary. We, therefore, evaluated the length of time to diagnose EIM through an integrated immune-mediated diseases (IMIDs) outpatient clinic compared to a conventional diagnosis and the impact of diagnostic delay on the disease course of IBD.

Aims & Methods: We conducted a single-center cohort observational study including IBD patients ≥18 yo presenting red flags for EIMs who underwent outpatient visits through a multidisciplinary IMIDs clinic between 2020-2022 and we compared this group to a historical cohort, with similar clinical features, who underwent conventional visits by individual referral specialists from 2017 to 2019.

The primary outcome was to assess the diagnostic delay, defined as the period from the occurrence of red flags onset to diagnosis of EIM.

Secondary endpoints included the rate of EIMs diagnosis in patients with red flags referred to IMIDs clinic and the impact of diagnostic delay on clinical outcomes, including therapeutic changes.

Results: We enrolled 176 IBD patients; 90 were referred to the IMIDs Clinic Group (IMID-G) and 86 to the Standard Outpatient Clinic group (SOC-G). Demographic details are summarised in Table 1.

Demographic characteristics	IMIDs Clinic Group (n=90)	Standard Outpatient Clinic Group (n=86)
Sex		
- Female	55 (61.1%)	53 (61.6%)
- Male	35 (38.9%)	33 (38.4%)
UC patients	41 (45.6%)	38 (33.2%)
- Proctitis	8 (19.5%)	5 (13.1%)
- Left colitis	16 (39%)	18 (47.3%)
- Pancolitis	17 (41.5%)	12 (31.6%)
CD patients	49 (54.4%)	48 (55.8%)
CD Montreal disease localization		
- Ileal	19 (38.8%)	16 (33.3%)
- Colonic	7 (14.3%)	7 (14.6%)
- Ileocolonic	23 (46.9%)	25 (52.1%)
CD Montreal disease behaviour		
- Inflammatory	15 (30.6%)	14 (29.2%)
- Stricturing	18 (36.7%)	21 (43.8%)
- Penetrating	16 (32.7%)	13 (27.1%)
Red flags for IMIDs		
- Chronic back pain	26 (28.9%)	26 (30.2%)
- Peripheral arthralgia	24 (26.7%)	31 (36%)
- Enthesitis	2 (2.2%)	-
- Dactilitis	7 (7.8%)	3 (3.5%)
- Skin erythema	22 (24.4%)	14 (16.3%)
- Skin ulcers	9 (10%)	12 (14.0%)

The average time to EIMs diagnosis was 2.6±1.7 months for IMID-G and 4.4±1.9 months for SOC-G, p<0.05. In both groups, the majority of patients referred red flags for spondyloarthritis (SpA). In IMID-G , chronic back pain was reported by 28.9% of patients and peripheral arthralgia by 26.7%, similarly in SOC-G , 30.2% had chronic back pain and 36% had peripheral arthralgia. At six months, 77 (85.5%) patients with red flags referring to the IMIDs clinic received diagnoses of EIMs, compared to 52 (60.5%) of those referred to the specialist of reference (p<0.05). Overall in IMID-G, 19 (21.1%) patients were diagnosed with peripheral arthritis and 28 (31.1%) with SpA, compared to 15 (17.4%) with peripheral arthritis and 21 (24.4%) with SpA in SOC-G. Survival curves were plotted to analyse the probability of diagnostic delay of EIMs between IMID-G and SOC-G and showed a significant reduction of diagnostic delay in IMID-G (log rank test, p=0.001). Additionally, in IMID-G, 42 patients (46.6%) changed therapy, and 13 (14.4%) added steroids in comparison to 27 (31.4%) and 11 (12.8%) respectively in the SOC-G cohort (p<0.05).

Conclusion: Attendance at a dedicated IMIDs clinic can improve the diagnostic process of EIMs in an IBD cohort and reduce the diagnostic delay. The most common EIMs were SpA and peripheral arthritis. This multidisciplinary approach can help to avoid diagnostic delays, choose the correct therapies, prevent complications, and improve clinical outcomes and hence the quality of life.

Disclosure: Nothing to disclose.

PP0680

CLINICAL PERFORMANCE OF FOUR FECAL CALPROTECTIN ASSAYS FROM SMARTPHONE-BASED HOME TEST TO HIGH THROUGHPUT CENTRAL LAB METHODS

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Introduction: Endoscopy is the gold standard for detecting mucosal inflammation in order to differentiate between Irritable Bowel Syndrome (IBS) and Inflammatory Bowel Disease (IBD) as well as for monitoring mucosal inflammation in diagnosed IBD patients. Fecal calprotectin has been established as an excellent surrogate biomarker of intestinal inflammation as it correlates well with endoscopic and histological disease activity. Most IBD diagnosis and treatment guidelines recommend using fecal calprotectin as an *aid in diagnosis* and to measure it routinely to follow the disease course in IBD patients. As there is no international standard to date, fecal calprotectin assay manufacturers rely on their own internal calprotectin standardization.

Assays can be based on various technologies from traditional enzyme-linked immunosorbent assays (ELISA), particle enhanced turbidimetric high throughput assays (PETIA), to rapid lateral flow assays (LFA). LFAs can be read by conventional tabletop lateral flow readers or by everyday smartphone applications using the phone's camera to acquire an image, detect the test cassette and calculate a quantitative result. It is essential that the biomarker is measured comparably across all assay methods. In this work, different assay methods were compared with clinical samples using a clinically relevant assay range.

Aims & Methods: 128 raw stool samples from patients with signs and symptoms suggesting intestinal inflammation and who underwent endoscopic evaluation to determine if patients had IBD or IBS were used in this study. Samples were extracted using the BÜHLMANN CALEX Cap stool extraction device. Each extract was measured on the BÜHLMANN fCAL ELISA, fCAL turbo (PETIA), Quantum Blue fCAL extended lateral flow assay and smartphone based IB*Doc* fCAL home test. For the home test two phones, iPhone 11 and Samsung Galaxy S7, were used to measure the test cassettes. Each sample was measured one time on each assay and a Receiver Operating Characteristic (ROC) curve analysis was performed.

Results: ROC curves for each method were calculated in respect of differentiating between IBS and IBD with area under the curve (AUC) values ranging from 0.827 (Samsung Galaxy S7)) to 0.835 (fCAL turbo). There was no significant difference between the methods. BÜHLMANN uses a cut-off of 80 µg/g and 160 µg/g for IBS/IBD differentiation and 100 µg/g and 300 µg/g for IBD monitoring.

For all methods, the sensitivity at the cut-off level of 80 µg/g was 90.8 % and specificity at 160 µg/g ranged from 67.3% to 71.2 %. Sensitivity at a cut-off of 100 µg/g ranged from 85.5% to 88.2% and specificity at 300 µg/g ranged from 82.7% to 86.5%.

Conclusion: This study shows that all BÜHLMANN fecal calprotectin assays are very comparable. They show an excellent clinical performance irrespective of the assay method performed. This allows for the use of the methods interchangeably, depending on the needs of the patients and their care team.

Disclosure: Authors are employee of BÜHLMANN Laboratories AG

PP0681

IMPACT OF MICRONUTRIENT DEFICIENCY IN AN IBD COHORT ON RESPONSE TO COVID-19 BOOSTER VACCINATION

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Introduction: Essential trace elements such as selenium (Se), copper (Cu) and zinc (Zn) are important in regulating the immune system. Deficiency in these elements can correlate with disease severity and mortality in COVID-19 infection; however, their observed impact on immune responses to COVID-19 vaccination is mixed.

Our aim was to determine the association between sub-optimal Se, Cu and Zn status in patients with inflammatory bowel disease (IBD) on Spike Protein (SP) immunoglobulin (Ig)G levels post-vaccination against COVID-19 and prevalence of SARS CoV2 infection.

Aims & Methods: IBD patients and healthy controls (HC) were recruited prospectively from four hospitals. Quantitative antibody responses, Se, Cu, Zn, ferritin, selenoprotein P (SELENOP) and Glutathione peroxidase 3 (GPx3) concentrations were assessed following third COVID-19 vaccination. Infection with COVID-19 was defined by a positive IgG nucleocapsid antibody test (IgGNC).

Results: 165 participants were included in analysis (117 IBD patients and 47 HC). We observed no statistically significant difference in median Cu (p = 0.06), Zn (p = 0.44), Se (p = 0.78), GPx3 (p = 0.28) or ferritin concentrations (p = 0.51) dependent on previous COVID-19 infection.

Participants with a previous history of COVID-19 infection had statistically significant lower SELENOP concentrations (3.9 versus 4.34 mg/L, p = 0.05). Ferritin (p = 0.14), Se (p = 0.34)(Table 1), Zn (p = 0.45), GPx3 (p = 0.59) nor Cu concentrations (p = 0.14) showed no relationship with vaccine response.

We observed participants with lower SELENOP concentrations (<3 mg/L) had significantly lower anti-SP IgG levels (5,250 versus 11,385 AU/ml, p = 0.05), which appears to be driven by the differences in patients with IBD (5,003 versus 8,190 AU/ml, p = 0.08) (Table 1).

	Selenium level (<65 ug/L)	Selenium level (>65 ug/L)	P value
Total	6,378 (2,989 – 28,904) (n = 41)	11,021 (5,003 – 28,710) (n = 123)	0.34
HC	15,617 (8,722 – 34,896) (n=9)	20,569 (10,571 – 31,890) (n = 38)	0.66
IBD	5,512 (1,946 -28,390) (n=32)	8,190 (3,675 – 21,953) (n=85)	0.42
	SelenoP (< 3 mg/L)	SelenoP (> 3 mg/L)	P value
Total	5,250 (1,876 – 18,151) (n=25)	11,385 (5,428 – 29,120) (n=140)	0.03
HC	26,702 (17,929 - _) (n=2)	18,363 (10,018 – 31,694) (n=45)	0.57
IBD	5,003 (1,797 – 14,893) (n=23)	8,190 (3,616 – 26,023) (n=95)	0.08

Table 1.

Conclusion: Lower SELENOP concentrations are associated with previous SARS CoV-2 infection and decreased anti-SP IgG levels in response to COVID-19 vaccination. The impact of SELENOP concentrations on COVID-19 infection and vaccine response requires further validation and investigation in prospective studies to better understand the mechanisms of attenuated response in patients with IBD.

Disclosure: Nothing to disclose.

PP0682

NON-INVASIVE THERMAL IMAGING - A NOVEL AND ACCURATE METHOD FOR THE DEFINITION OF DISEASE ACTIVITY IN CROHN'S DISEASE

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Introduction: Crohn's disease (CD) is a chronic inflammatory bowel disease that is characterized by periods of active inflammation followed by periods of remission. Current Methods for defining Crohn's disease activity are limited by various factors including low specificity, bias, invasiveness, high costs, radiation exposure and patient preference. Therefore, an easy, noninvasive, inexpensive, user-friendly, and repeatable method for the assessment of disease activity is warranted. Abnormal body temperature is a natural indicator of illness. Infrared thermography (IRT) can map body surface temperature remotely.

With the advent of modern infrared cameras, data acquisition, and processing techniques, it is now possible to have real-time high-resolution thermographic images. Inflamed bowel loops are hyper-vascular and hyperemic, as detected by high doppler signs of intestinal ultrasound and bowel wall contrast enhancement in MRE, and therefore can be detected using IRT.

Aims & Methods: Our aim was to examine thermal imaging using IRT as a noninvasive tool for detecting bowel wall inflammation and disease activity in Crohn's disease patients.

The design of the study was prospective non -interventional. Consecutive adult CD patients referred for an intestinal ultrasound (IUS) exam were included, and adult healthy volunteers were recruited from the general population. Thermal images were captured using a FLIR ONE thermal camera device (FLIR Systems, Inc. Wilsonville, OR, USA) that connects directly to smartphones and utilizes a frame rate frequency of 8.7 Hz, an object temperature range of -20°C to 120°C and thermal sensitivity of 100 mK . Disease activity was defined using IUS. Thermal images of the study population were processed and compared to the results of IUS in all participants. Our novel thermal image processing algorithms extracted texture and shape features of temperature distribution across the skin covering the region of interest (ROI).

Results: The study cohort included 147 CD patients and 14 healthy volunteers. Using IUS, disease activity was found in 100 CD patients (68%). All 14 healthy volunteers had a normal IUS. The average abdominal temperature measured in the Crohn's patients (both active and inactive) was significantly higher than that of the healthy volunteers ($30.4^0 \pm 2.9^0$ C vs. $28^0 \pm 2.9^0$ C, p=0.0032).

The average abdominal temperature measured in the Crohn's group with the active disease was also found to be significantly higher than that of the healthy volunteers (30.4±2.99 C vs. $28^0 \pm 2.9^0$ C, p=0.0035). To differentiate between active CD and CD in remission, a new parameter was defined

and extracted: the fractal dimension of gradient magnitude (FDGM). The mean FDGM was significantly higher in patients with active disease than in patients with normal IUS (1.66 vs 1.63, p=0.045).

Conclusion: We describe a novel easy-to-use tool for monitoring disease activity in CD. This new method can potentially be used by patients at home as well as an office-based exam that allows precise disease follow-up and disease activity monitoring.

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PP0683

MANAGEMENT AND OUTCOME OF CYTOMEGALOVIRUS INFECTION IN ULCERATIVE COLITIS PATIENTS

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Introduction: Ulcerative colitis (UC) is often complicated by Cytomegalovirus (CMV) colitis. The importance of CMV infection for the outcome of UC is still ill-defined. Common practice consists of obtaining colonic biopsies to search for CMV in patients with UC flares and treat infections with ganciclovir.

Aims & Methods: The aim of the present study is to describe the characteristics and management of patients with UC and concomitant CMV infection. For this purpose, we conducted a retrospective data collection from 2 Greek hospitals for the years 2017-2023.

The primary endpoint was defined as the need for colectomy in the first year after CMV infection diagnosis. The statistical program SPSS-23 was used for the analysis.

Results: In total, 47 cases of CMV infection in 37 patients with UC were reported as 7 patients experienced CMV recurrence. Most cases were observed in men (68%) with mean age of 47.5 years (SD 18.2), median UC duration 3 years (IQR 1-8) and Montreal classification E2 in 31.9% and E3 68.1% occasions.

The diagnosis was established by PCR in colonic biopsies in 46.8% cases, by immunohistochemistry in another 46.8% and solely by detection of inclusion bodies in 6.4%. At the time of diagnosis of CMV infection 7 (14.9%) cases were receiving combination therapy with a biologic agent and an immunomodulator, 20 (42.6%) monotherapy with a biologic agent, and 1 (2.1%) monotherapy with an immunomodulator. Nineteen patients (40.4%) were not on immunomodulatory therapy.

Most patients (22, 46.8%) received ganciclovir and concomitant corticosteroids, while 4 (8.5%) received infliximab, corticosteroids and ganciclovir and 2 (4.3%) ustekinumab, corticosteroids and ganciclovir. One case required treatment with Foscarnet due to CMV resistance to ganciclovir, and 18 received monotherapy with ganciclovir.

Regarding maintenance treatment in patients who did not require immediate colectomy, 18 (38.3%) received anti-TNF, 6 (12.7%) ustekinumab, 4 (8.5%) vedolizumab, 3 (6.4%) tofacitinib and 1 (2.1%) risankizumab. Colectomy rate in the first year after CMV infection was 21.3% with 4 patients undergoing surgery during initial hospitalization. In univariate logistic regression age >54 years (*P*=0.025), disease duration >6.5 years (*P*=0.035), serum albumin <3.8 mg/dl (*P*=0.026), UC PRO bowel movement >2 (*P*=0.016) and vedolizumab (*P*=0.035) as treatment at diagnosis were associated with a higher probability of colectomy in the first year.

Accordingly, in multivariate logistic regression UC PRO bowel movement >2 (*P*=0.041) remained a statistically significant factor for colectomy while a tendency remained for albumin <3.8mg/dl (*P*=0.082).

Conclusion: CMV infection is more common in patients with ulcerative pancolitis under immunomodulatory treatment and should be diagnosed via a combination of immunohistochemistry and PCR in biopsies. Patients with prominent diarrhea [UC PRO bowel movement >2] may be particularly prone to colectomy.

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PP0684

INTESTINAL ULTRASOUND COMBINED TO FECAL CALPROTECTIN IS EFFECTIVE TO PREDICT ENDOSCOPIC MUCOSAL HEALING IN ULCERATIVE COLITIS: A CROSS-SECTIONAL STUDY

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Introduction: In the "treat-to-target" era, the development of non-invasive markers to assess endoscopic healing in ulcerative colitis (UC) is essential. Fecal calprotectin (FC) and intestinal ultrasound (IUS) are alternatives to colonoscopy to assess UC activity. The objective of this study was to evaluate the performance of IUS and FC to assess endoscopic mucosal healing in UC patient.

Aims & Methods: All consecutive patients between January 2021 and August 2022 with UC who underwent (1) a complete colonoscopy (2) an intestinal ultrasound and/or (3) a fecal calprotectin (4) within 4 weeks were included in a prospective cohort. Bowel wall thickness (BWT) and color doppler signal (CDS) were assessed on each segment. Endoscopic mucosal healing was defined by a MAYO score of 0-1.

Results: A total of 57 patients were included, 57.9% had endoscopic healing (22/57 MAYO 0 and 11/57 MAYO 1). Thirty-two (56.1%) were female, the median age and disease duration were respectively 43 years (IQR, 30-58) and 29 years (IQR, 18-39). Respectively 16 (16/57, 28.1%) and 41 (41/57, 71.9%) patients had BWT < 3 mm and an absence of Doppler signal. The sensitivity (Se), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV) of BWT < 3 mm to predict endoscopic mucosal healing were 37%, 77%, 72% and 44%. The association of the absence of CDS with normal BWT did not modify these performances. The same values for fecal calprotectin < 150 µg/g were respectively 81%, 78%, 84% and 74%. The association of a fecal calprotectin < 150 µg/g, with a BWT < 3mm and the absence of Doppler signal increased the specificity and the PPV (Se 33%, Sp 94%, PPV 89%, VPN 48%). The same values were found for patients classified as MAYO 0 or MAYO 0-1 .

Conclusion: The combination of intestinal ultrasound and fecal calprotectin is effective to identify endoscopic mucosal healing in UC. A stricter definition of ultrasound healing could improve the performance of this tool.

Disclosure: Nothing to disclose.

PP0685

ULTRASOUND IS EFFECTIVE TO IDENTIFY MUCOSAL HEALING IN CROHN'S DISEASE PATIENTS : RESULTS OF A CROSS-SECTIONAL STUDY

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Introduction: Endoscopy is still the gold-standard to assess disease activity in Crohn's disease (CD). Its invasiveness, acceptability and cost limit its use in the era of tight control and treat-to-target. Fecal calprotectin and intestinal ultrasound (IUS) are non-invasive alternatives to colonoscopy to assess disease activity.

The objective of this study was to evaluate the performance of IUS and fecal calprotectin to assess mucosal healing in CD.

Aims & Methods: All consecutive CD patients who underwent colonoscopy for mucosal healing assessment and IUS and/or calprotectin within 4 weeks between September 2019 and April 2022 were included in a prospective cohort. Bowel wall thickness (BWT) and color doppler signal (CDS) were assessed on each segment. Endoscopic mucosal healing was defined by a CDEIS score < 3.

Results: A total of 153 patients were included, of whom 122 had endoscopic mucosal healing. Eighty-two (53.6%) were female, the median age and disease duration were respectively 36 years (IQR, 28-46) and 10 years (IQR, 4-19). Respectively 56 (56/120, 46.7%) and 93 (93/120, 77.5%) patients presented a BWT < 3 mm and an absence of CDS. The sensitivity (Se), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV) of BWT < 3 mm to predict endoscopic mucosal healing were 56%, 88%, 95% and 36% (patients misclassified as endoscopic mucosal healing 2.5%). The association of an absent of CDS with a normal BWT did not modify the performances. For a calprotectin < 250 µg/g , The Se, Sp, PPV and NPV were respectively 91%, 63%, 90% and 67% for (patients misclassified 8%). The association of a calprotectin < 250 µg/g, with a BWT < 3 mm and the absence of CDS increased the specificity and the PPV (Se 58%, Sp 95%, PPV 97%, VPN 43%, patients misclassified 1%).

Conclusion: Ultrasound is an efficient non-invasive tool to identify patients with Crohn's disease who have achieved endoscopic mucosal healing.

Disclosure: Nothing to disclose.

PP0686

TRANSMURAL HEALING IS NOT ASSOCIATED WITH LESS DISABILITY THAN COMPLETE ENDOSCOPIC MUCOSAL HEALING: A PROSPECTIVE STUDY IN CROHN'S DISEASE PATIENT

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Introduction: Crohn's disease (CD) is associated with disability by affecting physical and emotional well-being, and by altering social interactions. In the era of treat to target, endoscopic remission has become the therapeutic target to prevent parietal destruction and disability. A deeper remission such as transmural healing would reduce long-term complications related to CD. The impact of transmural healing on disability is currently unknown.

Aims & Methods: We conducted a monocentric cross-sectional study between September 2019 and January 2022. Patients followed for CD in endoscopic remission (CDEIS <4) who underwent within < 4 weeks an intestinal ultrasound (IUS) and a disability assessment by an IBD-disk were consecutively included. Four groups were considered: (A) transmural healing defined by the combination of complete endoscopic healing (CDEIS=0) and ultrasound healing (bowel wall thickness (BWT) less than 3 mm), (B) complete endoscopic healing, (C) ultrasound healing and (D) no healing. Moderate to severe disability was defined as an overall score ≥ 40.

Results: A total of 85 patients were included. Forty-four (51.7%) were female, the median age and disease duration were respectively 38 years (interquartile range [IQR], 33-44) and 12.0 years (IQR, 5-20). There was no difference between the four groups in terms of age, sex, BMI, smoking status, disease location or phenotype or number of biologics failure. The median global IBD-Disk score was 25 (IQR, 9-41) and 24 patients (28.2%) had moderate to severe disability. Transmural healing (group A) was observed in 40 patients (47.1%). Moderate to severe disability was identified in 17.5% (7/40) of patients with transmural healing, 25% (4/16) with endoscopic healing, 44.4% (8/18) with ultrasound healing and 45.4 % (5/11) without healing. In univariate analysis, transmural healing reduced the risk of severe disability (group C vs A OR = 3.77, 95% CI [1.10, 13.45], p = 0.035), group D vs A OR = 3 .75, 95% CI [0.91, 17.12], p=0.063). There was no difference in terms of severe disability between patients with transmural healing and complete endoscopic healing (group B versus A OR = 1.57 95% CI [0.36, 6.23], p = 0.525)

Conclusion: Transmural healing did not provide any benefit in terms of disability compared to complete endoscopic healing. Mucosal healing therefore remains the objective to be achieved in order to reduce the risk of short-term disability.

Disclosure: Nothing to disclose.

PP0687

THE BURDEN OF BOWEL URGENCY IN ULCERATIVE COLITIS: A FRENCH MULTICENTRIC REAL-LIFE STUDY (THEFAR)

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Introduction: Bowel urgency (BU) is the sudden or immediate need to have a bowel movement. Although it is a common symptom in ulcerative colitis (UC), its burden is poorly known. We aimed to assess the overall burden of UC patients with BU.

Aims & Methods: The THEFAR study is a non-interventional, cross-sectional and multicenter study carried out in France between July and December 2022 including adult patients with UC treated with biologics/targeted-synthetic drugs. Clinical and therapeutic management data were collected by gastroenterologists using a e-CRF. Quality of life, disability and work impairment (WPAI:UC) were collected using patient-self completion questionnaires. BU was defined as a UNRS (0-10 Urgency Numeric Rating Scale) >1, BU remission as a URNS ≤1 and incontinence as a Wexner score ≥5. Descriptive statistics and bivariate analyses were performed. Continuous variables were summarized with mean values and SDs using the Student's t-test or Wilcoxon test. Categorical variables were expressed as proportions and compared using the Pearson's Chi-Squared test or Fischer's exact test.

Results: Of the 293 patients enrolled at 41 sites, the median (IQR) age was 42.0 (31.0-55.0) years with a median (IQR) disease duration of 6.0 (3.0-11.0) years. 64.2% were employed. Respectively, 45 (15,4%), 117 (39.9%) and 131 (44.7%) had proctitis, left-side colitis and pancolitis. 38.9% had active

disease (partial Mayo score ≥2) and 53.6% experienced flares over the past year. Overall, 144 (49.1%) of patients were treated with TNF-inhibitors, 99 (33.8%) with vedolizumab, 35 (11.9%) with ustekinumab, and 13 (4.4%) with tofacitinib with a median treatment duration of 1.0 year (0.0 - 3.0). Of the 291 patients who answered patient-self completion questionnaires, 57.0% had BU [median (IQR) UNRS: 2 (0.0-6.0)] and 78.3% had fecal incontinence [median (IQR) Wexner score: 8.0 (5.0-11.0)] with 14.7% wearing pads at least once a month. Overall, half of patients (52.3%) had both BU and fecal incontinence. A significantly higher proportion of patients had active disease with BU (57.2%) compared to those with BU remission (15.2%) (p<0.0001). Patients with BU had twice more months flaring over the past year (2.3 vs 1.0 month, p<0.0001) and a significantly higher proportion of patients with BU (45.8% vs 14.4%, p<0.0001) received steroids over the past year. Rates of BU were similar regardless of disease location (p=0.74), UC treatment (all UC treatments p>0.05) or line of therapy (p=0.27). Median (IQR) Wexner score was almost twice higher in patients with BU [10.0 (8.0-13.0) vs 6.0 (0.0-8.0), p<0.0001]. QoL was significantly impacted in patients with BU with lower mean (SD) EQ-5D-5L utility [0.846 (0.186) vs 0.943 (0.099), p<0.0001] and Visual Analogue Scale (VAS) scores [66.2 (18.2) vs 82.1 (14.5), p<0.0001]. There was a significantly higher proportion of patients with moderate to severe disability (IBD-DISK score ≥40) in patients with BU (53.7% vs 16.9%, p<0.0001) and BU was significantly associated with the IBD-DISK (r=0.52447, p<0.0001). Mean (SD) absenteeism [11.5% (25.4) vs 3.9% (12.5), p=0.0013], overall work impairment [35.7% (29.4) vs 11.3% (18.9), p<0.0001] and activity impairment [33.0% (27.0) vs 7.9% (13.7), p<0.0001] were significantly higher in patients with BU.

Conclusion: Despite advances in UC therapies, more than one in two patients treated with biologics/targeted-synthetic drugs experience BU. Patients with BU have a high symptom burden, disability and impaired quality of life and work productivity. These findings highlight that the control of BU remains an unmet medical need in UC patients.

Disclosure: AbbVie, Ferring, Janssen, MSD, Takeda, Pfizer, Celgene, Biogen, Amgen, Boehringer Ingelheim, Lilly, Hospira et Celltrion.

PP0688

A GLOBAL CONSENSUS ON THE DEFINITIONS, DIAGNOSIS AND MANAGEMENT OF FIBROSTENOSING SMALL BOWEL CROHN'S DISEASE

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Introduction: Small bowel fibrostenotic strictures are common in patients with Crohn's disease (CD). No global consensus recommendations on definitions, diagnosis and clinical management are available.

Aims & Methods: Several systematic reviews followed by a RAND/University of California Los Angeles appropriateness study on the definitions, diagnosis and clinical management of fibrostenosing CD in clinical practice were performed. A panel of 27 global experts and a patient representative were convened. They assessed a total of 152 candidate items. The items were subsequently evaluated for appropriateness.

Results: No accurate predictive biomarkers are available for naïve or anastomotic fibrostenosing strictures. Accurate diagnosis of fibrostenosing CD requires cross-sectional imaging which should evaluate bowel wall thickness, luminal narrowing and prestenotic dilatation. A potential inflammatory component should be assessed. Abdominal cross-sectional imaging was considered necessary prior to any treatment decision. The panel proposed an approach to medical, endoscopic, and surgical therapies. Technical characteristics for endoscopic balloon dilation and follow up strategies after successful dilation therapy were identified. Appropriateness, types and performance of different surgical approaches in various settings were evaluated.

Conclusion: This global consensus provides clinical guidance for the diagnostic and therapeutic management of patients with fibrostenotic CD.

Disclosure: Nothing to disclose.

PP0689

ARE RECTAL OR RECTOSIGMOID ENDOSCOPY SUFFICIENT TO ASSESS COMPLETE ENDOSCOPIC OR HISTOLOGICAL HEALING IN ULCERATIVE COLITIS: A CROSS-SECTIONAL STUDY

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Introduction: At the time of treat to target, endoscopic healing is the goal to achieve in ulcerative colitis (UC). Colonoscopy (CO), rectosigmoidoscopy (RS) or rectoscopy can be performed to assess endoscopic healing. The objective of this study was to compare the performance of rectosigmoidoscopy with colonoscopy to predict endoscopic healing (EH) and histological healing.

Aims & Methods: This is a monocentric, prospective cohort of UC patients. All UC patients with a total colonoscopy were included between January 2021 and January 2023. Endoscopic and histological activity were measured using the MAYO endoscopic scores on each colonic segment and the Nancy Score, respectively. The correlation between RS or rectoscopy alone and CO in terms of endoscopic and histological mucosal healing was assessed using Cohen's kappa coefficient.

The study population was calculated according to the following assumptions: (1) absence of rectosigmoidoscopy lesions if absence of total colonoscopy lesions (0%), (2) 10% of lesions not seen in RS, (3) expected difference of 10% between CT and RS. 80 patients had to be included to demonstrate a significant difference in terms of EH between RS and CT with a bilateral alpha risk of 5% and a power of 81%.

Results: 80 patients were included. 34 patients were MAYO 0 in RS and CO, 44 were not healed in RS and CO.. The correlation between the two exams was almost perfect with an index κ of 0.949 (p=0) for MAYO 0 (2 patients misclassified), and κ of 0.945 (p=0) for MAYO 0-1. The correlation between histological healing in RS and CO was almost perfect (κ=0.877, p<0.001). Additionally, the correlation between rectoscopy and CT for the evaluation of mucosal healing MAYO 0 and histological healing was almost perfect (κ=0.826 (p < 0.001) and κ=0.8 (p < 0.001), respectively.

Conclusion: RS is sufficient in UC to assess both endoscopic mucosal healing (whether defined by a Mayo score of 0 or 1) and histological healing. With a false negative rate < 10%, rectoscopy could be a less invasive exam to assess healing in UC.

Disclosure: Nothing to disclose.

PP0690

PERFORMANCE OF INTESTINAL ULTRASOUND SCORES IN DETECTING ACTIVE CROHN'S DISEASE

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Introduction: Many CD patients experience clinically "silent" disease with active inflammation leading to complications and disability. Invasive and resource consuming procedures such as endoscopy, MR enterography and CT imaging have long been the mainstay of monitoring disease activity in CD. Intestinal ultrasound (IUS) is becoming an established non-invasive alternative for everyday point-of-care management of patients with CD. The most important ultrasound parameters associated with active CD include bowel wall thickness (BWT), bowel wall stratification (BWS), color-doppler signal (CDS) and the presence of mesenteric fat (i-fat). Several ultrasound scoring systems using some of these parameteres have been proposed in order to facilitate monitoring of CD patients as well as standardise reporting of intestinal ultrasound findings.

Aims & Methods: The study aim was to compare performance of IBUS-SAS (International Bowel Ultrasound Segmental Activity Score), BUSS (Bowel Ultrasound Score), Simple-US (Simple Ultrasound Score), and SUS-CD (Simple Ultrasound score for Crohn's disease) in detecting disease activity in CD patients. A single center retrospective analysis of stored IUS images and corresponding CD patient charts with endoscopy findings at the time of the ultrasound has been performed. Endoscopic activity was defined as SES-CD>3. After assessment of normal distribution using Kolmogorov-Smirnov and Shapiro-Wilk tests continuous variables were reported as median and interquartile ranges (IQR) or as mean ± standard deviation, whereas categorical variables were reported as frequencies with percentages. ROC curve analyses were conducted in order to determine AUCs and predictive cut-off value scores, with endoscopy serving as the reference standard. The Z statistic and Hanley & McNeil methodology were used to compare ROC curves. P values less than 0.05 were considered statistically significant.

Results: A total of 83 patients were included, 45.8% female with a mean age 41 years and median disease duration of 8 years. Endoscopic disease activity was present in 55 (66.3%) patients. Isolated ileal disease was present in 48.2%. Stricturing and penetrating disease phenotype was present in 41% and 39.8% of patients respectively. The results for ROC analyses, cut-off values for remission, sensitivity and specificity of four different IUS scores are shown in table 1. Statistically significant differences among scores haven't been observed.

	AUC (95% CI)	Cut-off	Sensitivity %	Specificity%
IBUS-SAS	0.736 (0.62-0.85)	24	76,5	56
Simple-US	0.724 (0.61-0.84)	4,25	86,8	52
BUSS	0.718 (0.6-0.84)	4,1	81,5	60,7
SUS-CD	0.721 (0.61-0.84)	1,5	88,7	40

Table 1. Comparison of intestinal ultrasound scores for detecting active Crohn's disease

Conclusion: All IUS scores performed well for detecting CD endoscopic activity which shows IUS can reduce the number of endoscopies in the CD patient population without sacrificing accuracy. We found no significant difference in the sensitivity and specificity of different scores in out patient cohort, hence clinicans can rely on the IUS score they are comfortable with using. Our cut-off values are in line with published data further confirming method robustness.

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PP0691

ANTI-TNF MONITORING EXPERIENCE IN A 3RD LEVEL HOSPITAL IN LATIN AMERICA

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Introduction: Establishing the response to anti-TNF agents is a challenge in developing countries, including Latin America where reports on therapeutic monitoring are limited and empirical optimization is widely used.

Aims & Methods: To describe serum levels of IFX and anti-TNF antibodies (ADA) in a cohort of pediatrics patients from a high complexity hospital and their usefulness in clinical practice. Prospective, descriptive and observational study at Garrahan Hospital from July 2022 to February 2023 that included patients with IBD under treatment with IFX. The study population was divided into 2 groups: Group A patients in induction (determinations in weeks 12-15) and Group B patients in maintenance (determinations immediately prior to the next infusion of the drug). IFX blood levels were estimated as adequate between 3-7 ug/ml and ADA >10 AU/ml were considered high. Response and clinical remission were evaluated using activity scores (PCDAI-PUCAI).

Results: 67 determinations were made in 58 patients, 25 in Group A and 33 in Group B. The characteristics of each group are shown in Table 1. Variables related to the accelerated clearance of the drug were analyzed. Regarding sex, C-reactive protein, Albumin, early biological no significant differences were found with respect to the optimal levels. Patients with BMI<18.5 had suboptimal drug levels compared to eutrophic patients (p:s=0.01). Also non-VEOIBD patients, had significantly higher optimal levels compared to VEOIBD (p:s=0.01). In group A, median serum IFX level was 14 ug/ml (IQR 0-45) and 4 ug/ml (IQR 0.6-45) in group B. Median antibodies levels were 1 AU/ml (IQR 0-32) in group A and 98 AU/ml (IQR 0-252) in group B. No significant differences in levels were found between monotherapy and combined treatment in both groups (p:ns=0.48, p:ns=0.33 respectively); neither were differences found in ADA levels in both groups (p:ns=0.59; p:ns=0.16, respectively).Clinical response was 60%, with 12% achieving clinical remission. 28% were non-responders.

Analyzed by groups: In group A, loss of primary response was detected in 24%. 76% were responders, and 26.3% had to optimize treatment due to partial response. In group B, 35.5% were responders, while loss of response was detected in 64.4%, 24.1% due to pharmacodynamic failure and 75.8% due to pharmacokinetics failure, of which 31.8% also showed immunological mechanism (ADA>10).

	Group A INDUCTION	B Group MAINTENANCE
Pacients / Determinations	25 / 25	33 /42
Sex (M / F)	12 (48%) / 13 (52%)	17 (51%) / 16 (48%)
Age (median)	12 (RIC 2-18)	12 (RIC 1-18)
Phenotype (CD / UC)	22 (88%) / 3 (12%)	25 (81%) / 8 (18%)
VEOIBD	14 (56%)	17 (51%)
BMI body mass index (median)	17.1 (RIC 13.4-26.3)	16.4 (RIC 12.4-26.1)
Biosimilar	14 (56%)	11 (24%)
Optimized dose	12 (48%)	26 (57%)
Immunomodulators	13 (52%)	28 (62%)

Conclusion: The optimal timing for the use of monitoring in anti-TNF treatment of IBD is still debated, existing data on target levels are contradictory. Although the proactive strategy is emerging as a tool that shows a clear benefit, the target values for each phenotype (UC versus CD) and different periods (induction versus remission) are not clearly established, especially in pediatrics.

The treatment should be evaluated individually, prioritizing the benefit of monitoring over costs. Assuming empirically the lack of response implies opting for alternative treatments, which is a challenge when the options in our country are currently limited.

Disclosure: Nothing to disclose.

PP0692

CORRELATION OF CALPROTECTIN AND BOWEL ULTRASOUND IN INFLAMMATORY BOWEL DISEASE (IBD)

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Introduction: One of the challenges in the management of inflammatory bowel disease (IBD) is the noninvasive and accurate assessment of disease activity and the prediction of treatment response and prognosis. Colonoscopy is limited due to its invasiveness; therefore, noninvasive methods are of high clinical relevance. Fecal calprotectin (FC), a surrogate marker for neutrophils, is a clinically relevant biomarker that correlates with intestinal inflammatory activity. Bowel ultrasound (B-US) is an established method that can be performed at any time and at low cost.

Aims & Methods: The aim of this study was to evaluate the correlation between B-US and FC in terms of inflammatory activity and disease severity in IBD patients. Patients were selected from a prospective study to compare FC and B-US. A total of 320 patients, including (n=188) with Crohn's disease (CD), (n=114) with ulcerative colitis (UC), and (n=18) control patients were included for further analysis. FC measurements were performed using the ELISA kit. The inflammatory activity was classified according to the FC cut-off (0: <100, 1: 100-200, 2: 200-400, 3: >400 in mg/g). The evaluation in B-US was based on the thickness of the intestinal wall (none: <2.9, mild: 3.0-4.9, moderate to severe: >5).

Results: Based on FC, patients were divided into inflammatory activity (n=211) and remission (n=109) groups. When comparing B-US and FC, there was a significant correlation regarding inflammatory activity (r=0.59, p<0.001). B-US in MC showed a better correlation (r=0.63, p<0.001) than

CU (r=0.45, p<0.001) with FC. Patients with unremarkable B-US had a median FC of 57.2 mg/g (95%CI: 41.5-94.1) compared to marked inflammation in B-US median 999 mg/g (95%CI: 751.8-1517). Among patients with pathological FC values (cut-off >100 mg/g), 75.4% had sonographic evidence of inflammatory activity. Localization of inflammation in the rectum was associated with lower diagnostic accuracy. Compared to FC, B-US showed a sensitivity of 75.4%, a specificity of 78.9% and a positive predictive value of 87.4%.

Conclusion: B-US shows good diagnostic accuracy compared to FC in assessing inflammatory activity in IBD patients. Both methods can be considered as complementary non-invasive diagnostic tools in IBD.

Disclosure: Alexander Link: speakers fee: Janssen; consulting fee: Ferring.

PP0693

CLINICAL CHARACTERISTICS AND RISK FACTORS OF INFLAMMATORY BOWEL DISEASE WITH METABOLIC DYSFUNCTION-ASSOCIATED FATTY LIVER DISEASE

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Introduction: Metabolic dysfunction-associated fatty liver disease(MAFLD) is one of the most common hepatic comorbidities of inflammatory bowel disease(IBD). The prevalence of MAFLD in IBD patients is higher than that in healthy controls.The purpose of this study was to to analyze the clinical characteristics and differences of patients with inflammatory bowel disease and non-inflammatory bowel disease complicated with MAFLD in China, and to explore the risk factors of patients with IBD complicated with MAFLD, so as to provide evidence for optimizing the prevention and management of IBD patients.

Aims & Methods: 1. Clinical data collection of the included population: 1.1Clinical data of IBD patients admitted to the Gastroenterology Department of the First Affiliated Hospital of Nanjing Medical University from January 2015 to March 2022 were collected. The control group was non-IBD patients from the health management center of our hospital. According to age, gender, BMI and type 2 diabetes, the IBD group and non-IBD group were 1:1 matched. To study the clinical characteristics of IBD with MAFLD.

1.2 The collected IBD group, excluding patients with infectious diseases (including chronic viral hepatitis, tuberculosis infection, Clostridium difficile infection, cytomegalovirus infection, Epstein-Barr virus infection and intestinal fungal infection), were divided into IBD with MAFLD group and IBD without MAFLD group according to whether they met the diagnostic criteria of MAFLD. To study the risk factors of inflammatory bowel disease associated with metabolic fatty liver disease.

2. Diagnostic criteria for IBD and MAFLD:

2.1 The diagnostic criteria for CD and UC in Consensus Opinions on the Diagnosis and Treatment of Inflammatory Bowel Disease (2018).

2.2 The diagnostic criteria for MAFLD refer to Expert Consensus Opinion on Metabolically Associated Fatty Liver Disease (2020). Hepatic steatosis was diagnosed by CT imaging.

3. Statistical methods: SPSS 23.0 was used for statistical analysis, and P<0.05 was considered statistically significant.

Results: 1. Among the 260 patients with IBD, 57 cases had MAFLD, with the prevalence rate of 21.9%, and the prevalence rate of 8.4% (23/274) in the non-IBD group(P < 0.001).

2. The clinical characteristics of patients in IBD with MAFLD group were compared with those in non-IBD with MAFLD group. The prevalence of hypertension, NLR and C-reactive protein levels were higher, while there was no significant difference in blood lipid levels.

3. After the exclusion of infectious diseases, 222 patients with IBD were analyzed to compare the clinical characteristics and risk factors of IBD with MAFLD. It was found that BMI, prevalence of hypertension, IBD duration, white blood cell count, neutrophil count, neutrophil-lymphocyte ratio, C-reactive protein and triglyceride in IBD patients with MAFLD were higher than those in IBD patients without MAFLD (P< 0.05).

4. Logistic regression analysis showed that BMI, hypertension, IBD duration, and white blood cell count were independent risk factors for MAFLD in IBD patients.

Conclusion: The prevalence of MAFLD in IBD patients is significantly higher than that in the non-IBD population when age, sex, T2D and BMI status are matched. Compared with non-IBD patients with MAFLD, IBD patients with MAFLD had a higher prevalence of hypertension, and higher neutrophil lymphocyte ratio, C-reactive protein. Priority screening and monitoring should be considered for IBDs with risk factors for MAFLD development, including high BMI, hypertension, longer IBD duration, and higher white blood cell levels.

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PP0694

TELEMEDICINE IN THE MANAGEMENT OF IBD PATIENTS: A SAFE AND FEASIBILE APPROACH WITH DEDICATED TOOLS

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Introduction: Telemedicine could be an effective tool in the management of chronic diseases such as IBD, by allowing a two-way, real-time interactive communication between the patient and the physician at the distant site.

The Covid 19 outbreak and the social distancing rules led the clinicians to seek for a remote monitoring approach, capable of guaranteeing an adequate follow-up of domiciliary patients.

Aims & Methods: The aim of our study was to develop a telemedicine system suitable for IBD patients, and to verify the effectiveness of the system comparing two different groups of patients, whose follow up was done via

the telemedicine platform or via standard care, respectively, in the IBD clinic of our tertiary referral center.

A pre-existing platform MyHospitalHub Pro used for the remote monitoring of Covid19 patients was adapted in order to include suited parameters for IBD patients. Young patients, with an adequate educational level, who lived far from our center and with a mild disease activity or in remission were asked for participating in the study. One group was enrolled in the telemedicine group. The control group included patients with similar characteristics who refused the remote approach. . Furthermore, we evaluated disease activity using the validated questionnaire MIAH (Monitor IBD At Home questionnaire), and the satisfaction index of patients followed by telemedicine using the TSQM (Treatment Satisfaction Questionnaire for Medication) at baseline and after six months

Results: Seventy-six patients were enrolled in the study, 38 followed through telemedicine, and 38 followed through standard care. The two populations had the same characteristics at baseline: 71 % (54) had Crohn disease, 29 % (11) had ulcerative colitis; 55 % (21) were males, and 13% (5) were smokers. The MIAH score was significantly higher in the telemedicine group than in the standard care group at baseline (mean±DS 4.82±3.98 vs 1.82±2.24 p<0,001). No significantly differences were observed in both groups after six months. Moreover, the telemedicine group showed a significant improvement in MIAH score than the control group (mean difference -1.78 [IC95% da -2,92 a -0,65]; (p=0,003). As for the TSQM, 97% of the patients followed by telemedicine were satisfied and would be willing to carry out the visits in this modality. Looking at corticosteroid courses, emergency room access, and seek for medical advice, they were 5 (13%), 0, 8 (21%) in the telemedicine group, and 3 (7,9%), 1 (2,6%), 10 (26%) in the standard care group, respectively.

Conclusion: Our study confirms that telemedicine, using dedicated platforms and objective evaluation scores, is a valuable method to manage patients with IBD, especially those who have a mild disease. Its use could be implemented in clinical practice, since is a safe and feasible application well accepted by the patient. Moreover, it could lead to a reduction of indirect costs of treatment, an increased patient engagement, a reduction in the overcrowding of the IBD clinics, and a facilitation of early intervention for symptoms and signs of active inflammation.

Disclosure: Nothing to disclose.

PP0695

CROHN'S DISEASE LIKE POUCH INFLAMMATION (CDLPI), IN ILEAL POUCH–ANAL ANASTOMOSIS (IPAA) FOR ULCERATIVE COLITIS (UC), IN A LATIN AMERICAN IBD REFERENCE CENTER

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Introduction: Restorative proctocolectomy with IPAA can be associated with diverse complications, acute pouchitis, chronic pouchitis (antibiotic dependent or refractory), and also Crohn's disease like pouch inflammation (CDLPI), a particularly worrying condition. The pathogenesis is unclear, probably multifactorial, and environment may play a role.

Aims & Methods: To describe clinical characteristics and outcomes of CDLPI (our main focus) in UC patients (pts) with colectomy and IPAA in a Latin American (LA) IBD reference Center. UC is reported more frequent in LA, but colon location reach half of CD casuistic in our hospital, other Argentina regions and Uruguay. Probably, this epidemiological feature could impact in our patient's evolution.Our hospital has a Coloproctology pioneer team of IPAA surgery in Argentine, and as Clinical IBD Service, we performed a revision in our electronic data base/Hospital records (included from 1990 to Dec. 2022, updated at this abstract time). Criteria to define CDLPI were adopted from Shen B, Clin. Gastroenterol hepatol 2008, 6:145-58. We studied the global prevalence of CDLPI and pts´s adverse outcomes in terms of: behavior complications, prevalence of extraintestinal manifestations (EIMs), treatment requirements, pouch failure, malignancy. To study behavior complications, we estimate by Kaplan Meier method cumulative probabilities of developing ¨typical¨ CDLPI complications as follow: 1- Penetrating (B3 behavior), 2- Perianal complications (PC), 3- Stricturing complication of Afferent limb (S-Aff-L). Also were studied for Kaplan Meier cumulative probabilities of CDLPI to receive biological treatment.

Results: Among 437 pts who underwent colectomy and IPAA for UC, who attended to our Clinical IBD Unit in mentioned period, we detect 46 cases with CDLPI features (prevalence 10.5%), male 27 (58.7%) female 19, mean age±SD at CDLPI presentation 33.8±13.8 yrs, median time (IQR) from IPAA: 1.34 (2.9) yrs, follow-up time 20.1 (10.9) yrs. B3 behavior was observed in 16 cases (34.8%), perianal complications (PC) -mainly complex- in 20 (43.5%). Cumulative probability at 1, 5, 10, 20 yrs to develop B3 pattern (%) were: 8.6, 20.0, 25.3, 34.1, and PC pattern:10.9, 28.6, 34.3, 34.3 respectively. Pouch vaginal, entero/pouch-cutaneous and pouch vesical fistulas were documented in 20%,11% and 4% of pts respectively. Aforementioned patterns were significantly more frequent and earlier than S-Aff-L complication (B2 behavior: observed in 9 (19.5%) pts; cumulative probabilities (%) at 10, 20, 25 yrs were 2.7, 11.7, 27.6, preceded several yrs before for prepouch ileitis (pattern B1) detected in 26 (56.52%) pts, often as initial diagnosis of CDLPI. Cuffitis in 13%. Different complications overlapped in 23.9% of pts. EIMs (%) 56.2%: (Articular 37.5%, Skin 10.9%, Aphtae (oral) 6.5%, Urologic 6.5%, Ophthalmologic 4.4%, Hepatic 3.4%). Arthritis, gangrenous pioderm, PSC,may implicate high burden. Pouch failure (permanent diversion or excision) was observed in 30% and 13% respectively, malignancy in 4.3%. Treatment modalities: frequent antibiotics, steroids (systemic or budesonide) mainly in S-Aff-L suboclusion (may require E.ballon dilatation), IMM tiopurines in 70%, Biologics in 67.4% (mainly Anti-TNFs, ≥2 biologics: 11%), with cumulative probabilities (%) at 1, 5,10, 20 yrs of: 2.2, 20.5, 25.8, 48.5.

Conclusion: CDLPI is a complication of colectomy with IPAA, with potentially severe outcomes. IPAA revolutionized UC surgery, but close multidisciplinary monitoring, and new research are required to detect and follow these patients, with the future hope of acting proactively.

Disclosure: no

PP0696

A BIOMARKER OF EARLY MUCOSAL DESTRUCTION: NEUTROPHIL-MEDIATED TYPE IV COLLAGEN DEGRADATION IS ELEVATED IN PATIENTS WITH CROHN'S DISEASE AND ULCERATIVE COLITIS

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Introduction: Inflammatory bowel disease (IBD) is characterized by chronic inflammation due to an uncontrolled immune response orchestrated through, i.e. neutrophils. The basement membrane acts as a front-line defense promoting tissue integrity, where the α-3 chain of type IV collagen is solely expressed on the outermost layer of the mucosa. Detection of subclinical ulceration is crucial since early-stage IBD presents a unique window of opportunity for intervention, as the disease might become a self-sustaining process once deep inflammation becomes established. We therefore, wanted to develop a biomarker reflecting early tissue injury, aiding in the implementation of prompt treatment.

Aims & Methods: A competitive enzyme-linked immunosorbent assay quantifying a human neutrophil elastase (HNE) degraded fragment of type IV collagen α-3 chain was developed (C4A3-HNE). Dilution- and spiking recovery, inter- and intra-variability, and interference were evaluated. Acceptance criteria for technical validation were a recovery of 100% ±25 and an inter-intra variability of <15%. Commercial serum samples were purchased from ProteoGenex. Biological relevance was validated in an observational study from Odense University Hospital (OUH) and healthy controls. Groups were compared using Kruskal Wallis (Dunn's corrected).

Results: The technical validation of the C4A3-HNE assay demonstrated acceptable results for recovery, variation, and interference. Biological relevance was assessed in commercial IBD samples and healthy donors. C4A3-HNE was elevated in both CD and UC compared to healthy (p=0.001 and <0.0001)(AUC [95% CI]: 0.820 [0.669-0.971]; 0.875 [0.775-1.000]). The results were validated in an independent cohort of IBD patients (both p<0.0001). For UC, analysis showed that compared to patients in endoscopic remission, C4A3-HNE is elevated in patients with mild endoscopic activity, decreasing dose-dependently for moderate and severe disease (T1). Fecal calprotectin and CRP levels were also lower in IBD patients with high levels of C4A3-HNE (T1). With a cut-off value of 54.1 ng/ml, C4A3-HNE could significantly discriminate between mild and severe endoscopic disease (T1).

	Median conc. (ng/ml)	[IQR]	Patients (n)	
Remission	61.16	49.74, 65.52	10	
Mild	71.77	53.96, 79.17	18	
Moderate	56.07	39.21, 68.71	19	
Severe	40.52	25.65, 69.01	10	
	Low C4A3-HNE	High C4A3-HNE	Δ %	
CD: Fecal Calprotectin (µg/g)	721.8	365.7	67.7	
UC: Fecal Calprotectin (µg/g)	840.0	491.6	52.3	
CD: CRP (mg/L)	8.4	6.5	26.5	
UC: CRP (mg/L)	7.4	5.0	38.5	
	AUC [95% CI]	Cut-off value	Sens./Spec. (%)	OR
Remission vs. mild	0.68 [0.48–0.85]	68.8	61.1/90.0	14.1 (*) [1.7–166.6]
Mild vs. moderate	0.68 [0.51–0.83]	59.9	72.2/73.3	6.9 (*) [1.8–31.1]
Mild vs. severe	0.74 (*) [0.54–0.89]	54.1	77.8/70.0	6.4 (*) [1.2–33.5]

Conclusion: Our study demonstrates the biological and possible clinical relevance of the novel C4A3-HNE biomarker. The biomarker is elevated in patients with IBD compared with healthy, and high levels may reflect early mucosal damage in patients with UC.

Furthermore, inflammatory markers were lower in IBD patients with high levels of C4A3-HNE, pointing towards high levels being indicative of early disease. C4A3-HNE may provide early detection of mucosal damage or prediction of relapse; however, further studies are required to assess the clinical validity of this biomarker.

Disclosure: MA, MP, MK, and JM are employees of Nordic Bioscience A/S. MK owns stocks in Nordic Bioscience A/S.

PP0697

UTILITY OF BIOMARKERS IN PREDICTING DISEASE ACTIVITY AND LONG-TERM OUTCOME IN ULCERATIVE COLITIS – A LONGITUDINAL FOLLOW UP STUDY

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Introduction: Patients with ulcerative colitis (UC) and their treating physicians are currently looking beyond symptom resolution to achieve mucosal healing for a better long-term outcome. The assessment of this target requires invasive tests at several occasions that has an impact on the quality of life.

Aims & Methods: To evaluate the role of serum, fecal and urine biomarkers for predicting endoscopic healing, histological improvement and long-term outcomes after medical treatment of UC.

Patients with newly diagnosed acute UC or relapse of UC between September 2018 and February 2020 were included and followed for three years for relapse of symptoms. Disease activity was measured using clinical, Mayo Endoscopic Subscore (MES), and histological scores (Geboes score and Robarts Histological index). Biomarkers such as ESR, CRP, Fecal Calprotectin, Serum NGAL and 24-hour urine potassium were done at baseline and at clinical remission. The utility of biomarkers to predict endoscopic healing (MES ≤ 1), histological improvement (Geboes ≤ 3), and disease flare on follow up were analysed.

Parameter	Achieved endoscopic healing(n=36)			Achieved histological improvement(n=18)		
	Baseline	Clinical remission	P value	Baseline	Clinical remission	P value
Fecal calprotectin (µg/g)	612.57 (31.- 8249.2)	147.36 (10 – 4463)	0.01*	921.3 (79.4 – 8249.2)	66.26 (10.01 – 1345.2)	<0.001*
Serum NGAL (ng/ml)	35.4 (22.8 – 1077.8)	31.75 (19 – 682.6)	0.003*	36.04 (25.6 – 1077.8)	28.49 (19.08 – 682.6)	0.002*
24-Hour urine potassium (meq/day)	27 (6.6 -200)	36.8 (10-240)	0.002*	24.77 ± 12.05	47.47 ± 52.7	0.07#
	Endoscopic healing(n)			Histological improvement(n)		
	Yes	No	P value	Yes	No	P value
Flare	14	4	0.25$	4	14	0.02$
No flare	13	1		9	5	

*: Wilcoxon sign rank test, #: paired t test, $: chisquare test

Table.

Results: 40 patients (43 episodes of UC) with a mean age of 35 ± 10 years were studied. Majority of patients had moderate to severe disease activity by clinical score (88%), MES (93%) and histology (82%). There was a significant reduction in baseline serum and fecal biomarkers and a significant increase in 24-hour urine potassium at clinical remission and those with endoscopic healing while those with histological improvement had significant reduction in fecal and serum markers only. Patients without endoscopic healing or histological improvement didn't had significant changes in biomarkers.

Among patients achieving clinical remission, 83.7% (n= 36) had endoscopic healing and 41.8% (n=18) had histological improvement. 14 patients (35 %) had worsening of fecal calprotectin despite a clinical remission. A reduction in the baseline fecal calprotectin levels by 33.89% (AUC: 0.802, sensitivity: 0.72, specificity: 0.86) and 67.8% (AUC: 0.869, sensitivity: 0.83, specificity: 0.68) predicted endoscopic healing and histological improvement respectively.

A total of 32 patients completed the three year follow up and 54.5% (n=18) had at least one disease flare. Fewer patients with histological improvement (n=4; 12.5%) after treatment experienced flares compared to those with endoscopic healing (n=14; 77.7%). Although two-third with worsening fecal calprotectin achieved endoscopic healing on follow up, none had histological improvement and everyone had symptom relapse on follow up.

Conclusion: Our study confirmed that one-third to two-third decline in fecal calprotectin with treatment predicted endoscopic healing and histological improvement in UC. As the disease flares during follow up was better predicted by an improvement in histology, a two-third fall in baseline calprotectin may be a useful marker for better long-term outcomes in UC.

Disclosure: None declared.

PP0698

EFFECT OF VITAMIN D SUPPLEMENTATION ON VITAMIN D, ITS METABOLITES AND VITAMIN D BINDING PROTEIN IN INFLAMMATORY BOWEL DISEASE: DOES INFLAMMATION MATTER?

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Introduction: Vitamin D levels are associated with important clinical parameters and outcomes in patients with IBD. However, the complex interplay of inflammation with vitamin D (vitD) and its metabolites poses a vicious circle in which cause and effect are unclear. We previously showed that all vitD metabolites, including 1,25OH2D, 24,25OH2D, free and bioavailable 25OHD and VDBP, but not total 25OHD, were influenced by at least one inflammatory marker.

Aims & Methods: In this study, we aimed to assess effects of vitD supplementation on serum levels of vitD metabolites and VDBP in patients with IBD with and without inflammation. A comparative, cross-sectional retrospective study was conducted using medical records and routine samples of IBD patients and controls. Blood count, serum albumin, transferrin, ESR, hsCRP and faecal calprotectin (FC) concentrations were analysed. Inflammatory disease activity was defined as hsCRP ≥5mg/dL and/or FC ≥250µg/g. Serum total 25OHD and 24,25OH2D levels were measured using ImmuTube® VitD duo LC-MS/MS (Immundiagnostik AG, Bensheim, Germany). Concentrations of 1,25OH2D and VDBP were detected with direct competitive ELISA using the IDK® human VDBP immunoassay kit (Immundiagnostik AG). Free and bioavailable 25OHD were calculated according to Bikle et al. Subjects were treated with 20,000 IU cholecalciferol p.o. in different frequencies based on severity of vitD insufficiency/deficiency: Patients with 25OHD levels of 21-29ng/mL 1x/wk for 2 weeks; those with 25OHD levels 11-20ng/mL 2x/wk for 2 weeks; those with 25OHD levels ≤10ng/mL 3x/wk for 1 week and 2x/wk for 2 weeks. In each case, therapy was followed by 2 therapy-free weeks. Statistical data were collected in Microsoft Excel 2016 and analyzed with IBM SPSS Statistics 25, $p<0.05$ was taken to be statistically significant.

Results: Overall, 265 subjects were included, 68 in the control group (27m/41f; age range 18-65y; mean age (±SD) 42.9±15.6y) and 197 patients with IBD (96m/101f; 18-65y; 42.3±13.0y; 115 Crohn's disease, 82 ulcerative colitis). Inflammatory disease activity was seen in 96/197 (49%). No significant difference was found for season of blood sampling (with vs. without inflammation: $p=0.468$, IBD pats vs. controls: $p=0.613$; chi-square test for all results). As expected, vitD supplementation resulted in a significantly increased serum 25OHD, 24,25OH2D, free 25OHD and bioavailable 25OHD. Interestingly, vitD supplementation did not affect levels of VDBP or 1,25OH2D. After correlation coefficients were calculated, neither specific correlation nor statistical significance was observed between vitD parameters and ESR or FC. Also, no correlation was seen between hsCRP and serum 25OHD, 1,25OH2D, and 24,25OH2D regardless of vitD supplementation. However, for both supplemented ($r=0.481$, $p<0.001$) and non-supplemented groups ($r=0.421$, $p<0.001$), a significant moderate positive correlation was found for VDBP with hsCRP. Serum free 25OHD ($r=-0.496$, $p<0.001$; $r=-0.450$, $p<0.001$ respectively in supplemented and non-supplemented groups) and bioavailable 25OHD ($r=-0.532$, $p<0.001$; $r=-0.497$, $p<0.001$, respectively) showed a significant moderate negative correlation with hsCRP in both groups.

Conclusion: The vitD parameters VDBP, free vitD and 25OHD were primarily influenced by the presence of inflammation. The significant increase in VDBP observed in the presence of inflammation was uninfluenced by vitD supplementation. Since hsCRP and VDBP positively correlated, VDBP may have potential as a biomarker for inflammatory processes.

Disclosure: Julia Stötzel and Lea Tessmer have nothing to disclose.

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PP0699

ALTERATIONS IN THE COURSE OF INFLAMMATORY BOWEL DISEASE FOLLOWING LIVER TRANSPLANTATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Inflammatory bowel disease (IBD) is a chronic relapsing autoimmune disorder affecting the gastrointestinal tract with two major types: ulcerative colitis (UC) and Crohn's disease (CD) (1). IBD is closely associated with primary sclerosing cholangitis (PSC) and some other hepatic disorders (2).

Despite emerging pharmacologic therapies, liver transplantation (LT) remains the only approved therapeutic strategy for PSC (3). Despite IBD remission being anticipated due to post-transplant immunosuppression maintenance therapy, IBD exacerbation is reported in some studies.

Estimates of both improvement and exacerbation of pre-existing IBD after LT vary widely across studies from 0% (8, 9) to 65% (4,5). Nevertheless, reliable estimates of exacerbation or remission of IBD severity following LT are critical for informing efforts to manage the condition.

Aims & Methods: This study aimed to systematically review and pool data regarding the alterations in the clinical course of inflammatory bowel disease (IBD) following liver transplantation (LT). Relevant prospective and retrospective observational studies were identified by searching databases and gray literature through December 2020. Random-effects models were used to calculate the pooled frequency of IBD patients with disease course alterations ("improved", "unchanged", or "aggravated") after LT and the corresponding 95% confidence intervals (CI).

Results: Twenty-five studies met our inclusion criteria, reporting the outcomes in two or three categories. In the analysis of studies with three-category outcomes (n=13), the pooled frequencies of patients with improved, unchanged, or aggravated IBD course after LT were 29.4% (95%CI: 16.9%-41.9%), 51.4% (95%CI: 45.5%-57.3%), and 25.2% (95%CI: 15.6%-34.8%), respectively. Subgroup analyses revealed that patients with ulcerative colitis (UC), younger age at LT, or shorter duration of follow-up were more likely to have an improved disease course.

Moreover, higher IBD exacerbation estimates were observed in studies with a low risk of bias. In the analysis of studies with two-category outcomes (n=12), the pooled frequencies of patients with improved/unchanged or aggravated IBD course were 73.6% (95%CI: 62.2%-85.0%) and 24.1% (95%CI: 15.1%-33.2%), respectively. The cumulative incidence of an exacerbated IBD course following LT was 0.22 (95% CI: 0.16-0.29, $P < 0.001$).

Conclusion: We conclude that IBD activity remains unchanged (or improved/unchanged) in most IBD patients following LT. Furthermore, IBD type, age, and follow-up length can influence the IBD course after LT.

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Disclosure: Nothing to disclose.

PP0700

BIOELECTRICAL IMPEDANCE ANALYSIS AND HEMATOLOGICAL SCALES - A BRAND NEW COMBINATION FOR THE EVALUATION OF IBD PATIENTS?

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Introduction:

Looking for reliable markers in the evaluation of nutritional and inflammatory status in the course of inflammatory bowel disease (IBD) constitutes a critical goal in he management of patients. Bioelectrical impedance analysis (BIA) is nowadays believed to serve an important role in the evaluation of body composition in the course of IBD. Simultaneously, non-invasive hematological markers are explored as easy to obtain potential indicators of inflammation. Nevertheless, reliable anthropometric measurements might constitute troublesome parameters to be evaluated in everyday clinical practice and even if we manage to obtain them - it is hard to interpret them in the context of underlying inflammation in the natural history of IBD. Thus, we aimed to explore a new potential model for the estimation of nutritional and inflammatory status in the course of IBD. In the light of the current knowledge, body composition assessed with BIA was not evaluated together with hematological indices in the single study on IBD patients, so far.

Aims & Methods: We decided to look for relationships between parameters of BIA and the results of hematological scales in IBD patients treated with biological agents. We enrolled 93 participants to the survey: 54 patients with Crohn's diseases (CD) and 39 - with ulcerative colitis (UC). They were treated with one of biologics: infliximab (n=48) or vedolizumab (n=45). We tried to look for notable associations between BIA measurements, clinical scales (CDAI, SES-CD, MAYO) and hematological markers (red blood cell distribution width to platelet ratio - RPR, red blood cell distribution width to lymphocyte ratio - RLR, neutrophil to lymphocyte ratio - NLR and mean platelet volume to platelet ratio - MPR) together with CRP.

Results: Significant dependences were noticed between BIA results, clinical IBD scales, hematological indices and CRP. We did not observe any notable differences according to the type of administered biological agent. In CD group body cell mass (BCM) correlated positively with SES-CD ($p<0.05$). On the other hand, there was a positive correlation between reactance (Xc) and total MAYO score among UC patients ($p<0.05$). Furthermore, Xc correlated negatively with MPR in the course of UC ($p<0.05$). Finally, two more significant relationships were observed in UC group: a positive one between BCM and RPR ($p<0.05$) and a negative one between extracellular water (ECW) and NLR ($p<0.05$). Finally, phase angle (PhA) correlated notably in the positive manner with CRP ($p<0,005$).

Conclusion: Our results give new perspectives for exploring combinations between two different diagnostic strategies in the evaluation of nutritional status in IBD. Achieved results suggest that changes in body composition in IBD patients can be reflected by deviations in hematological scales. Of note, our study group was administered biologics. Perhaps, further investigations could show some kind of certain relationships between the pattern of response on biological agents and the character of results in BIA analysis and hematological indices.

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Disclosure: Nothing to disclose.

PP0701

PROTEIN FINGERPRINT ASSAYS REFLECTING NEUTROPHIL ACTIVITY, MUCOSAL DAMAGE, AND TISSUE FIBROSIS ARE SURROGATE BIOMARKERS FOR MUCOSAL HEALING IN PEDIATRIC CROHN'S DISEASE

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Introduction: Mucosal healing (MH) has become a treatment goal for inflammatory bowel disease (IBD), especially for ulcerative colitis. However, MH is less feasible to assess frequently in patients with Crohn's disease (CD). In this study, we investigated Protein Fingerprint Assays (PFA) of collagen degradation and formation, and neutrophil and macrophage activity markers in the ImageKids study as non-invasive markers of MH.

Aims & Methods: This is a proteomics planned sub-study of the multicenter prospective ImageKids study which included serum samples from children with CD (n=178) undergoing MRE and ileocolonoscopy concurrently (ImageKids study: NCT01881490). Serum from healthy age and gender-matched controls were obtained from BioIVT (n=83). PFA panel for mucosal damage (C1M, C3M, C4M, C6M, ELP-3), Immune cell activity panel (CPa9-HNE, VICM, C4G), and tissue fibrosis panel (PRO-C1, PRO-C3, PRO-C4, PRO-C5, PRO-C6, PRO-C11, PRO-C22) were determined. MH was classified as having an SES-CD score of 0 and global radiologist assessment of inflammation in the MRE of 0, using a visual analogue scale (VAS) 0-100mm, and mucosal damage (MD) was defined as having SES-CD or MRE VAS>0. Spearman rho correlations, one-way ANOVA with Tukey correction, and receiver operator characteristics (ROC) curves were applied for statistical analysis.

Results: Some of the previous biomarkers demonstrated to correlate with the SES-CD score and ulcer size (C1M, C3M, C6M, PRO-C4, VICM, PRO-C1, PRO-C3). CPa9-HNE, ELP-3, and PRO-C22 also correlate with the SES-CD score (table 1). The combined SES-CD and MRE VAS score of MH correlated positively with CPa9-HNE (r=0.30, p<0.0001), VICM (r=0.39, p<0.0001), C1M (r=0.29, p=0.0001), C3M (r=0.22, p=0.0022), C6M (r=0.35 p<0.0001), PRO-C4 (r=0.2, p<0.0001), PRO-C22 (r=0.32, p<0.0001), and showed significantly lower serum levels in pCD patients with MH compared to patients with mild, moderate, or severe mucosal damage (p<0.001). PRO-C3 correlated negatively with the combined SES-CD and MRE VAS score (r=-0.17, p=0.0211). These PFA biomarkers were combined in a multivariate regression model, demonstrating increased accuracy to identify patients in MH healing compared to the individual biomarkers (p<0.001, MH vs. MD: AUC=0.82 [CI:0.69-0.95), MH+Mild MD vs. moderate+severe MD: AUC=0.77 [0.70-0.84], (figure 1).

	r	95% confidence interval	P (two-taield)
CPa9-HNE	0.30	0.15 to 0.44	<0.0001
VICM	0.33	0.18 to 0.46	<0.0001
C1M	0.37	0.23 to 0.50	<0.0001
C3M	0.29	0.14 to 0.42	<0.0001
C4M	0.23	0.08 to 0.34	0.002
C6M	0.43	0.29 to 0.54	<0.0001
ELP-3	0.30	0.16 to 0.44	<0.0001
PRO-C3	-0.20	-0.34 to -0.05	0.0071
PRO-C4	0.35	0.20 to 0.47	<0.0001

Conclusion: PFA biomarkers of Neutrophil activity (CPa9-HNE), Macrophage activity (VICM), mucosal damage (C1M, C3M, C4M, C6M, ELP-3), and tissue fibrosis (PRO-C3, PRO-C22) are potential surrogate biomarkers for identifying pCD patients with mucosal healing and for monitoring of mucosal damage and stenosis.

Disclosure: Joachim H. Mortensen, Martin Pehrsson, Marta Alexdottir, Morten A. Karsdal are fulltime employee at Nordic Bioscience A/S. Joachim H. Mortensen and Morten A. Karsdal owns stocks in Nordic Bioscience A/S

PP0702

IBDQ AND NON-INVASIVE MACHINE LEARNING-BASED PREDICTION OF ENDOSCOPIC ACTIVITY IN ULCERATIVE COLITIS

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Introduction: Endoscopy represents the gold standard of diagnosis for UC patients. It is an invasive investigation that can assess and stratify disease activity, evolution and treatment. Over the past few years, machine learning (ML) has become a potent instrument in the field of medicine,

thanks to its capacity for discrimination and decision-making. A suitable, non-invasive biomarker for assessing endoscopic disease activity (EDA) in ulcerative colitis (UC) has yet to be identified.

Aims & Methods: Our study aimed to develop a cost-effective and non-invasive machine learning (ML) method that utilizes the no-cost Inflammatory Bowel Disease Questionnaire (IBDQ-32) score and low-cost biological predictors to estimate EDA.Two random forest (RF) and 2 multilayer perceptron (MLP) classifiers were proposed. The first RF and MLP models were developed to predict EDA based on the selected variables, excluding IBDQ-32 score. The second RF and MLP classifiers were built to estimate EDA based on all the selected predictors, including IBDQ score.

Results: The results show that the inclusion of IBDQ-32 in the list of predictors that were fed to the models, improved accuracy and AUC for both the RF and the MLP algorithms. Moreover, the RF technique performed noticeably better than the MLP method on unseen data (the independent patient cohort).

Conclusion: This is the first study to propose the use of IBDQ-32 as a predictor in a ML model aimed to estimate UC EDA.The deployment of this ML model can furnish doctors and patients with valuable insights about EDA, a highly beneficial resource for individuals with UC who need long-term treatment.

Disclosure: Nothing to disclose.

PP0703

PRETREATMENT SERUM MONOCYTE CHEMOATTRACTANT PROTEIN-1, BUT NOT TROUGH LEVEL, AS A PREDICTOR OF LONG-TERM OUTCOME BY USTEKINUMAB IN PATIENTS WITH CROHN'S DISEASE

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Introduction: Ustekinumab has been proven to be effective for treatment of patients with Crohn's disease; however, 30–40% of patients have been reported to lose clinical response within 2 years. We aimed to evaluate the efficacy of ustekinumab and identify predictors of short- and long-term efficacy in Crohn's disease.

Aims & Methods: Patients with Crohn's disease receiving their first ustekinumab infusion in our hospital between June 2017 and September 2020 were prospectively enrolled. Concentrations of serum cytokines and chemokines were measured using a multiplex bead array assay. Trough concentration of ustekinumab in serum samples collected after 8 weeks of intravenous administration were measured by ELISA.

Results: Fifty-nine Crohn's disease patients were enrolled in this study. Among 34 clinically active patients, 38.2% achieved a clinical response at week 8. None of the assayed factors were associated with short-term clinical response. Cumulative persistence rates of ustekinumab were 77.6% at 1 year and 58.9% at 2 years. Univariate Cox regression analysis revealed that Harvey–Bradshaw Index scores at baseline, concomitant immunomodulator treatment, and concentrations of interferon gamma-induced protein-10, monocyte chemoattractant protein-1 (MCP-1), and interleukin (IL)-1RA, IL-4, IL-6, and IL-8, but not other baseline parameters and trough concentrations of ustekinumab (hazard ratio (HR): 0.9846, 95% confidence interval (CI): 0.9561–1.014), were significantly associated with loss of efficacy. Multivariate Cox regression analysis found that biologic naïve status (HR: 0.1264, 95% CI: 0.02595–0.6158) and MCP-1 concentrations (HR: 1.037, 95% CI: 1.014–1.062) were significantly and associated with loss of sustained efficacy for ustekinumab treatment.

	Univariate analysis HR	Lower limit of the 95% CI	Upper limit of the 95% CI	p value	Multivariate analysis HR	Lower limit of the 95% CI	Upper limit of the 95% CI	p value
Biologic naïve, Yes	0.2367	0.05582	1.004	0.05061	0.1264	0.02595	0.6158	0.01047
Concomitant IM, Yes	2.644	1.144	6.113	0.02297				
IL-4, pg/mL	1.562	1.028	2.375	0.03685				
IL-6, pg/mL	1.07	1.02	1.123	0.00568				
IL-8, pg/mL	1.067	1.025	1.111	0.001415				
IL-1RA, pg/mL	1.003	1.001	1.005	0.00439				
IP-10, pg/mL	1.001	1.001	1.001	0.02067				
MCP-1, pg/mL	1.022	1.003	1.04	0.02055	1.037	1.014	1.062	0.001754
Trough level of UST at week 8	0.9846	0.9561	1.014	0.3029				

Furthermore, if patients were divided into four groups according to prior biologics use and MCP-1 level which cut-off value was determined from receiver operating characteristics (ROC) at 1 year, MCP-1 low and biologics naïve group had 100% cumulative persistence rate of ustekinumab at week 140. On the other hand, MCP-1 high and biologics exposure group had below 20%.

Conclusion: Our findings suggest that pre-treatment serum MCP-1 analysis, combined with a history of biologic use could be a novel biomarker for predicting the long-term efficacy of ustekinumab in patients with Crohn's disease. However, predicting of long-term efficacy by a trough concentration of ustekinumab at week 8 might be limited.

Disclosure: The authors declare no conflicts of interest associated with this manuscript.

PP0704

EFFECT OF CYTOMEGALOVIRUS INFECTION ON RECURRENCE OF ULCERATIVE COLITIS

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Introduction: UC is a chronic, non-specific intestinal inflammation disease, with repeated recurrence and progressive characteristics. CMV is an opportunistic pathogenic virus. UC patients with CMV reactivation are more likely to relapse. However, the UC relapse condition and risk factors for relapse in UC patients with CMV reactivation remain unclear.

Aims & Methods: This study was a multicenter retrospective cohort study. The UC patients were divided into the CMV positive group and CMV negative group, according to whether or not CMV was reactivated. Clinical data, laboratory examination and endoscopic histology were collected to compare the recurrence of UC patients with CMV reactivation and analyze the risk factors of recurrence in UC patients with CMV reactivation.

Results: A total of 298 UC patients were included in this study, including 56 CMV positive patients and 242 CMV negative patients. Among the CMV positive patients, 19 patients were CMV colitis and 37 patients were active CMV infection. In terms of clinical characteristics, although the course of disease was longer in the CMV negative group than in the positive group (23.30±31.40 vs 44.77±66.55, p=0.004), the disease was more severe in the CMV positive group.

The modified Mayo score (9.18±2.18 vs 7.97±3.02, p=0.001), the Montreal (E1 1.79% vs 11.57%, E2 14.29% vs 25.62%, E3 83.93% vs 62.81%, p=0.005), CRP (36.42±38.13 vs 17.91±25.64, p<0.001) and PT (13.00±1.49 vs 12.52±0.98, p<0.001) were significantly different. In terms of treatment regimen, the CMV positive group also required a more intensive induction remission treatment, with significant differences in the use

of glucocorticoid (60.71% vs 23.55%, p<0.001) and biologics (25.00% vs 2.89%, p=0.001) compared with the CMV negative group. With 2 years of follow-up, there was no significant difference in the 1-year cumulative recurrence rate (51.79% vs 41.74%, 0.224) and 2-year cumulative recurrence rate (62.50% vs 51.65%, 0.187) between the positive and negative groups. There was no significant difference in 1-year cumulative recurrence rate between the CMV colitis group and the CMV negative group (63.16% vs 41.74%, p=0.115), but the 2-year cumulative recurrence rate in the CMV enteritis group was significantly higher than that in the CMV negative group (78.95% vs 51.65, p=0.030).

And univariate analysis showed that ALB (OR =0.91, 95%CI 0.83-1.00, p=0.043) and FC (OR =1.00, 95%CI 1.001-1.003, p=0.009) were risk factors for UC recurrence in the CMV positive group.

Conclusion: In conclusion, compared with the CMV negative patients, the patients with CMV colitis are more likely to relapse within 2 years. And we found that FC and ALB were risk factors for relapse in UC patients with CMV reactivation.

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PP0705

CROHN'S DISEASE (CD) OF THE SMALL INTESTINE: IS IT MORE SEVERE IN ASSOCIATION WITH ANO-PERINEAL LESIONS?

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Introduction: The small intestine represents a frequent localization of CD, it is associated with a higher risk of complications such as stenosis and perforation that can lead to intestinal resection.

Ano-perineal lesions (APL) are often associated with colonic involvement in CD. However, the relationship between the CD of small intestine and APL is not well understood.

The aim of our work is to study the clinical and evolutionary profile of CD of the small intestine associated to APL.

Aims & Methods: This is a retrospective, descriptive, and analytical study conducted from January 2017 to July 2022 involving 296 patients with CD. Included in our work were patients with a CD of the small intestine with and without APL, regardless of phenotype.

All our patients had a complete clinical examination with a proctological examination. CD activity was assessed by the two activity scores; the Crohn's Disease Activity Index (CDAI) and Harvey Bradshaw Index (HBI).

Data were collected through a data collection sheet and studied using SPSS 23.0 software. Quantitative variables with a Gaussian distribution were expressed as mean and standard deviation. And the qualitative variables in number and percentage. Normality was assessed by the Kolmogoroc-Smirnov test. The Student's t-test was used to compare quantitative variables with a Gaussian distribution, while the Chi-square test was used to compare qualitative variables.

Results: Among 296 patients with Crohn's disease, 28 patients or 9.45% had a small bowel location. The mean age was 37.8 ±12.7 years (extremes: 15-60 years), the sex ratio F/M was 2.

12 patients with ileal Crohn's disease had APL (42.8% of the cases); an anal fistula was noted in 8 patients (66.6%), 3 patients (25%) had an anal fissure, and 2 patients had anal ulceration (16.6%). While 16 patients with a small bowel localization, had no APL or 57.14% of cases. In the group of patients having APL, the stenosing form was in the majority 66.6% of the cases (8 patients), followed by the forms associating fistulas and stenosis in 31.25% of the cases (5 patients) the inflammatory form represented 8.3% of the cases (1 patient). In the group of patients without APL, the stenosing form was noted in 62.5% (10 patients), the inflammatory form in 31.25% of cases (5 patients), the fistulizing form associated with the stenosing form in 6.25% (1 patient). The mean CDAI and Harvey-Bradshaw index (HBI) were higher in the group of patients with APL compared with the group without APL (129.2 ± 60 vs 103.3 ± 60) and (3.08 ± 2.6 vs 2.8 ± 2.7). The comparison study of CDAI and HBI between the two groups shows that this difference is not statistically significant, with a p equal to 0.27 and 0.79, respectively.

On the other hand, recourse to surgery was noted in 36.6% of patients (11 patients), including 54.5% of patients without APL (6 patients) and 45.5% with APL (5 patients). This difference was not statistically significant with $p = 0.82$.

Conclusion: Nearly half of all patients with Crohn's disease of small bowel develop APL.

Although the presence of APL alters the quality of life because of the functional impact, in our sample, the presence of APL has no effect on the disease activity or on the risk of surgery in patients with small bowel's CD.

Disclosure: non conflict of interest

PP0706

PREDICTORS OF AN EARLY SEVERE DISEASE COURSE OF NEWLY DIAGNOSED INFLAMMATORY BOWEL DISEASES- FINDINGS FROM A DANISH POPULATION-BASED INCEPTION COHORT (IBD PROGNOSIS STUDY)

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Introduction: Proper and timely risk stratification of inflammatory bowel diseases (IBD), including ulcerative colitis (UC) and Crohn's disease (CD), is essential to tailor personalized treatment.

Aims & Methods: The aims of the current study were to report the early disease course of newly diagnosed UC and CD and identify risk factors for a severe disease course. Patients were identified from an ongoing prospective population-based inception cohort at Hvidovre University Hospital and Herlev University Hospital, IBD Prognosis Study, which includes all patients with newly diagnosed IBD since May 2021 and forth within a catchment population of 1.050.000 (~20% of the Danish population). We defined severe disease course as the need for surgery or initiation of biological therapies within six months of diagnosis. A Cox proportional hazard model with Bonferroni correction adjusting for multiple comparisons was constructed to identify predictors hereof.

Variable	Ulcerative colitis	Crohn's disease	IBD unclassified
Gender (Female)	0.22 (0.04-1.1)	1.3 (0.4-4.1)	2.5 (0.4-17.9)
Elderly-onset (≥60 y)	1.9 (0.5-7.3)	4.1 (0.3-12.3)	NA
Smoking (current or previous vs. never)	0.6 (0.1-2.5)	1.0 (0.34-2.9)	NA
Body mass index >30	0.6 (0.07-5.6)	3.6 (0.16-14.2)	NA
Diagnostic delay (>12 months vs. less)	1.5 (0.1-15.2)	1.4 (0.1-17.1)	NA
Treatment with systemic steroids at diagnosis	1.4 (0.1-16.4)	0.3 (0.1-0.8)	NA
Disease extent (E3) Disease location (L3) Disease behavior (B2/B3) Perianal disease	4.3 (1.6-12.5)	1.6 (0.4-8.1) 1.6 (0.4-8.1) 3.1 (0.7-15.2) 4.9 (1.6-14.9)	0.3 (0.04-2.2)
Mayo Endoscopic Score, SES-CD>16 SCCAI≥10, HBI≥8	6.0 (1.5-23.8) 1.7 (0.4-7.2)	NA 1.3 (0.8-7.7)	9.8 (0.6-15.9) 3.6 (0.3-44.2)
Hemoglobin < 7.3 mmol/L Platelet count > 450 10^9/L Albumin < 36 g/L C-reactive protein > 10 mg/L Fecal calprotectin > 1800	4.1 (1.2-14.1) 7.3 (1.3-41.9) 13.5 (2.8-64.2) 13.1 (1.8-20.3) 1.3 (0.3-5.9)	1.1 (0.29-4.1) 1.3 (0.3-6.5) 0.94 (0.3-2.9) 3.2 (0.8-11.7) 3.2 (0.11-2.44)	12.7 (1.2-145.6) NA 13.7 (0.3-37.5) 8.6 (0.8-16.6) 3.7 (0.4-31.8)

Table 1: Predictors of early severe disease course in newly diagnosed IBD in multivariate Cox proportional hazard model with Bonferroni correction (hazard ratio (95% confidence interval))

Results: As of April 15th, 2023, the cohort comprised 501 patients, including 287 with UC,180 with CD, and 34 with IBD unclassified (IBDU). The mean age (interquartile range (IQR)) at diagnosis was 39 years (27-56), 36 (25-54), and 36 (27-52), respectively. The cumulative risk of a severe disease course within six months after the onset of UC, CD and IBDU was 3.8% (95% confidence interval 1.9-6.8), 13.9% (95% CI 9.2-19.8) and 11.4% (95%CI 3.2-26.7).

In a Cox multivariable regression model adjusting for age and gender, a severe initial disease course for UC was predicted by extensive disease distribution, severe disease endoscopically at diagnosis, and affected biochemical inflammation parameters (Table 1). In patients with CD, perianal disease but no other phenotypic characteristics were predictive for the initial course.

However, in a sensitivity analysis of luminal CD, stricturing phenotype at diagnosis (adjusted hazard ratio (aHR) = 4.6 (95% confidence interval (CI) 1.5-13.6), the platelet count (HR= 1.3 (95% CI 1.2-10.6), and CRP > 10 mg/L (aHR= 14.2 (95% CI 1.9-108.5) were independently associated with a severe initial course, while initial use of systemic steroids was associated with a reduced risk. In patients with IBDU, only low hemoglobin was predictive for an initial severe disease course.

Conclusion: In this population-based study, we found 4%, 14%, and 11% of patients with newly diagnosed UC, CD, and IBDU, respectively, to experience an early severe disease course. Furthermore, systemic inflammation was predictive for a severe initial course in UC. In CD, perianal disease or stricturing disease phenotypes identify the subgroup of patients at high risk of early severe disease course.

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PP0707

ANAL STENOSIS IN CROHN'S DISEASE: A REAL CHALLENGE FOR THE GASTROENTEROLOGIST

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Introduction: Anal stenosis is one of the most disabling ano-perineal manifestations in Crohn's disease. Its management is a challenge for the gastroenterologist because of the functional prognosis that it can engage. The aim of this work is to present the characteristics of this disease and to highlight the different therapeutic options.

Aims & Methods: This is a retrospective descriptive monocentric study conducted in our department, covering all patients with Crohn's disease with anal stenosis between January 2002 and July 2022. All our patients underwent a clinical examination with a proctological examination and a pelvic MRI. Data were collected using a data collection form and studied using SPSS software.

Results: Among 1035 patients with a Crohn's disease, 30 patients with anal stenosis were included (2.89%)

The average age of our series was 37.7 years with extremes between 17 - 56 years, the sex ratio M/F 1.9.

Clinical symptoms were dominated by rectal bleeding in 11 patients (36.6%), followed by diarrhea in 30% (9 patients), proctalgia in 23.3% (7 patients) and occlusive syndrome in 3% (3 patients).

On proctological examination, impassable anal stenosis was noted in 30% of patients (9 patients), while it admitted the fingertip in 70% of cases (21 patients). On MRI, stenosis was short in 83.3% of patients (25 patients) and >5 cm in 16.6% of patients (5 patients).

Dilatation by Savary Bougie was performed in 56.6% of patients in our series (17 patients), balloon dilatation in 23.3% (7 patients), surgical resection in 6.6% (2 patients), and 4 patients received medical treatment (anti-TNF monotherapy or combination therapy with immunosuppressive treatment) 13.3% of cases. 8 cases of recurrence after dilatation were reported (26.6% of patients), and 4 cases of secondary failure under anti-TNF treatment. One case of anal incontinence and one case of malignant degeneration were noted.

Conclusion: Anal stenosis is a real challenge for the clinician. Its management must be multidisciplinary. Several therapeutic options can be recommended depending on the anal stenosis but also on the functional impact and the patient's wishes.

Disclosure: none conflict of interest

PP0708

HYPOPHOSPHATAEMIA PRIOR TO INTRAVENOUS IRON TREATMENT IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: IS IT MORE COMMON THAN IN THE GENERAL POPULATION?

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Introduction: Although uncommon in the general population, a low serum phosphate level is associated with a risk for clinical symptoms including fatigue, proximal muscle weakness and bone pain. In inflammatory bowel disease (IBD), a few case reports have documented specific acute clinical symptoms associated with hypophosphataemia (HP). However, these symptoms are difficult to distinguish from clinical manifestations of IBD and iron deficiency/iron deficiency anaemia. Potential complications of HP, if severe, can include respiratory failure, rhabdomyolysis, haemolysis and left ventricular dysfunction. Additionally, it has been shown that prolonged HP can result in osteomalacia. HP is under discussion as one of the common adverse reactions of intravenous (IV) iron therapy in patients with inflammatory bowel disease. Since IV iron therapy is recommended as first-line therapy in many situations in IBD, it is important to define its frequency and possible causes for pre-existing HP.

Aims & Methods: The aim of this study was to investigate the occurrence of HP in patients with IBD, independent of iron therapy. The study was conducted as a comparative, cross-sectional, retrospective study in adults with IBD (n=562) and healthy controls (n=80). Blood count, serum phosphate, faecal calprotectin and hsCRP were analysed by routine tests according to guidelines of the German United Society for Clinical Chemistry and Laboratory Medicine at a local reference laboratory. Inflammatory disease activity was defined as hsCRP levels ≥ 5 mg/dL and or faecal calprotectin levels of ≥ 250 µg/g. Serum total 25(OH)D concentration was measured using ImmuTube® Vitamin D duo LC-MS/MS (Immundiagnostik AG, Bensheim, Germany). Mild, moderate and severe HP were defined as a serum phosphate level of 2.0–<2.5 mg/dL (mild), 1–<2.0 mg/dL (moderate), and <1 mg/dL (severe), the normal reference range being 2.5–<4.5 mg/dL. Statistical analysis was performed using IBM SPSS version 25.0.

Results: Ultimately, 562 patients with IBD (277 male, 285 female; 332 Crohn's disease (CD), 230 ulcerative colitis (UC); 159/562 with inflammation) aged 42.3±13.9 years, and 80 controls (31 male, 49 female), mean age 43.3±15.4 years, were recruited to the study. In the IBD patient group, 8.6% were found to have HP, of which 23.9% were moderate and 76.1% mild. In the control group, 10.0% were found to have HP (25% moderate, 75% mild). Thus, the frequency of HP was not found to differ between IBD and controls (p=0.910). None of the IBD patients and no controls had severe HP. Prevalence of HP did not differ between CD (8.8%) and UC (8.2%), while HP was slightly less common in vitamin D-deficient patients (7.0%) compared to patients without vitamin D deficiency, and similar in patients with iron deficiency/anaemia versus non-iron-deficient patients (p=0.690). Only the inflammatory status of the IBD patients was found to have effect on serum phosphate levels: The prevalence of HP was 14.0% and 6.7% in patients with versus without inflammation, respectively (p=0.006).

Conclusion: HP was not found to be more common in patients with IBD compared with controls. In the IBD group, HP had a similar prevalence in CD and UC patients. The prevalence of HP was only increased in the presence of inflammation. Therefore, to prevent severe HP, serum phosphate levels should be assessed in patients with IBD, especially those with active inflammation, before IV iron therapy is considered in the clinical setting.

Disclosure: Karolina Siayor and Lea Tessmer have nothing to disclose. Aysegül Aksan is an employee of Immundiagnostik AG.

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PP0709

THE ROLE OF VITAMIN D STATUS ON EFFECTIVENESS OF BIOLOGIC THERAPY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: As well as having a major impact on bone metabolism, vitamin D (vitD) is recognised as an immunomodulatory hormone with a pivotal role in the pathogenesis of inflammatory bowel disease (IBD). Low vitD levels in patients with IBD are associated with active inflammation, disease severity, poor quality of life and adverse clinical outcomes. Furthermore, lower vitD levels in patients with IBD were shown to be associated with higher pro-inflammatory cytokine profiles.

Therefore, it is plausible that vitD may have use as a therapeutic agent in IBD. Our previous work suggests that pre-treatment with vitD may improve effectiveness of biologic drugs such as TNF-α inhibitors and the anti-integrin agent vedolizumab (VDZ). However, data in this context is limited.

Aims & Methods: The aim of this study was to explore potential effects of serum vitD levels on biologic treatment response in IBD patients. A retrospective cohort study was conducted to monitor ambulant treatment of IBD patients with biologics in relationship to their vitD levels. Medical records and routine blood and stool samples of 162 adult IBD patients were assessed at therapy start and 8-weekly thereafter. Samples were analysed for standard blood count, total 25OHD, albumin and inflammation parameters (hsCRP, ESR and faecal calprotectin (FC)) by standard methods. Biologic treatments (infliximab (IFX), its biosimilars (IFX-s), VDZ and ustekinumab (UST)) were administered over 1 year. Drug and anti-drug antibody (ADA) levels were measured with systems provided by Immundiagnostik AG, Bensheim, Germany. VitD values were dichotomized into deficient (≤ 30ng/mL) and sufficient (>30ng/mL). A positive treatment response was defined according to evidence of inflammation as shown by change in hsCRP-levels from baseline to the last two samples monitored. IBM SPSS Statistics 24 was used for statistical analysis.

Results: 162 patients with IBD (91 with Crohn's disease (CD)/ 71 with ulcerative colitis (UC); 81 f/81 m; age 40.2±11.5y) were enrolled. At baseline, 40.7 % used vitD supplementation, 10.5 % were biologic naïve and 50.6 % were vitD deficient. No conclusive relations were found between baseline vitD or supplementation status with drug or ADA levels. However, higher vitD levels over time were associated with positive treatment response for patients on IFX and UST ($p<0.05$). Treatment specific analysis revealed no significant associations between drug TCs and overall vitD status or treatment response. In descriptive analysis, pre-treatment vitD status was not associated with demographic or clinical characteristics but positively associated with mean corpuscular volume (MCV) and FC and inversely related to transferrin. Ultimately, 72.8 % of patients responded to biologic treatment. Response was related to disease location in CD ($p = 0.011$) and positively associated with naivety to biologics ($p = 0.040$). Treatment responders had significantly higher Hb, iron, TSAT and significantly lower ESR, hsCRP and FC.

Conclusion: Our results support a protective role of vitD in IBD patients treated with the biologic agents IFX and UST, shown here for the first time for UST. Interestingly, not the initial vitD status, but permanently sufficient vitD levels were decisive for improved treatment response. Therefore, regular vitD monitoring and long-term vitD substitution in patients with low vitD levels is indicated.

Disclosure: Olivia Schütte, Lea Tessmer and Julia Stötzel have nothing to disclose. Aysegül Aksan is an employee of Immundiagnostik AG.

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Jürgen Stein: Consulting: Abbvie, Bristol Myers Squibb, Dr Schär, Falk, Ferring, Fresenius Kabi, Immundiagnostik, Janssen, Medice, MSD, Pfizer, Pharmacosmos, Shire, Takeda, Thermofisher, Vifor. Board member: Abbvie, Bristol Myers Squibb, Dr Schär, Ferring, Fresenius Kabi, Immundiagnostik, Janssen, MSD, NPS, Pharmacosmos, Takeda, Vifor and Shield. Lecturing fees: Vifor Pharma

PP0710

THERAPEUTIC DRUG MONITORING (TDM) IN CROHN'S DISEASE: WHAT ABOUT IN REAL LIFE?

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Introduction: Therapeutic Drug Monitoring (TDM) has been shown to be useful in patients with Crohn's disease. It consists of measuring the residual serum level of anti-TNF and screening for antibodies to the molecule. TDM is a tool for therapeutic adjustment thanks to the introduction of algorithms based on pharmacokinetics and immunogenicity, allowing the therapeutic objectives of Crohn's disease to be reached, which must meet the STRIDE II objectives, notably clinical, biological and endoscopic remission.

Aims & Methods: The aim of the study was to demonstrate the value of monitoring in therapeutic decision making during the management of Crohn's disease, and to study its place in current practice.

This is a retrospective descriptive and analytical study including 296 patients with Crohn's disease. 57 patients receiving biotherapy, collected from January 2017 to July 2022. For the study of factors predictive of the occurrence of complications, a binary logistic regression was performed using SPSS 20.0 software, with a retained p of 0.05.

Results: 57 cases of patients followed for crohn's disease under biotherapy were included. The mean age of our patients was 40.8 years +/-13.5 with a sex ratio W/M: 1.85. The location was mainly ileo-colic in 49% of cases (n=28). The fistulizing phenotype was dominant in 45% of cases (n=26). Infliximab was indicated in 88% (n=50), and Adalumimab in 12% (n=7). TDM was performed in 33% (n=19). The indication for drug testing was based on a primary non-response in 16% of cases (n=3), loss of response in 84% of cases. The therapeutic decision was changed in 84% of cases. The evaluation of clinical and biological response after therapeutic adjustment showed a higher clinical and biological response rate in the TDM group compared to the non-TDM group, this difference being statistically significant with a $p = 0.034$ and 0.039 respectively. 71% of patients in the TDM group achieved endoscopic remission compared to 34% in the non-TDM group, this difference is statistically significant with a $p = 0.034$. 42.1% patients from TDM group had complications such as moderate to severe flare, endoscopic recurrence or sub-occlusive syndrome compared to 68.4% in the non-TDM group. This difference is statistically significant with a $p <0.005$.

Conclusion: In our study, reactive TDM was able to demonstrate its value in guiding our therapeutic management in cases of loss of response or primary non-response. In these indications, the cost/effectiveness ratio is very favourable. However, our study has limitations: the small number of patients and the high cost of these assays which constitutes a real obstacle in practice.

Disclosure: None conflict of interest.

PP0711

LONG-TERM RISK OF DELAYED POSTOPERATIVE CROHN'S DISEASE RECURRENCE IN PATIENTS WITH NO OR MILD RECURRENCE AT FIRST ENDOSCOPIC ASSESSMENT

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Introduction: Endoscopic postoperative recurrence (POR) of Crohn's disease (CD) occurs in up to 70% of patients within the first 12 months after ileocecal resection (ICR) with anastomosis if no prophylactic therapy is started. Early postoperative prophylaxis with thiopurines or anti-TNF agents may lower this number to 30-50%. However, scarce data on POR are available in the long-term.
Aims & Methods: To evaluate the long-term outcomes of patients without endoscopic POR at the first endoscopic assessment.
We performed a retrospective, observational study including consecutive CD patients undergoing ICR with anastomosis at four European referral centres since 1998. All patients underwent a first endoscopic assessment within 18 months from ICR demonstrating no endoscopic POR (Rutgeerts score i0-i1), and had a clinical follow-up ³24 months including at least one further endoscopic assessment.
Main outcomes were endoscopic (Rutgeerts >i1), clinical (development of digestive symptoms together with a disease recurrence seen at endoscopic or radiological examination that prompted changes in the treatment) and surgical (new intestinal resection) POR, need for rescue therapy and "delayed POR" (any need for rescue therapy or clinical or surgical POR) during follow-up.
Results: One-hundred eighty-five patients were included (133 Rutgeerts i0, 52 Rutgeerts i1), of whom 88 (48%) started thiopurines or 17 anti-TNF (9%) early after surgery and 80 (43%) patients did not start any prophylactic therapy. No clinical risk factors for POR were present in 38%, whereas 27% met ³1 (active smoking, penetrating disease, perianal disease and/or previous ICR). By the last endoscopic assessment that was performed a median (IQR) of 58 (24-133) months after the first one, endoscopic POR was observed in 39% (17% i3-i4).
Cumulative probability of remaining free of endoscopic POR in the total cohort was 97% at 1 year, 68% at 5 years and 61% at 10 years, from the index colonoscopy.
During a median follow-up of 104 (IQR, 55-196) months, 30% of the patients developed clinical POR and 31% required rescue treatment (thiopurines in 14 patients, biological therapies in 43 and dose-escalation in 1). Cumulative probability of remaining free of clinical POR for the total cohort was 97.5% at one year, 81.8% at 5 years and 72.1% at 10 years. Finally, 5% of the patients had surgical POR at the end of follow-up.
In multivariate analysis, no risk factors were observed for endoscopic, severe endoscopic and surgical POR. However, early prophylactic treatment was protective for clinical POR (OR 0.54 [95%CI 0.32-0.96]; p=0.026) and need for rescue therapy (OR 0.43 [95%CI 0.23-0.79]; p=0.007), whereas a Rutgeerts score i0 at index ileocolonoscopy was the only factor that prevented from "delayed POR" (OR 2.00 [95%CI 1.18-3.31]; p=0.009).
Conclusion: Most patients without endoscopic POR after ICR will remain free of endoscopic and clinical POR in the long-term, although the risk steadily increases over time. Moreover, early postoperative prophylactic therapy seems to prevent the long-term risk of clinical POR and reduces the need for rescue therapies. Therefore, periodical non-invasive monitoring seems a suitable strategy for patients without endoscopic POR at the first postoperative endoscopic assessment, particularly if early prophylaxis was started or no endoscopic lesions (i0) were observed at index ileocolonoscopy.
Disclosure: Nothing to disclose.

PP0712

HIGH-RESOLUTION VISUALIZATION OF INTESTINAL MICROCIRCULATION USING ULTRA-MICROANGIOGRAPHY: EXPERIENCE FROM A TERTIARY CENTER

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Introduction: Ultrasound examination of the intestine is an important component in assessing disease activity, both in diagnosis and in monitoring the course and therapy of inflammatory bowel disease (IBD). Pathophysiologically, hyperemia of the intestinal wall and possibly also of the surrounding structures can be used as a measure of the severity of the inflammatory activity.
Aims & Methods: This study aimed to compare imaging of intestinal vascularization of color-coded duplex sonography (CDS) with the new ultra-microangiography (UMA) ultrasound technology. This method allows high-resolution imaging of the microcirculation in surface structures. The use of a special algorithm minimizes artifacts and background noise.
A structured ultrasound examination of the bowel, initially using B-scan and CDS and after identification of the affected regions using UMA, was performed in 13 IBD patients by an experienced investigator. A cohort of 28 patients without IBD served as a control group. Image data were evaluated concerning the imaging quality of the intestinal microcirculation in comparison between CDS and the 3 new modalities cUMA (color-UMA), pUMA (power-UMA), and sUMA (subtraction-UMA). All examinations were performed on the RESONA R9 (Mindray Bio-Medical Electronics Co., Ltd) ultrasound machine using a multifrequency linear sound probe (3-15 MHz, Mindray, Resona R9).
Results: Intestinal microcirculation as an expression of inflammatory activity in patients with IBD could be visualized and quantified with high sensitivity using UMA ultrasound. Using UMA, a better visualization accuracy by a factor of 1.8 was achieved in IBD patients compared to visualization by CDS. In the control cohort, visualization of intestinal perfusion via UMA was improved by a factor of 2.2.

Conclusion: UMA ultrasound technology significantly improves the visualization quality of intestinal microcirculation of the bowel in both IBD and non-IBD patients. Thus, ultrasound continues to move into focus as a non-invasive method for assessing inflammatory activity in the gut as a primary diagnostic tool. Imaging using UMA increases diagnostic precision by providing unprecedented resolution accuracy and interference-free imaging.

Disclosure: Nothing to disclose.

PP0713

THE POCER INDEX: APPLICATION OF A NOVEL ENDOSCOPIC SCORE IN A REAL-LIFE COHORT OF PATIENTS WITH CROHN'S DISEASE AFTER SURGERY

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Introduction: Endoscopic evaluation offers essential prognostic information in the field of postoperative management of patients with Crohn's disease(CD). Although not validated, the Rutgeerts score is the most widely used. A recent study has introduced the POCER postoperative index (score 0-4), which includes the circumferential extent and depth of anastomotic ulcers.

Aims & Methods: Our study aims to evaluate the POCER Index in a real-life cohort, its correlation with the Rutgeerts score, and its prognostic value of subsequent disease courses.

We conducted a single center, retrospective study evaluating clinical and endoscopic outcomes of patients with CD who underwent ileo-colonic resection. All patients underwent the first endoscopic evaluation within 6-12 months to assess postoperative recurrence(POR). This evaluation was performed using the Rutgeerts score and the POCER Index. POR was defined as Rutgeerts ≥ 2 or POCER ≥ 2. A clinical assessment was performed at 18-24 months for all patients by calculating the Harvey-Bradshaw Index (HBI). A second endoscopic evaluation at 18-24 months was available for a sub-cohort.

Results: We included 103 patients, with a median age at surgery of 38 years old. 79% of the patients had no previous bowel resection surgery history. The main indication for surgery was the presence of stenotic disease. 63% of patients had at least one risk factor for post-surgical recurrence between smoking or penetrating disease. 35 patients were bionaïve (34%). All patients underwent prophylactic biologic therapy (27% with Infliximab, 48% with Adalimumab, 7% with Vedolizumab, and 17% with Ustekinumab. At 6 month, POR was observed in 50 (48.3%) and 17 (16.5%) patients, according to Rutgeerts and POCER scores, respectively. Mean Rutgeerts and POCER scores were 1.39 (± 1.31) and 0.70 (± 1.08); a moderate correlation (r=0.613) between the two was observed. During postoperative follow-up, a sub-cohort of 50 patients underwent further endoscopic examination at 18-24 months. POR was observed in 30 (60%) and 9 (18%) patients, according to Rutgeerts and POCER scores, respectively. Mean Rutgeerts and POCER scores were 1.82 (± 1.34) and 0.86 (± 1.02); a moderate correlation (r=0.571) between the two was observed. Finally, we assessed the ability of Rutgeerts and POCER scores at 6-12 months to predict subsequent clinical relapse (HBI ≥ 5) at 18-24 months. A Rutgeerts score ≥ 2 predicted subsequent clinical relapse with an AUROC of 0.781 (sensitivity 88.24% and specificity 58.82%), while a POCER score ≥ 2 predicted subsequent clinical relapse with an AUROC of 0.714 (sensitivity 35.29% and specificity 86.42%). Interestingly, when evaluating the performance of the combination of the two scores (mean of Rutgeerts + POCER score), we observed that a mean score ≥ 1.5 could predict subsequent clinical relapse with an AUROC of 0.768 (sensitivity 88.24% and specificity 67.06%).

Conclusion: Rutgeerts and POCER score can be used to assess POR and they show only moderate correlation between each other. In predicting subsequent clinical relapse, the Rutgeerts score appears to have greater sensitivity, while the POCER score seems to have greater specificity. The combination of the two might outperform each of them with a good compromise between sensitivity and specificity.

Disclosure: The authors declare no conflict of interest.

PP0714

IMPLEMENTATION OF CANCER PREVENTION TO PATIENTS WITH INFLAMMATORY BOWEL DISEASE ACCORDING TO RECOMMENDATION - HOW IT WORKS IN EVERYDAY PRACTICE ? RESULTS OF ONE CENTER CROSS-SECTIONAL STUDY

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Introduction: Patients with Inflammatory Bowel Disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC) are at high risk of developing malignancies, so prevention and adherence to cancer screening may improve its detection.

The aim of this study was to assess the compliance with medical recommendations, especially primary and secondary prevention of cancer.

Aims & Methods: The aim of this study was to assess the compliance with medical recommendations, especially primary and secondary prevention of cancer.

This one-center cross-sectional study was carried out between June and December 2021r. amongst patients from the Department of Internal Medicine and Gastroenterology with IBD Division, National Health Institute of Ministry of Interior Affairs and Administrations or outpatient clinic. Patients were asked to complete anonymous questionnaire which included 42 questions concerning lifestyle, cancer risk factors, cancer history and checkups in patients with IBD. The results of the qualitative variables were expresses as frequencies and percentage. We used Fisher exact test, chi-squares test. $p<0.05$ was considered significant. Statistical analyses were performed with the SPSS statistical package.

Results: A total of 313 patients were enrolled into the study: 145 women and 168 men. In the group, 182 had Crohn's disease (CD), 120 had ulcerative colitis (UC) and 11 with IBDU (unclassified IBD). Most participants had disease duration over 8 years, received biological treatment, corti-

coids or/and immunosuppressive therapy. Amongst respondents 17% (31) of patients with CD, 25.8% (31) with UC were overweight and 10.5% (19) with CD and 15.8% (19) with UC were obese (p= 0.017). We found that 16.3% of all respondents were smokers (79.6% (144) CD, 90.8% (109) UC and 72.7%(8); p 0.053) and 33.9% declared to consume alcohol (39.4%(71) CD, 26.9%(32) UC and 18.2%(2) IBDU; p 0.045). 25.4% were exposed to UV radiation, only 18.8% of them used sunblock. 58.8% (67) of patients with CD, 35.8% (19) and UC receiving immunosuppressants did regular laboratory tests regularly (p= 0.02). 41.4% (46) of UC, 27.1% (49) of CD and 70.0%(7) IBDU declared not to do any dermatological control (p =0.013). 77% of patients had abdominal ultrasound done. Out of 52.9% of patients who had colonoscopy recommended, only 27.3% had it performed (16.9%(30) with CD vs . 43.1%(50) with UC p< 0 .001). Most of examinations were ordered by gastroenterologists. Female patients had regular breast control (CD 78.6% (66), UC 91.2%(52) and 50% (2) IBDU p 0.034) and 93.8% (76) had gynaecological examination. 80.2% of patients knew about HPV but most declared not to be vaccinated. 17.9% of patients had urological control, but most had no important pathology detected.

Conclusion: According to our study, many patients are still exposed to risk factors, such as obesity, smoking or little physical activity, which are modifiable. Systematic control especially dermatological check-ups should be recommended. Additionally, not only gastrologists but also other specialists and GPs should remind patients about regular checkups. Primary prevention, such as HPV vaccinations, should be reminded to all patients.

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Disclosure: Nothing to disclose.

PP0715

CIRCULATING CELL-FREE DNA AND MITOCHONDRIAL DNA PREDICT DISEASE ACTIVITY IN PAEDIATRIC-ONSET INFLAMMATORY BOWEL DISEASE

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Introduction: Paediatric-onset inflammatory bowel disease (PIBD) is a distinct phenotype with more aggressive and extensive gut inflammation at diagnosis in comparison to adult-onset IBD.[1] Disease activity in paediatric IBD is typically monitored using a combination of clinical, endoscopic, and laboratory parameters. Circulating cell-free DNA (cfDNA) and mitochondrial DNA (mtDNA) are damage-associated molecular patterns (DAMPS) released into the bloodstream during tissue damage and cell death and can be detected in peripheral blood samples. There is a growing interest in the use of cfDNA and mtDNA as potential non-invasive biomarkers for disease activity. Recent studies have suggested that levels of cfDNA and mtDNA may correlate with disease activity in adult IBD[2] but their utility in paediatric populations, where mitochondrial dysfunction is strongly implicated,[3] remains largely unexplored. This study aims to present initial data on the potential use of cfDNA and mtDNA as biomarkers for disease activity in paediatric-onset IBD.

Aims & Methods: GI-DAMPs/MUSIC is an ongoing cross-sectional and longitudinal multi-centre translational research study in Scotland (2020 – 2025) with a primary aim of investigating the inflammatory mechanisms of IBD with a focus on multi-omics, immune- and microbiome-profiling aligned to careful clinical prospective follow-up. We measured circulating cfDNA and mtDNA, using mtDNA-specific *ND2* gene dPCR, in the peripheral blood of patients diagnosed under 17 years (A1 phenotype)[4] and correlated this with detailed phenotypic data, clinical disease activity scores and standard biomarkers.

Results: 24 patients, out of a total GI-DAMPS cohort of 338, were A1 phenotype and included in the analysis (14/24 (58%) male, 23 Crohn's disease (CD), 1 Ulcerative colitis (UC)) with a median (IQR) age at diagnosis of 13 (11.5-15 years). Patients with highly active disease had higher levels of cfDNA levels compared to those in remission (median 0.435 (0.246-0.700 ng/µl) vs 0.123 (0.066-0.160 ng/µl), p=0.005). mtDNA levels were also significantly higher in those with highly active disease compared to those in remission (median 363.6 (135.2-639.6 copies/µl) vs 96.4 (78.2-129.8 copies/µl), p=0.024). cfDNA was moderately correlated with total white cell count (Pearson correlation, r=0.41, p=0.48) and negatively correlated with haemoglobin (r=-0.42, p=0.41), though these correlations were not seen with mtDNA (all p=>0.05).

Conclusion: In conclusion, our initial data demonstrate that the levels of circulating cell-free DNA (cfDNA) and mitochondrial DNA (mtDNA) in the blood are potentially valuable biomarkers for differentiating disease activity in paediatric IBD. These findings suggest that measuring cfDNA and mtDNA levels could provide a non-invasive method for monitoring disease activity in young patients with IBD, enabling early detection of disease flare-ups and facilitating prompt intervention. Further investigation is needed to validate these results and determine the clinical utility of these biomarkers in the management of paediatric IBD.

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Disclosure: Nothing to disclose.

PP0716

A SPECIFIC MICROBIOTA SIGNATURE IS ASSOCIATED TO IMMUNOTHERAPY-RELATED COLITIS AS ASSESSED BY A MACHINE LEARNING APPROACH – A COMPARATIVE STUDY WITH INFLAMMATORY BOWEL DISEASES AND HEALTHY CONTROLS

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Introduction: Immuno-mediated colitis is one of the most common gastrointestinal side effects associated with immune checkpoint inhibitors (ICIs). ICIs-colitis shares with inflammatory bowel disease (IBD), including both Crohn's Disease (CD) and Ulcerative Colitis (UC), the clinical presentation, macroscopic, microscopic, and serological findings, making challenging the differentiation between the two conditions. The gut microbiota has been suggested as an important driver in the pathogenesis of ICIs-colitis as well as in the pathogenesis of IBD.

We aimed to assess whether a specific microbiota profile, as measured by a machine learning approach, can be associated with ICIs-colitis and whether it differs from the one assessed in patients with IBD and in healthy controls (HCs).

Aims & Methods: In this prospective pilot study, consecutive patients with ICIs-colitis, patients with IBD and HCs were enrolled. Stool samples were collected for fecal microbiota assessment analysis by 16S rRNA gene sequencing approach. The raw reads underwent a filtering procedure performed within QIIME2 analysis framework (version 2022.8). Alpha diversity was evaluated on rarefied counts (Richness, Shannon, and Pielou indices; rarefaction level: 31,556), while beta diversity was calculated on normalized counts (Bray-Curtis, Jaccard, Canberra, Weighted and Unweighted Unifrac; counts normalized with GMPR). The diversity analysis was conducted in R (version 4.1.0). A permutational analysis of variance (PERMANOVA) test on Bay-Curtis dissimilarity was used to test for differences in the microbiota composition between disease status groups (vegan and ecole packages). The MaAsLin2 package was then used to perform differential abundance analysis at all taxonomic levels. Supervised and unsupervised machine learning algorithms were applied.

Results: Nineteen patients with ICIs-colitis, 40 patients with UC (20 active and 20 inactive), 34 with CD (14 active and 20 inactive) and 36 HC were enrolled. Alpha diversity was not significantly different between ICIs-colitis and HCs (p=0.94), while it was statistically significant between IBD and HCs (p=0.02) and between IBD and ICIs-colitis (p=0.03). At phylum levels, we found high levels of Tenericutes in HCs and high levels of Proteobacteria in ICIs-colitis. Moreover, we found high levels of Actinobacteria in IBD compared to the other group. Interestingly, at genus levels, we found very high levels of Enhydrobacters in ICIs-colitis compared to patients with IBD. While at species levels, high levels of Bifidobacterium longum in patients with UC were observed. A specific microbiota profile was found for each group (IBD, ICIs, HC) and was confirmed with sparse partial least squares discriminant analysis, a machine learning-supervised approach. The latter allowed us to observe a perfect class prediction and group separation using the complete information (full Operational Taxonomic Unit table), with a minimal loss in performance when using only 5% of features.

Conclusion: A machine learning approach to 16S rRNA data identifies a bacterial signature characterizing ICIs-colitis from IBD and HCs. Future research will clarify whether such microbiota profiling is useful for prediction, early diagnosis and management of patients with ICIs-colitis.

Disclosure: None

PP0717

SIMPLE SCORING QUESTIONNAIRE FOR ASSESSMENT OF DISEASE SEVERITY AND QUALITY OF LIFE

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Introduction: The clinical assessment of patients diagnosed with inflammatory bowel disease remains the gold standard for the medical follow up. For each patient, the calculation of multiple scores are required to estimate the clinical severity (CDAI or the complete form of the Mayo score (CF-MS) or the patient's quality of life (for example, IBQD and CUCQ). These scores are time consuming and seldom used in clinical practice.

Aims & Methods: The primary objective of this study is to establish a short questionnaire for patients diagnosed with IBD, easily applicable in clinical practice, that assembles the disease activity and the quality of life.

This is a prospective study where 52 patients diagnosed with IBD filled in a new questionnaire including 58 items (revolving around the disease activity and the quality of life), the IBDQ-32, CDAI, and the complete form of the Mayo. Principal component analysis allowed to identify 8 domains. The reliability analysis permitted to reduce the questionnaire to 22 items, then, classified in terms of clinical severity and quality of life (QOLQ). Spearman correlation between each domain, the IBDQ-32, CDAI, CF-MS, and the new 22-items questionnaire is established. The clinical severity and QOLQ compared to IBDQ, CF-MS and CDAI were further assessed using a binary logistic regression.

	V/s	Cut-off	AUROC	Cohen's Kappa
QOL (46)	IBDQ	14	0.818	0.46
Clinical severity- Crohn (56)	CDAI	19	0.834	0.608
Clinical severity- UC (56)	CF-MS	10	0.748	0.548
Total (91)	IBDQ	24	0.866	0.644
Total – Crohn (91)	CDAI	34	0.838	0.51
Total – UC (91)	CF-MS	25	0.726	0.451

()= maximum score.

Results: Fifty-two patients 33 (63.5%) and 19 (36.5%) with Crohn's disease and UC respectively had a mean age of 41.3 ± 16.3, mean CDAI is 99 ± 107, and CF-MS is 2.88 ± 2.29. Our score was divided into two categories regrouping the 8 identified domains: clinical severity included domains related to physical activity, bowel urgency, bloating, abdominal pain, extra digestive symptoms. QOLQ included daily activities limitation, bowel urgency, satisfaction, patient's health compared to others. A Spearman correlation showed that the IBDQ is inversely correlated to the quality of life in Crohn's disease (rho= -0.486, p= 0.004) and UC (rho= -0.467, p= 0.044). In addition, the CDAI is correlated to the clinical severity (rho= 0.712, p < 0.0001). In UC, the CF-MS is also correlated to the clinical severity (rho= 0.671, p= 0.002). Then, the cut-off of each section (QOLQ and clinical severity) defining the clinical remission was identified using the AUROC. The agreement between the two variables studied was specified using the Cohen's Kappa.

Conclusion: This study showed that this new 22-items questionnaire is a short and reliable clinical assessment method for clinical and quality related uses. Further studies on a larger scale are required to validate it for a more generalizable use.
Disclosure: Nothing to disclose.

PP0718

ENTERIC INFECTIONS WORSEN POST DISCHARGE OUTCOMES IN PATIENTS HOSPITALIZED FOR INFLAMMATORY BOWEL DISEASE FLARE: A SINGLE CENTER STUDY.

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Introduction: Patients with inflammatory bowel disease (IBD) have increasedrisk to develop bacterial enteric infections (Clostridium difficile infection [CDI] and non-CDI). Thus, when hospitalized due to IBD flare, they often undergo assessment for enteric infection.
Our study aimed to assess the impact of enteric infections on hospitalized patients with IBD on the disease course, morbidity, and mortality.
Aims & Methods: In our retrospective study, we included patients hospitalized due to IBD exacerbation who were further stratified in those with enteric infection (Clostridium difficile infection (CDI) and non-CDI) and those without infections.
We collected demographic and clinical data including disease location and behavior, previous treatments and surgery, comorbidities, medications for IBD, symptoms at the time of admission at the emergency department (ED), number and type of blood and stool tests for enteric infections, CRP levels, therapies during hospitalization and after discharge, post discharge related hospitalization, post discharge surgery, post discharge mortality. Continuous variables are reported as median and IQR (interquartile range [25th percentile, 75th percentile]) while categorical ones as counts and percents.
Similarity between distributions is tested using the Kolmogorov-Smirnov test. Pearson's Chi Squared (with Yate's continuity correction) and Fisher's exact test are used for categorical variables, while Wilcoxon rank sum test (with continuity correction) it is used for continuous ones. Statistical analysis was performed using R (v. 4.2.2 - 2022).
Results: We included 267 patients hospitalized due to IBD exacerbation with a concomitant enteric infections and 89 IBD patients without. At baseline characteristics, IBD patients with enteric infections had longer median times of hospitalization than those without (10vs 6 days, p<0.001), and they presented higher CRP levels (36 vs 17, p<0.001).
Post-discharge, 29/89 (32.6%) and 57/267 (21.3%) of patients with and without enteric infections, respectively, were readmitted to ED for a flare (p=0.04). Moreover, infected patients had higher steroid dependency after discharge (p=0.003) compared to those without enteric infection.
Post-discharge, we did not find any difference in biological therapy optimization between the two groups (p=0.07). We then stratified IBD patients with infections in two sub-groups: patients with CDI (n=19) and patients with non-CDI (n=70). We found a statistically significant difference in IBD related re-hospitalization between the two groups (0% in CDI vs 22.9% in non-CDI, p=0.02).
Conclusion: Our findings suggest that enteric infections in IBD patients play an important role on complications like hospitalization and steroid dependency. Early detection, appropriate management, and prevention strategies are crucial to avoid their deleterious outcomes.
Disclosure: none

PP0719

ASSESSMENT OF FACTORS ASSOCIATED WITH CUMULATIVE BOWEL DAMAGE IN SURGICALLY NAÏVE PATIENTS USING LEMANN INDEX AND GLOBAL MARIA INDEX IN CROHN'S DISEASE

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Introduction: The Lémann index (LI) is a unique tool that measures cumulative bowel damage in Crohn's disease (CD) and is composed of surgical procedures and severity and extent of bowel lesions according to endoscopy and MR enterography (MRE). (1) Since there is a significant contribution of previous surgery in LI calculation, our aim of this study is to investigate factors associated with cumulative bowel damage using LI in both total population and surgically naïve patients.
Aims & Methods: In this cross-sectional study, LI was calculated evaluating 20 small bowel, 7 large bowel and 3 upper GI segments. For each segment bowel resections, inflammatory, stricturing or penetrating lesions were considered using MRE and upper and lower endoscopy. Global MaRIA (gMaRIA) index was calculated using following parameters on 6 bowel segments on MRE: bowel wall thickness, ulcers, edema, and relative contrast enhancement. Longstanding disease was defined as ≥10-year duration. Disease activity was defined as CRP>5 or HBI≥5. Extent and disease behavior were assessed using Montreal classification. Predictors were analyzed using multivariate logistic regression adjusted for confounders (age, gender, BMI, smoking status, CRP, disease behavior and extension, biological therapy, gMaRIA score, and HBI).
Results: This study included 320 CD patients [age 36 (24-46), 54.6% males, disease duration 7.2 (1-14) years, BMI 21.3 (17.4-24.8) kg/m2]. There were 142 (44.4%) surgically naïve and 128 (40%) patients with longstanding disease. In total population, higher LI values were observed among those with longstanding disease (10.31 vs 5.35 years, p<0.001), patients treated with biological therapy (9.7 vs. 6.4, p=0.005) and prior surgery (11.81 vs. 1.62, p<0.005). There was no difference in LI according to activity (p=0.921) and smoking status (p=0.336). Multivariate analysis on total population revealed independent predictors of elevated LI which were BMI (β=-0.268, p<0.02), disease duration (β=0.120, p=0.041) and prior surgery (β=5.42, p<0.001). Hence, separate multivariate analysis was performed on surgically naïve which revealed following predictors of LI (other than surgery): current smoking (β=1.14, p=0.010), perianal disease (β=1.39, p=0.02) and gMaRIA score (β=0.093, p<0.001). Diagnostic accuracy of LI in surgically naive patients in defining active disease was lower [AUC 0.74 (95%CI 0.64-0.85)] compared to gMaRIA [AUC 0.81 (95%CI 0.72-0.9)].
Conclusion: Prior surgery has significant impact on LI giving highest scores for resected segments. Positive predictors of cumulative bowel damage in surgically naïve patients were smoking, perianal disease, and radiological

activity (gMaRIA), while in total population longer disease duration, BMI and prior surgery. There are several important contributing variables on cumulative bowel damage which were revealed after removing previously operated patients, which would otherwise remain unrecognized. This risk factors in CD could stratify patients at high risk for complicated course of disease.

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Disclosure: Nothing to disclose.

PP0720

EFFECTS OF AN EXCLUSION DIET ON INFLAMMATION MARKERS AND MAINTENANCE OF REMISSION IN PATIENTS WITH QUIESCENT IBD – A 1-YEAR PROSPECTIVE TRIAL

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Introduction: Recent research has shown that there is considerable interest in studying inflammatory bowel diseases (IBD) due to the potential for dietary interventions to be used as a therapeutic approach for their onset and progression. Evidence suggests that Western-style diets, with high intake of processed foods, food additives, red meat, and animal fat, have been associated with an increased risk of IBD.

Aims & Methods: The purpose of this study is to evaluate the link between an anti-inflammatory exclusion diet and the maintenance of IBD remission, as well as to assess the potential therapeutic advantages of this dietary approach in preserving IBD remission.

The inclusion and exclusion criteria were applied to a total of 189 individuals with IBD, with 21 individuals not meeting the criteria. Therefore, 168 eligible patients were enrolled in the study and allocated to either an exclusion diet or a regular diet, based on their personal preference.

Results: A cohort of 84 adult patients with inflammatory bowel disease (IBD) was recruited for the study. The cohort included 47.6% males, with 44 patients having ulcerative colitis (UC) and 40 having Crohn's disease (CD). The intervention group received an exclusion diet consisting of the removal of red and processed meat, fried foods, high-lactose foods, fast food, white bread, sweetened drinks, and vegetable oils rich in omega-6 for a period of 1 year. An equivalent number of IBD patients with similar demographics and disease types formed the control group. The exclusion diet was well tolerated, with 90% of participants adhering to it frequently or always.

The study demonstrated that the clinical response was maintained in 80 patients (95.2%) in the intervention group, which was significantly higher than the 72 patients (85.7%) in the control group (p-value=0.036). Although not statistically significant, fecal calprotectin was higher in the control group than in the intervention group at the one-year follow-up interval. Additional information is provided in Table 1.

Parameter	All patients (168)	Exclusion diet (n=84)	Control (n=84)	p-value*
Sex (male)	80(47.6)	40 (47.6)	40 (47.6)	1.000
Age (years)	41.5 (18-77)	43.5 (23-77)	39.5 (18-72)	0.371
Immunosuppressive treatment Azathioprine Methotrexate	30 (17.9) 4 (2.4)	10 (11.9) 2 (2.4)	20(23.9) 2 (2.4)	0.083
Biologic treatment Infliximab Adalimumab Vedolizumab Ustekinumab Tofacitinib	48(28.6) 44 (26.2) 32 (19.1) 8 (4.8) 4 (2.4)	22 (26.2) 24 (28.6) 10 (11.9) 4 (4.8) 2 (2.4)	26 (31) 20 (23.8) 22 (26.2) 4 (4.8) 2 (2.4)	0.033
Combo therapy	30 (17.9)	10 (11.9)	20 (23.9)	0.069
Other IBD treatment	28 (16.7)	20 (23.8)	8 (9.5)	0.022
Initial fecal calprotectin >300 mcg/g	34 (20.2)	18 (21.4)	16 (19)	0.443
Fecal calprotectin>300 mcg/g after one year	22 (13.1)	8 (9.5)	14 (16.7)	0.171
Clinical remission after one year	152 (90.5)	80 (95.2)	72 (85.7)	0.036

Conclusion: Patients who adhere to an exclusion diet have the chance of a significantly higher rate of maintenance of clinical remission (95% versus 86% in the control group). A trend toward improvement in inflammation tests was observed in the intervention group, confirming once again that Western-style diet is an important etiological factor in IBD. Therefore, it is recommended that the exclusion, anti-inflammatory diet be presented to all patients diagnosed with IBD as a potential intervention.

Disclosure: Nothing to disclose.

PP0721

PREVALENCE OF GASTROINTESTINAL SYMPTOMS, QUALITY OF LIFE, VISCERAL HYPERSENSITIVITY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE IN DEEP REMISSION

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Introduction: Patients with inflammatory bowel disease (IBD) may present with persisting gastrointestinal symptoms, despite clinical, biochemical and endoscopic remission. Disorders of the gut-brain interaction may coexist, resulting in hypervigilance and visceral hypersensitivity, thus affecting the quality of life of these patients. Failure to identify the origin and assess the reported symptoms may result in unnecessary treatment escalation.

The aim of this study is to describe the prevalence of gastrointestinal symptoms and visceral hypersensitivity and the quality of life in patients with IBD in deep remission.

Aims & Methods: We analyzed data from consecutive patients with either Crohn's disease (CD) or ulcerative colitis (UC), who remained under deep remission for at least 6 months. Remission was defined as absence of clinical, biochemical and endoscopic features of active disease.

We collected demographics, disease characteristics, symptom severity (via Patient Assessment of gastrointestinal disorders (PAGI-SYM), quality of life (via Patients assessment of gastrointestinal disorders- PAGI-QoL), psychological features including anxiety/depression (Hospital Anxiety and Depression Scale (HADS) and GI-specific anxiety (Visceral Sensitivity Index (VSI).

Results: A total of 69 patients, of whom 50.8% with CD and 49.2% with UC under deep remission (43.2% females, mean age 41.29 +/-14.87) were recruited. All applied questionnaires displayed excellent reliability analysis (Cronbach's alpha was 0.922 for PAGI-SYM, 0.962 for PAGI-QOL, 0.909 for VSI, and 0.848 for HADS respectively). Patients with CD and UC expressed similar gastrointestinal symptoms, as reflected by PAGI-SYM, with the exception of the loss of appetite, where patients with CD experience more severe symptoms than patients with UC (p=0.03). Moreover, the two groups displayed similar outcomes in VSI. Both patients with UC and CD in remission scored normally in HADS, although high on the anxiety score scale (mean anxiety scale 6.25+/- 3.5 and depression scale 4.47 +/- 3.31). However, a total of 36% and 24% of patients score abnormal in anxiety and depression scales respectively.

Conclusion: In this retrospective cohort, we found similar expression of gastrointestinal symptoms, quality of life, visceral hypersensitivity, and anxiety and depression scores in patients with UC and CD in deep remission. However, almost one-third of patients have persisting symptoms, affecting their QoL. A holistic approach is of paramount importance in patients with IBD, targeting both inflammatory and neuro-sensitivity pathways.

Disclosure: Nothing to disclose.

PP0722

RISK FACTORS FOR INTESTINAL AND EXTRA-INTESTINAL CANCERS IN INFLAMMATORY BOWEL DISEASE: A RETROSPECTIVE MONOCENTRIC COHORT STUDY

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Introduction: Patients with inflammatory bowel disease (IBD) have an increased risk of developing intestinal and extra-intestinal cancers. Specific therapies used to control inflammation in IBD may have a different impact on cancer risk. However, there are no long-term studies investigating cancer risk in patients with IBD.

Aims & Methods: In the present study we aimed to quantify the overall risk for of developing cancer and to identify specific risk factors for the occurrence of intestinal and extra-intestinal cancers in 560 consecutive patients with Crohn's disease (CD, N=310) or ulcerative colitis (UC, N=250) referred to our outpatient department between January 2021 and February 2022. Demographic data, smoking status, alcohol consumption, age at IBD diagnosis, disease location and course, therapies, and cancer development after IBD diagnosis were recorded. Odds ratios (OR) were estimated by logistic regression analysis. Standardized Incidence Ratios (SIRs) were estimated compared with the general population.

Results: During a median follow-up interval or time of 10 years (range 1-26 years), 6.6% of patients (37/550, female 65 %, mean age 51 years) developed cancer (SIR 1.94, 95%CI 1.4-2.6). The most common cancers were colorectal (12.3%), skin (8.2%), and breast cancer (7.2%). Female patients had an increased risk for all cancers (SIR 3.11, 95%CI 2.06-4.3), melanoma (SIR 5.6, 95%CI 1.14-16.2) and colorectal cancer (SIR 7.59, 95%CI 3-15.4). Male patients had an increased risk of lymphoma (SIR 26.15, 95%CI 3.2-95.7). Younger age at diagnosis of CD (A1 Montreal classification, OR 37.9, 95%CI 10-14), immunosuppressive monotherapy (OR 5.5, 95%CI 2.65- 11) or in combination with anti-TNFα (OR 9.9, 95%CI 3.3-29.09) were associated with an increased risk of cancer in the study population.

Conclusion: We have identified subgroups of IBD patients who would particularly benefit from screening programs. Our findings need to be validated in independent cohorts.

Disclosure: Nothing to disclose.

PP0723

THE VALUE OF QUANTIFERON IN THE DIFFERENTIAL DIAGNOSIS OF CROHN'S DISEASE AND INTESTINAL TUBERCULOSIS

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Introduction: The distinction between intestinal tuberculosis (IT) and Crohn's disease (CD) is difficult because of the numerous clinical, endoscopic and histological similarities between these two diseases, essentially in the ileo-cecal localization, which poses a problem of positive diagnosis and therefore of therapeutic management of these patients. The diagnosis of IT can be easy when it is associated with a pulmonary or peritoneal localization, more difficult when it is isolated.

The aim of our work is to show the interest of quantiferon in the differential diagnosis between these two pathologies.

Aims & Methods: This is a retrospective, descriptive monocentric study conducted over a period of 15 years from January 2007 to July 2022. 666 cases of CD were identified including 189 patients with ileocecal localization and during the same period 53 cases of TI were included. All our patients had an endoscopic evaluation with biopsies, an entero-CT scan and a phthisiological check-up. We included all patients with ileocolitis having chronic transit disorders.

Results: The average age of our patients was 39 years for IT and 32 years for CD. The sex ratio F/H=1.4 for IT and F/H=1.2 for CD.

The circumstances of discovery were dominated by chronic abdominal pain, then diarrhea and finally subocclusive syndrome in 46.5% (n=88), 38.6% (n=73) and 15.8% (n=30) respectively in patients with a retained diagnosis of CD, and by abdominal pain, chronic diarrhea and finally constipation and/or subocclusive syndrome in 41.5% (n=22), 39.6% (n=21) and 22.6% (n=12) of the patients diagnosed with IT respectively.

Quantiferon was performed in 79 patients and was positive in 35.4% of patients (n=28) with CD and 64.5% of those with TI (n=51). ASCA was performed in 63 patients and was positive in 60% (n=38) and negative in 40% (n=25) of patients.

In cases where ASCA was positive/Qantiferon negative, the sensitivity, specificity, positive predictive value and negative predictive value for the diagnosis of CD were 80%, 98%, 93% and 50%, respectively.

Conclusion: Quantiferon has an important contribution in the differential diagnosis between IT and CD, the association with ASCA allows to refine the diagnosis between these two entities for a better therapeutic management.

Disclosure: Nothing to disclose.

PP0724

CORRELATION BETWEEN SERUM ANTI-TNF TROUGH CONCENTRATIONS AND TRANSMURAL DAMAGE IN CROHN'S DISEASE PATIENTS IN LONG STANDING AND STABLE CLINICAL REMISSION

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Introduction: Transmural healing (TH) is a relevant target of biologic therapy in Crohn's disease (CD). Despite stable clinical remission, a proportion of patients (pts) under long term anti-TNF shows an increased bowel wall thickening (BWT). The causes of this are not clear.

Aims & Methods: This study aims to determine factors correlated with failure to reach TH despite long standing clinical remission with anti-TNF in CD.

This prospective study recruited a consecutive series of CD patients under adalimumab (ADA) or infliximab (IFX) in clinical remission since ≥1 year. Patients without clinical and sonographic assessment or increased BWT when starting biologic therapy, were excluded.

At enrollment the following parameters were collected: BMI, smoking, age at diagnosis, duration of CD, CD behavior and location, previous surgery, duration of clinical remission, previous use and duration of anti-TNF therapy, and concomitant immunomodulators. All pts underwent therapeutic drug monitoring (TDM) of ADA or IFX trough serum levels and intestinal ultrasound (IUS). TDM were assessed using a commercial assay, using therapeutic TL concentration >5mg/mL for IFX, and >7.5ug/mL for ADA and results were grouped as inferior to, up to thrice and more than thrice the normal value. IUS assessments, including those at the start of therapy, were performed by 2 expert sonographers (>10000 IUS). BWT at IUS was classified as: transmural healing (TH, BWT ≤3mm), transmural response (TR, BWT<25% of baseline) and no response (NR, BWT>4.5mm and no TR). Univariate analysis was performed and variables with $p<0.3$ entered a multivariate binary logistic regression analysis to identify those independently associated with the outcomes of interest (TH, TR, NR).

Results: 68 pts were included, 49 men with mean age of 32.2yrs, mean disease duration of 12.4yrs and remission duration of 4.1yrs. 18 pts were on IFX and 50 ADA, with a mean duration of therapy of 3.6 yrs. 36 pts (52.9%) showed anti-TNF TL below the normal threshold. 22 pts (38.4%) showed TH, 32 (47.1%) TR and 26 (38.2%) no response to treatment.

TH correlated with inflammatory CD phenotype (p 0.002), duration of remission (p 0.01), high TL of ADA (p 0.02), lower baseline BWT (0.0005) and absence of strictures at IUS after therapy (p 0.03). At multivariate analysis TH significantly correlated with BMI (p 0.01) and lower baseline BWT (CI95% -1.12 -0.1, p 0.01).

TR correlated with inflammatory phenotype (p 0.01), higher serum TL of ADA (p 0.001) and IFX (p 0.04) and overall with higher drug levels (p 0.01) and absence of strictures after therapy (p 0.04). At multivariate analysis TR correlated with shorter CD duration (CI95% -1.75 -0.13, p 0.02), higher drug levels (CI95% 0.03 0.22, p 0.01) and non stricturing phenotype (CI95% -2.85 -0.31, p 0.01)

NR was correlated with stricturing phenotype (p 0.007), lower serum TL of ADA (p 0.005) and IFX (p 0.04) and overall with lower levels of anti-TNF (p 0.005), greater baseline BWT (p 0.001) and stricture after therapy (p 0.002). At multivariate analysis NR correlated with lower BMI (CI95% -0.52 -0.09, p 0.004), lower drug levels (CI95% -0.32 -0.04, p 0.01), higher BWT at baseline (CI95% 0.11 1.21, p 0.02) and stricturing phenotype (CI95% 1.16 5.27, p 0.002).

Conclusion: Persistence of increased BWT in CD patients in stable clinical remission under biologic therapy is multifactorial and seems mainly due to sub-therapeutic TL of anti-TNF and development of strictures. High BWT when starting treatment, low BMI, development of strictures during treatment, disease duration and lower TL of anti-TNF alpha are key factors of the behavior of BWT and in reaching TH.

Disclosure: Nothing to disclose.

PP0725

A LOW FAT, HIGH FIBER DIETARY INTERVENTION LEADS TO CHANGES IN SERUM PROTEOMIC PATTERNS IN CROHN'S DISEASE PATIENTS COMPARED TO HOUSEHOLD CONTROLS

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Introduction: Crohn's disease (CD) is an inflammatory bowel disease (IBD) characterized by chronic inflammation and dysbiosis. Current pharmacologic-based treatment strategies have improved the course of CD but adverse effects and resistance call for exploring non-pharmacologic options. Diet plays a pivotal role in the development and progression of CD and recent studies highlight the feasibility and effectiveness of specific diet interventions in improving CD symptoms. However, little is known about the degree to which diet-modulation impacts biological responses in CD. To that end, we conducted a patient preference study to test a low fat, high fiber (LF/HF) diet in CD patients.

Aims & Methods: Here, we used unbiased serum proteomic screening to interrogate the systemic impact of short-term (8-week) catered dietary intervention on circulating protein levels in CD patients and healthy household controls (HHC) receiving identical diets. Serum samples were obtained from 10 CD patients and matched HHC enrolled in our LF/HF catered diet intervention study (NCT04213729) at baseline and 8-weeks following the diet. Quantitative proteome analysis was done using the SOMAscan assay (SomaLogic). Biological pathway and network analyses were performed.

Results: At baselined, CD patients had increased levels of the pro-inflammatory proteins serum amyloid A-1 (SAA1) and C-reactive protein (CRP) and increased levels of fibrinogen and Fibrinogen-like protein 1 (FGL1) compared with HHC. The immunomodulatory proteins C-type lectin domain family 12 member A (CLEC12A) and immunoglobulin A (IgA) were also elevated in CD patients compared to HHCs. In the same comparison, CD patients had reduced levels of Transcobalamin-2 (TCN2), the protein responsible for B-12 transport, and Alcohol dehydrogenase 1C (ADH1C), a protein recently highlighted for its immune-regulating role in IBD. After 8 weeks of catered LF/HF diet, CD patients had marked decrease of CRP, fibrinogen, FGL1, CLEC12A and an upregulation in ADH1C. In both CD patients and HHC, our data at the 8-week timepoint compared to baseline show a significant downregulation in the adipocyte-derived protein leptin and the Complement component 1 Q subcomponent-binding protein (C1QBP) which plays a role in impairing goblet cell formation IBD. We also observed a marked downward trend in the levels of SAA1 and CRP at the 8-week time point in CD patients and an upregulation in Ras-related

protein (Rab-21) and (Rab-7), which are important in intestinal epithelium maintenance. Lastly, pathway analysis revealed a significant enrichment in pathways associated with amino acid and fatty acid metabolism, endothelial cell development, and cellular response to DNA damage following 8 weeks of LF/HF diet intervention in CD patients.

Baseline: HHC Vs.CD		After diet: HHC Vs. CD		CD: baseline Vs. after diet	
Decreased in CD	Increased in CD	Improved after diet (decreased in CD)	Improved after diet (increase in CD)	Increased after diet	Decreased after diet
TCN2 (6)	SAA1 (-1.9)	SAA1 (-1.6)	ADH1C (0.053)	RAB21 (0.96)	SAA1 (-0.6)
ADH1C (0.82)	CRP (-1.1)	CRP (0.14)		RAB7A(0.91)	CRP (-0.4)
	Fibrinogen (-0.5)	Fibrinogen (0.067)			Leptin (-0.72)
	FGL1 (-0.97)	FGL1 (-0.14)			C1QBP (-0.34)
	CLEC12A (-0.39)	IgA (-0.43)			
	IgA (-0.67)	CLEC12A (-0.13)			

Table. Summary of major proteins altered out of 7,500 proteins identified in each comparison (fold change).

Conclusion: Overall, our results suggest that catering a diet high in fiber and low in fat for 8 weeks is enough to lead to distinct protein level modulations suggestive of improved immune function, mucosal healing, and inflammatory status. These strategies can lead to identification of novel targets of diet responses in CD.
Disclosure: NA

PP0726

DEEP LEARNING AND MINIMALLY INVASIVE CROHN'S DISEASE INFLAMMATORY ACTIVITY ASSESSMENT: DEVELOPMENT OF A PAN ENDOSCOPY CONVOLUTIONAL NEURAL NETWORK

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Introduction: Capsule endoscopy (CE) is a valuable tool for assessing inflammation in patients with Crohn's disease (CD). The current standard for evaluating inflammation are validated scores like Lewis score (LS), Capsule Endoscopy Crohn's Disease Activity Index (CECDAI) and ELIAKIM score and laboratory values. Recent advances in artificial intelligence (AI) have made it possible to automatically select the most relevant frames in capsule endoscopy.
Aims & Methods: In this study, our objective was to develop an automated scoring system using CE images to objectively grade inflammation. Panenteric CE videos (PillCam Crohn's) performed in CD patients between 09/2020 and 01/2023 were retrospectively reviewed and LS, CECDAI and ELIAKIM scores calculated. We developed a convolutional neural network based automated score consisting in the percentage of positive frames selected by the algorithm (for small bowel and colon separately). We correlated clinical data and the validated scores with the artificial intelligence generated score (AIS).
Results: A total of 61 patients were included. The median SL was 225 [0-6,06], CECDAI was 6 [0-33], ELIAKIM was 4 [0-38] and SB_AIS was 0.5659 [0-29.45]. We found a strong correlation between SB_AIS and LS, CECDAI and ELIAKIM scores (Pearson's r= 0.751, r=0.707, r= 0.655, p = 0.001). We found a strong correlation between SL and ELIAKIM (r= 0,768, p = 0.001) and very strong correlation between CECDAI and SL scores (r= 0,854, p = 0.001) and CECDAI and ELIAKIM (r= 0,827, p = 0.001).
Conclusion: Our study showed that the AI-generated score had a strong correlation with validated scores, indicating that it could serve as an objective and efficient method for evaluating inflammation in CD patients. As a pre-proof study, our findings provide a promising basis for future reffining a CE score that can accurately correlate with prognostic factors and aid in the management and treatment of CD patients.
Disclosure: Nothing to disclose.

PP0727

THE IMPACT OF INFLAMMATORY BOWEL DISEASE ON SEXUALITY

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Introduction: The enhancement of the quality of life (QoL) of patients with inflammatory bowel disease (IBD) has become a major therapeutic target in the management of this disease. Sexuality is one of its main determinants. However, in Tunisia, there is little data on sexual dysfunction (SD) and fertility among IBD patients.
Aims & Methods: The aim of this study was to determine the incidence and the factors associated with SD during IBD. We conducted a cross-sectional study including patients with IBD followed at the Gastroenterology Department of Charles Nicole Hospital between July and December 2020. Sexual function was assessed by the Female Sexual Function Index (FSFI) score in women and by the International Index of Erectile Function (IIEF) in men. Scores assessing patients 'overall QoL were calculated: Hospital anxiety and depression scale (HADS), Fatigue Severity Scale (FSS), and Short Inflammatory Bowel Disease Questionnaire (S-IBDQ). All patients gave oral informed consent before answering the questionnaires.
Results: A total of 65 patients were included of whom 72.3% had CD and 27.7% had UC, with a mean age of 47.58±10.18 years and sex ratio (M/F) of 0.44.
SD was found in 73.3% of women according to the FSFI and in 15% of men according to the IIEF-15. Erectile dysfunction (ED) was observed in 40% of patients based on the IIEF-5.
Female gender was a significant factor of SD (p<0.001; OR 15.6; CI [3.9-62.8]).
An analytical statistical study was conducted, showing factors associated with SD in the female patient group only.
Our study showed that the factors associated with the presence of female SD were age (p=0.018), absence of professional activity (p=0.034), length of marriage (p=0.022), presence of probable or overt depression (p=0.01), fatigue (p=0.042), impaired QoL judged by the S-IBDQ (p=0, 042), the four domains of the S-IBDQ (bowel symptoms (p=0.04), general signs (p=0.011), emotional domain (p=0.004), social domain (p=0.013)), IBD-disk score (p=0.007), and IBD-disk domains (sexual activity (p<0.001), emotion (p=0.001), energy (p=0.016), and joint pain (p=0.015)).
There were no factors that appeared to be associated with male SD. Meanwhile, we found a statistically significant association between men's perception of impaired sexuality due to IBD and the presence of ED (p=0.004; OR=33; CI [2.4-443.6]).
In multivariate analysis, the factors independently associated with female SD were the duration of marriage (p=0.018; OR 3.58; CI [1.43-7.83]), the presence of suspected or overt depression (p<0.001; OR 12.6; CI [1.82-72.52]) and fatigue (p=0.032; OR 11.8; CI [1.61-96.7]).

Conclusion: Our study shows that sexual disorders are frequent in IBD patients, especially in women. A multidisciplinary management involving gastroenterologists, psychologists, and sexologists is sometimes necessary in these young patients, in order to improve their QoL.

Disclosure: Nothing to disclose.

PP0728

PERSISTENCE OF BOWEL URGENCY DESPITE CLINICAL REMISSION AFTER INDUCTION THERAPY IS ASSOCIATED WITH UNFAVORABLE OUTCOMES IN PATIENTS WITH ULCERATIVE COLITIS: RESULTS FROM THE UC-RGENCY STUDY

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Introduction: The STRIDE 2 recommendations consider achievement of both clinical remission (no rectal bleeding and normalization of stool frequency), and endoscopic remission as the best therapeutic target. Despite the negative impact of bowel urgency on patients' quality of life, this symptom, which is frequently observed in UC patients, has not been taken into account by a such definition.

Aims & Methods: In this large multicenter cohort, we aimed to assess whether the persistence of bowel urgency after induction therapy is independently associated with the risk of treatment discontinuation due to active UC, colectomy, and a lower likelihood of being in clinical, endoscopic or histological remission.

From a multicenter retrospective study, we included consecutive UC adult patients previously exposed to at least one anti-TNF agent, with partial Mayo score (pMS) > 2, who started biologics or small molecules between January 2019 and June 2022. Bowel urgency was defined as a binary criterion based on the SCCAI definition. The primary endpoint was the time to drug discontinuation due to active UC. Secondary endpoints were the time to relapse, the time to colectomy as well as steroid-free clinical remission (pMS ≤ 2) (CFREM), endoscopic remission (CFREM + Mayo endoscopic score (MES) ≤ 1), and mucosal healing (CFREM + MES ≤ 1 + histological remission *i.e.* Nancy index ≤ 1) at last follow-up.

Results: Among 473 patients with UC, 270 were assessed for bowel urgency after induction therapy (between W14 and week 16) (mean age 43.0 ± 17.0 years-old, median UC duration 6 [3-11] years, female gender = 54.0%, pancolitis = 45.9%). The median follow-up was 14 [8-22] months. The rate of CFREM after induction therapy was 54.4% (147/270) while 21.5% (58/270) had remaining bowel urgencies after induction therapy. Among the 147 patients achieving remission after induction therapy, 12 presented with persistent bowel urgencies (8.2%). In contrast, 62.6% (77/123) of the patients with no CFREM after induction therapy did not have any bowel urgency. The agreements between bowel urgency and absence of CFREM (67.0%, kappa-coefficient = 0.30 ± 0.05), rectal bleeding (75.2%, kappa-coefficient = 0.33 ± 0.06) or normalization of stools frequency (67.9%, kappa-coefficient = 0.35 ± 0.05) were mild. Among the patients with persistent bowel urgency after induction therapy, only 3.7% of the patients had MES = 0 while 85.2% had MES ≥ 2. In multivariable analyses including CFREM at week 16, persistence of bowel urgency after induction therapy was independently associated with the time to drug discontinuation (HR = 2.0 [1.1-3.5], p = 0.016) and colectomy (HR = 4.4 [2.3-8.4], p < 0.001) as well as absence of mucosal healing (OR = 5.0 [1.1-24.8], p = 0.046) at last follow-up. A trend was also observed regarding the association between remaining bowel urgency after induction therapy and no CFREM (OR = 6.1 [0.8-48.0], p = 0.085) or absence of endoscopic remission (OR = 2.4 [0.9-6.1], p = 0.077) at last follow-up.

Conclusion: Persistence of bowel urgency despite clinical remission is associated with higher risk of drug discontinuation due to active UC, colectomy and lower likelihood of mucosal healing. Bowel urgency should be implemented into international guidelines to define clinical remission in patients with UC.

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PP0729

GENDER-SPECIFIC DIFFERENCES IN GASTROINTESTINAL SYMPTOMS AMONG PEDIATRIC PATIENTS WITH INFLAMMATORY BOWEL DISEASES AND COELIAC DISEASES ASSESSED WITH THE VALIDATED PSAGIS SCALE

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Introduction: Gender-specific differences in adult patients with immune mediated diseases like inflammatory bowel diseases (IBD) or coeliac diseases are increasingly recognised (1). In paediatric patients, gender differences in the incidence of IBD have been identified in a pooled analysis of population-based studies (2). However, gastrointestinal (GI) symptoms associated with paediatric IBD or coeliac disease and possible gender differences in GI symptoms have not been systematically studied.

Aims & Methods: Our aim was to utilise the newly developed, validated paediatric Structured Assessment of Gastrointestinal Symptoms (pSAGIS) scale to systematically assess GI symptoms in children with Crohn's disease, ulcerative colitis, and coeliac disease by gender in an paediatric gastrointestinal outpatient clinic.

The pSAGIS is a patient-reported outcome measure (PROM) that consists of 21 GI-related questions and assesses the type and five severity grades of symptoms.

pSAGIS scales were completed by patients or their caregivers attending the GI outpatient unit of St. Anna Children's Hospital, Vienna, Austria between the years 2016 and 2020. The diagnoses of patients were established on clinical terms after a complete examination deemed clinically necessary. Based on pSAGIS, an overall GI-symptom score was calculated as the sum of each individual symptom score for patients with Crohn's disease, ulcerative colitis and coeliac disease, and symptom scores were compared between female and male patients. In addition, GI symptoms were summarised in five symptom groups (abdominal pain, dyspepsia, diarrhea, constipation, dysphagia/nausea). Data are given as mean ± standard deviation (SD), a p-value <0.05 was considered significant.

Results: From 3344 collected pSAGIS questionnaires 12.9% (n=430) were completed by children diagnosed with Crohn's disease (71.9% male, 28.1% female), 9.0% (n=302) with ulcerative colitis (57.0% male, 43.0% female), and 24.7% (n=827) with coeliac disease (36.4% male, 63.6% female). In patients with Crohn's disease the overall GI-symptom score was significantly higher among female patients comparing to male patients (7.3±10,1 vs. 2. 8±4,2, p<0.001) while in patients with ulcerative colitis overall symptom scores were higher in male than in female patients (5.6±8.5 vs 2.9±5.9; p=0.002). The table shows scores of symptom groups in patients with Crohn's disease and ulcerative colitis. The overall GI symptom score was low in patients with coeliac disease, and no significant differences were found between male and female coeliac patients (3.1±4.6 vs. 3.9±6.4, p=0,064).

	Crohn's disease			Ulcerative colitis		
	male	female	p-value	male	female	p-value
abdominal pain	1.0±2.1	2.6±3.8	<0.0001	1.7±2.7	1.3±2.9	0.1692
dyspepsia	0.9±1.5	2.7±4.7	<0.0001	1.5±2.6	0.4±1.2	<0.0001
diarrhea	0.5±1.1	0.8±1.7	0.0247	1.8±3.0	0.6±1.7	<0.0001
constipation	0.2±0.6	0.4±1.0	0.0042	0.2±0.6	0.4±0.8	0.0771
dysphagia/nausea	0.3±0.8	0.8±1.4	<0.0001	0.4±1.2	0.2±0.9	0.3156
	Mean symptom score ± SD			Mean symptom score ± SD		

Table.

Conclusion: Gender specific symptoms and symptom burden exist in paediatric patients with Crohn's disease and ulcerative colitis. These gender differences may affect time to diagnosis, initiation of treatment and adherence to treatment and need further investigation. The pSAGIS is an easy adjunct to gastrointestinal history taking and allows a valid and systematic symptom assessment in a paediatric outpatient clinic.

References: (1) Greuter T et al, Digestion 2020; (2) Shah SC et al, Gastroenterology 2018

Disclosure: Nothing to disclose.

PP0730

FAECAL CALPROTECTIN TO PREDICT THE RISK OF RELAPSE IN PATIENTS WITH ULCERATIVE COLITIS IN CLINICAL REMISSION AND ENDOSCOPIC MAYO SCORE 0 OR 1: RESULTS OF THE CALPRODICT-UC STUDY

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Introduction: In ulcerative colitis (UC), the current therapeutic target is to achieve endoscopic remission defined as a Mayo endoscopic score (MES) 0. However, differentiating MES 0 and 1 remains difficult in daily practice.

Aims & Methods: In this study, we aimed to evaluate faecal calprotectin (FCal) as a predictor of relapse in patients with UC in clinical remission with MES 0 and 1.

In this monocenter retrospective study, we included all adult patients with UC in clinical remission (partial mayo score ≤ 2) and MES 0 or 1, who had FCal testing within the month before endoscopy, without therapeutic intervention between calprotectin assay and endoscopy.

The primary endpoint was clinical relapse (partial Mayo score > 2 including at least one subscore among rectal bleeding or stools frequency > 1) leading to therapeutic escalation or treatment discontinuation.

The analyzes were carried out according to the Kaplan-Meier method using univariate and then multivariable models (Cox model). The results were expressed as a hazard ratio (HR) with 95% confidence interval.

Results: Overall, 362 patients were included with 47.5 (172/362) and 52.5% (190/362) of patients with MES at 0 and 1, respectively. The median level of FCal was 48 µg/g [14-157] with 25.4% (92/362) of patients with a FCal level > 150 µg/g. Among MES 0-patients, 28 (7.7%) and 144 (39.8%) had FCal respectively above and below the threshold of 150µg/g while 64 (17.7%) and 126 (34.8%) MES 1-patients had calprotectin levels respectively higher and less than 150 µg/g. The median follow-up was 13.6 months [5.4-36.1]. During follow-up, 49 patients (13.5%)experienced a relapse and 36 patients (10.0%) had to discontinue the current medication. MES 1 was associated with a higher risk of relapse (HR = 1.85[0.98-3.50], p=0.056) or treatment discontinuation than MES 0 (HR=3.02[1.36 – 6.73], p=0.007).

FCal value > 150 µg/g was associated with an increased risk of relapse (HR=3.15[1.72 – 5.75], p<0.001) or treatment discontinuation (HR=2.85[1.44–5.66], p=0.003) compared to lower values. MES 0 patients with FCal < 150 µg/g had a reduced risk of relapse compared to those with MES 0 and FCal > 150 (HR = 3.16[1.08 – 9.27], p=0.035), and MES 1 and FCal > 150 (HR=4.01 [1.84 – 8.96], p=0.001). Among MES 1 patients, those with FCal < 150 had a lower risk of relapse than those with higher values (p=0.01).

Regarding the risk of treatment discontinuation for relapse, MES 0 patients with FCal < 150 had a lower risk than those with MES 0 with FCal > 150 (HR=5.80[1.45 -23.23], p=0.013), MES 1 with FCal < 150 (HR=4.11[1.34-12.63], p=0.013) and MES 1 with FCal > 150 (HR = 7.20[2.31 -22.44], p=0.001).

Conclusion: FCal could be helpful to predict the risk of relapse among the patients in clinical remission with MES 0 and 1.
Disclosure: Nothing to disclose.

PP0731

VIDEO CAPSULE ENDOSCOPY MAY DETECT ACTIVE SMALL BOWEL CROHN'S DISEASE REQUIRING CHANGE OF TREATMENT DESPITE UNREMARKABLE ILEO-COLONIC ANASTOMOSIS

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Introduction: Previous studies have shown benefit in performing video capsule endoscopy (VCE) in Crohn's disease (CD) diagnosis, especially in cases of an unremarkable ileo-colonoscopy, however data on the role of VCE in postsurgical follow-up of CD patients is lacking.
Aims & Methods: Our aim was to evaluate CD endoscopic activity in the small bowel (SB) of patients presenting with disease remission at the ileo-colonic anastomosis.
We retrospectively obtained data on patients with CD older than 18 years of age, who underwent ileo-colonoscopy between the dates 1/10/2012 through 31/09/2022. Patients in whom VCE was performed within 8 months of ileo-colonoscopy were eligible for analysis. Lewis and Rutgeerts scores were calculated based on VCE images and endoscopy reports, respectively. Disease remission was deemed as Rutgeerts score of i0-i1 at the ileo-colonic anastomosis, and Lewis score (LS) of<135 on VCE.
Results: A total of 1,334 ileo-colonoscopies were performed in CD patients with ileo-colonic anastomosis during the study period, of whom 31 patients (male gender 58.06%; mean age 41.77±14.19 years) were referred to VCE within 8 months of ileo-colonoscopy, (median 124.81 days). Twenty patients exhibited endoscopic remission at the anastomosis, 3 of them failed passage of a patency capsule and 17 successfully completed VCE. Only 5 patients (29.4%) had a normal LS, while 12 (70.6%) exhibited an active SB disease (LS≥135, mean 791.3±1254.9). Patients with a discrepancy between the two scores, were characterized by a shorter disease duration (P=0.011) and showed a trend towards a shorter time since surgery (P=0.06). No correlation was found between SB disease activity and concurrent medical therapy (P=0.898). Treatment modification was applied in 7 patients (41.2%) and was associated with a higher LS (biserial correlation coefficient 0.51, P=0.037).
Conclusion: Endoscopic remission at the ileo-colonic anastomosis is not an accurate indicator for CD remission in the SB, especially in a new-onset disease and soon after the surgery. VCE has an added value to ileo-colonoscopy in postsurgical follow-up and treatment adjustment in patients with CD.
Disclosure: Nothing to disclose.

PP0732

TRANSMURAL CROSS-SECTIONAL FINDINGS AND BOWEL DAMAGE ASSESSMENT IN PRECLINICAL CROHN'S DISEASE: A CASE-CONTROL STUDY

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Introduction: Crohn's disease (CD) is a chronic inflammatory condition that leads to cumulative structural bowel damage. The Lémann Index is a validated tool that can be a useful for monitoring the progression of the disease and evaluating the effectiveness of different therapies. Recent data have shown a range of biomarkers and endoscopic findings preceding the diagnosis of CD.
Aims & Methods: Our aim was to describe the most frequent cross-sectional findings in asymptomatic patients with an incidental diagnosis of CD and to evaluate the progression of bowel damage from a preclinical stage until the symptomatic onset of the disease. Patients with an incidental diagnosis of CD during the colorectal cancer screening programme were included. Only patients with available MRI enterography were included. They were compared 1:1 to controls matched by disease extent from an inception cohort of patients with CD diagnosed after symptomatic onset of the disease. All cross-sectional examinations were centrally-read by one experienced radiologist, performing a descriptive analysis of the main radiological findings and calculation of Lémann score on both cohorts. Descriptive statistics were used along with comparisons with chi-square tests and Mann-Whitney analysis.
Results: A total of 38 patients were included: 19 cases with preclinical CD and 19 matched-controls (age 55 years (IQR, 54-62) vs 49 years (IQR, 45-58); 53% vs 42% male; 74% vs 53% non-smokers, respectively). CD location was 53% L1, 21% L2 and 26% L3; and CD behaviour was B1 in 74% vs 79%; B2 in 26% vs 16%; and none vs 5%, among cases and controls, respectively.
The most frequent transmural findings on MRI were contrast enhancement and wall thickening (79% respectively), followed by oedema (42%), while among extraintestinal findings they were lymphadenopathy (68%) and increased vascularity (42%). Among patients with strictures, controls showed a higher rate of preestenotic dilation (100% vs 0%, p=0.01).
Bowel damage assessment revealed no statistically significant differences in the Lémann index between preclinical CD and controls (p=0.95). However, we observed that cases had statistically significant higher scores in the colonic/rectum score (p=0.014). We found no differences in the Lémann index between preclinical CD patients who subsenquently developed symptoms (median LI 1.0 [IQR, 0.3-2.0]) and those who did not (1.1 [IQR, 0.68-2.65], respectively, p=0.71) or with controls (1.3 [IQR, 0.0-3.1], respectively, p=0.96).
Conclusion: Patients with preclinical CD demonstrate similar findings on MRI enterography and they have the same degree of bowel damage as new-onset symptomatic CD. Close monitoring should be recommended based on these findings.
Disclosure: Nothing to disclose.

PP0733

SMALL INTESTINAL CONTRAST ULTRASONOGRAPHY (SICUS) IN CROHN'S DISEASE: SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The diagnosis of Crohn's Disease (CD) is based on a combination of clinical symptoms, laboratory tests, endoscopy and imaging data. Imaging technique use, including ultrasonography, computed tomography (CT) and magnetic resonance enterography (MRE), have been increasing in recent years. Transabdominal ultrasound is non-invasive, does not use ionizing radiation and is easily accepted by patients. In particular, in Small Intestine Contrast Ultrasonography (SICUS) the ingestion of a macrogol solution as oral contrast medium may optimize image quality and increase sensitivity and diagnostic accuracy in detecting lesions of the small intestine.

Aims & Methods: We aimed to evaluate diagnostic performance of SICUS for CD. A literature search was performed and updated in February 2023. We selected only studies in which SICUS was compared to a technique allowing the assessment of whole gastrointestinal tract such as MRE, CT scan or surgical evaluation. The end-point was to estimate the pooled weighted sensitivity, specificity, likelihood ratio for positive and negative test (PLR and NLR, respectively) and diagnostic odd ratio (DOR) of SICUS. Summary receiver operating characteristic curves (SROC) were drawn and pooled areas under the curve (AUC) were calculated. A random effect model was followed in all analyses. We assessed heterogeneity using the χ^2 test and, if statistically significant, the I^2 statistic was computed. The data were expressed as proportions/percentages, and 95% confidence intervals (CI) were calculated. The MetaDisc software version 1.4 was used.

Results: Five studies were included in the analysis. Overall, 325 patients with CD were recruited. SICUS showed a pooled sensitivity for diagnosis of 95% (95% CI 89-99%) a specificity of 77% (95% CI 60-90%), and the AUC of SROC curve was 0.94. Presence of strictures was examined in 94 patients within all studies. SICUS demonstrated a pooled sensitivity of 78% (95% CI 63-88%) and a specificity of 96% (95% CI 85-99%), with AUC = 0.93. For abscesses, SICUS demonstrated a pooled sensitivity of 100% (95% CI 59-100%) and a specificity of 90% (95% CI 74-98%). Fistulae were evaluated in 55 patients overall across three studies. SICUS showed a pooled sensitivity of 77% (95% CI 46-95%) and a specificity of 92% (95% CI 75-99%). Three studies investigated the presence of pre-stenotic luminal dilation in 61 patients. We found a pooled sensitivity of 100% (95% CI 80-100%) a specificity of 80% (95% CI 65-90%) and the AUC of SROC curve was 0.91.

Conclusion: SICUS has excellent diagnostic performance compared to gold standard, despite some situations (stenosis and fistulae) show suboptimal diagnostic effectiveness.

Disclosure: Nothing to disclose.

PP0734

YOU MAY DELAY, BUT TIME WILL NOT: DIFFERENT RATE OF TRANSMURAL REMISSION BETWEEN FIRST AND SECOND LINE OF BIOLOGIC TREATMENT IN CROHN'S DISEASE

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Introduction: Transmural remission in Crohn's disease (CD) has been associated with improved long-term clinical outcomes including reduced hospitalization, surgery, escalation of treatment, and a decrease in clinical relapse over endoscopic remission alone. Albeit transmural remission rate (TRR) in CD patients treated with anti-TNF drugs in first line has been well explored, data on TRR using vedolizumab (VDZ) or ustekinumab (UST) as second-line therapy for CD are still limited.

Aims & Methods: The aim of this study was to evaluate the TRR in CD patients in maintenance treatment, comparing adalimumab (ADA) in first line with VDZ/UST in second line. From 2018 to 2022 we performed a real world observational longitudinal study evaluating the TRR in all consecutive CD patients in a 2-years maintenance treatment with ADA in first line compared with those treated by VDZ or UST in second line. HBI, fecal calprotectin (FC), SES-CD, and bowel wall thickness (BWT) at ultrasound were analyzed in all patients at the baseline (T0) and after 2 years of maintenance treatment (T1). Clinical remission was defined when HBI was <4. Endoscopic remission was defined when SES-CD was <2. Transmural remission was defined when BWT was <3 mm at a "per-patient" analysis. In accordance with recent literature, laboratory remission was defined when FC was <94 ug/gr.

Results: One hundred and sixty-one CD patients (78 ADA, 41 VDZ, 42 UST) were included in the study. At T1, transmural remission rate was recorded in 39.7% of CD patients treated in first line with ADA, and in 17.1% and 21.4% for VDZ and UST, respectively, in second line (ADA vs VDZ/UST: p<0.05; VDZ vs UST: p 0.6). Endoscopic remission rate was 50% for patients treated in first line with ADA, and 31.7% and 35.7% for second line VDZ and UST, respectively (ADA vs VDZ/UST: p<0.05; VDZ vs UST: p 0.7). Laboratory remission rate was 53.8% for patients treated in first line with ADA, and 29.3% and 35.7% for VDZ and UST in second line, respectively (ADA vs VDZ/UST: p<0.05; VDZ vs UST: p 0.5). Clinical remission rate was 58.9% for patients treated in first line with ADA, and 43.9% and 47.6% for second line VDZ and UST, respectively (ADA vs VDZ/UST: p=0.09; VDZ vs UST: p=0.2).

Conclusion: Our findings showed that in CD patients in maintenance treatment with biologics, ADA in first line showed a higher TRR compared with VDZ/UST in second line. Moreover, VDZ and UST showed similar TRR and other outcomes when used in second line.

References: Castiglione F, et al. Exploring the concept of deep remission in Crohn's disease: correlation between transmural healing and biomarkers. Therap Adv Gastroenterol. 2022 Jul 22;15:17562848221110643. doi: 10.1177/17562848221110643.

Disclosure: Nothing to disclose.

PP0735

INTESTINAL ULTRASOUND – COLITIS SEVERITY INDEX (IUS-CSI): VALIDATION OF AN INTESTINAL ULTRASOUND-BASED SCORE FOR ASSESSING DISEASE ACTIVITY IN ULCERATIVE COLITIS

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Introduction: Endoscopic scoring systems like Mayo endoscopic score (MES) is the gold standard for the assessment of disease activity in patients with ulcerative colitis. Intestinal ultrasound (IUS) is an attractive tool for assessing Ulcerative colitis (UC) disease activity. A novel IUS Score for UC was proposed by us in 2019 using simple IUS parameters which correlated well with MES.

Aims & Methods: Aims: We aim to internally validate our Intestinal Ultra-Sound – Colitis Severity Index (IUS-CSI) scoring system.

Methods: Consecutive patients with UC undergoing colonoscopy for diagnosis, screening, or flare of symptoms were included in the study. These patients were evaluated with IUS within 1 week of their colonoscopy. The colon was divided into segments – sigmoid, left, transverse, and right colon. Rectum was excluded from the study. Endoscopic disease activity was graded using MES for each colonic segment. IUS-CSI score was calculated for each colonic segment using Bowel wall thickness (BWT), Colour doppler signal score (CDS) and bowel wall stratification (BWS). The correlation of IUS-CSI with MES for that segment was studied.

IUS-CSI	Score
BWT	
< 3.0 mm	0
3.1 - 5.0 mm	2
> 5.1mm	4
BWS	
Present	0
Absent	4
CDS	
No/ minimal uptake	2
Short stretches	4
Long stretches	6

IUS-CSI	MES Score
< 4	0/1
5-8	2
> 9	3

Results: 45 consecutive patients with UC who underwent colonoscopy were included in the study. IUS was performed in 42 patients; 3 patients could not be evaluated in view of thick abdominal wall. Total of 168 colonic segments were assessed both by colonoscopy and IUS. 32 colonic segments had MES 0, 28 segments had MES 1, 92 segments had MES 2 and 16 segments had MES 3.

Mean BWT for MES 0, 1, 2 and 3 were 2.1mm, 2.5mm, 3.4mm and 5.1mm respectively. Of all the IUS parameters, BWT and CDS had consistent correlation with MES (p=<0.001).

The IUS-CSI was calculated for each colonic segment and correlated with the MES for that segment. A linear positive correlation was seen between IUS-CSI & MES for each colonic segment using Pearson's correlation coefficient (r) and is as follows: Sigmoid colon r= 0.88(0.79,0.93), left colon r= 0.85(0.74,0.92), transverse colon r=0.89(0.8,0.94) and right colon r=0.79(0.64,0.88). The IUS-CSI for sigmoid colon correlated with the overall MES (r =0.83; p = 0.0001).

Conclusion: IUS-CSI has an excellent correlation with MES. IUS-CSI assessment of the sigmoid colon correlates best with overall endoscopic activity. IUS-CSI scoring system with intestinal ultrasound can be used to assess disease activity in UC non-invasively.

Reference:

P Kakkadasam Ramaswamy, A Yelsangikar, K V Nagarajan, A Nagar, N Bhat, P154 Development of a novel ultrasound based score for assessing disease activity in ulcerative colitis: preliminary results, *Journal of Crohn's and Colitis*, Volume 13, Issue Supplement_1, March 2019, Page S166, https://doi.org/10.1093/ecco-jcc/jjy222.278

Disclosure: Nothing to disclose.

PP0736

A RETROSPECTIVE ANALYSIS OF FAT COMPOSITION IN A COHORT OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: The role of adipose tissue in IBD is yet to be fully elucidated. Adipose tissue is distributed into two main compartments ; Visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT). Previous studies suggest that VAT may be a predictor of disease progression particularly in Crohn's disease (CD)(1). VAT:SAT ratio, and not BMI, has been associated with a structuring CD phenotype, faecal calprotectin and quality of life (2).

In previous studies, visceral obesity has been defined as a VAT area of 100cm^2 as well as VAT:SAT 40% (3-4). We sought to investigate the difference in fat composition of patients with IBD using computed tomography (CT).

Aims & Methods: Patients with IBD were selected randomly from an IBD database in our centre. Age and gender matched controls were selected for comparison.

Using TeraRecon software, we retrospectively analyzed CT results to obtain the following parameters; VAT Area (cm^2), SAT Area (cm^2), VAT:SAT Ratio (VAT/VAT+SAT - %) and Waist Circumference (WC) (cm). Measurements were taken at the level of the umbilicus (L3). Data was also collected retrospectively from outpatient clinic letters, previous biopsy reports and endoscopy reports. Statistical analysis was preformed using Minitab.

Results: A random sample of 480 patients were identified. 279 of these patients were excluded, leaving 201 patients which were analysed.

The majority of this cohort were female (n=102). The mean age was 43. 122 patients had CD and 79 patients had Ulcerative colitis (UC). At the time of imaging, 95 patients were on biologics with a further 29 patients progressing onto biologics later in their treatment. Visceral obesity (40% VAT:SAT) was found in 31.8% of patients. 46.8% of patients had VAT 100cm^2. Male gender accounted for 17.27% more VAT:SAT in comparison to female gender (p =0.000). VAT showed a strong correlation with WC (r =0.809).

No significant difference was found in fat composition or WC between a sample of patients with IBD and their controls.

Patients with UC had 5.2% more VAT:SAT compared to patients with CD (*p=0.036*). Males had a 17.3% higher VAT:SAT (*p=0.000*). There was no significant differences noted between those on biologics vs. non-biologic treatments. However, those taking thiopurines (6-Mercaptopurine (6-MP)/ Azathioprine) had 5.6% lower VAT:SAT compared to those not (*p=0.038*). Combination therapy (thiopurine + Biologic) had 9.02% more VAT:SAT than those on thiopurine monotherapy *(p=0.058*).

Binary logistic regression models were used to identify factors associated with markers of disease severity (surgery, multiple surgeries and multiple biologic use). Age was found to be a significant associated factor with multiple surgeries (coeff 0.0641) (p=0.001).

Conclusion: Visceral obesity was found in at least 30% of patients in this IBD cohort. This was in comparison to 44%of the age-gender matched control group.

We report no significant difference in body fat composition or WC in age and gender matched controls and a random sample of patients with IBD. Rising obesity levels in the community may account for this. However, in this cohort, patients with UC had a higher % VAT:SAT compared to those with CD. Regarding treatment, thiopurine monotherapy was associated with lower %VAT:SAT. This may suggest that combination therapy may be required in those with higher %VAT:SAT to treat a more aggressive disease course.

Age is a known risk factor for a more severe disease course in IBD. This was in keeping with our model.

Of note, WC showed a strong correlation with VAT. This may be a more acceptable alternative for monitoring VAT rather than CT imaging.

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Disclosure: Nothing to disclose.

PP0737

ROLE OF INTESTINAL ULTRASOUND IN THE DIAGNOSIS OF POST-OPERATIVE RECURRENCE IN CROHN'S DISEASE

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Introduction: Ileocolonoscopy and Rutgeerts endoscopic score remains the gold standard to evaluate post-operative recurrence (POR) in Crohn's disease (CD) patients (1).

Intestinal ultrasound (IUS) is proposed as a non-invasive alternative to ileocolonoscopy for the diagnosis of POR, with a sensitivity of 94% and specificity of 84% (2). There are several IUS scores that evaluate CD disease activity such as SUS-CD (validated), IBUS-SAS and Simple US Score, which have not yet been studied in the diagnosis of POR.

Aims & Methods: The aim of this study is to assess whether IUS parameters and ultrasound scores correlate with endoscopy in the diagnosis of POR. A unicentric retrospective study was performed. There were included patients with CD with both an ileocolonoscopy and intestinal ultrasound performed for the detection of POR, the time between tests was less than 6 months and there was no therapeutic change between tests.

Endoscopic POR was evaluated with Rutgeers score (RS), considering POR RS ≥i2b. In IUS, were used: Simple US Score, SUS-CD and IBUS-SAS.

Results: 103 patients were included, the Montreal classification was: A1 n=6 (5.8%), A2 n=78 (75.7%), A3 n=18 (17.5%), L1 n=54 (52.4%), L2 n=2 (1.9%), L3 n=47 (50.6%), B1 n=10 (9.7%), B2 n=49 (47.6%) and B3 n=44 (42.7%).

30 patients (29.1%) had no endoscopic POR, 22 (21.4%) had RS i2a, 12 (11.6%) RS i2b and 39 (37.9%) had severe POR (RS i3-i4). The mean wall thickness measured by IUS in patients without endoscopic POR was 2.7 mm (SD +/- 1.3) versus 5.0 (SD +/- 1.7) in patients with RS ≥i2b (p 0.001). Hyperemia (Limberg >1) was present in 60 patients (82.2%) with RS ≥i2a vs in 4 patients (13.3%) without endoscopic POR (p 0.001). Both hyperemia and wall thickness had a sensitivity of 89.0% and specificity of 76.7% in the diagnosis of POR.

The mean values for IUS scores were: Simple US Score 5.5 (SD +/- 3.1), SUS-CD 2.1 (SD +/- 1.8) and IBUS-SAS 32.9 (SD +/- 26.3). There weren't statistical differences between IUS scores in patients with RS <i2b and ≥i2b. Simple US Score had an area under the ROC curve (AUC) of 51%, IBUS-SAS presented an AUC of 48.4% and SUS-CD of 48.5%.

Conclusion: In our experience wall thickness and hyperemia are useful parameters to diagnosis POR, however IUS scores (IBUS-SAS, SUS-CD and Simple US Score) are less reliable. In the future new scores adapted to POR may be needed.

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PP0738

THE IMPACT OF POINT-OF-CARE INTESTINAL ULTRASOUND IN INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction: Intestinal Ultrasound (IUS) is an accurate, non-invasive technique to monitor disease activity and guide treatment decisions in inflammatory bowel disease (IBD). It has gained popularity as a point-of-care (POC) modality due to its tolerability and ease-of-use and reproducibility of results.

Aims & Methods: This study aims to assess the impact of POC IUS in daily clinical management of IBD. We conducted a single-centre retrospective cohort study of IBD patients who were evaluated with POC IUS between September 2022 and March 2023. Ultrasound data were retrieved including ultrasound reports, static images. and cine loop with doppler activity. Clinical data were retrieved from the electronic medical record. Descrip-

tive statistics were used to evaluate characteristics of the study population. Chi-squared tests and logistic regression were used for categorical outcomes.

Results: A total of 210 IUS examinations were included in patients with Crohn's disease (n=118, 56%), ulcerative colitis (n=90, 43%) and IBD-unclassified (n=2, 1%). The median age was 35.6years and the median disease duration was 7.0years. Fifty percent of IUS (n=105) was performed on asymptomatic patients as part of routine care; twenty-five percent (n=53) was for symptomatic patients; and twenty-three percent (n=49) was a follow-up imaging to assess response to a change in therapy. A change in management following IUS was recorded in 117 cases (55.7%).

For routine examinations (n=105), 22.9% (n=24) were abnormal, seven (7%) were referred for urgent endoscopy, thirty-five cases (33.3%) changed therapy, twenty (19%) initiated new therapy and four (4%) optimised existing therapy. Among symptomatic patients who underwent IUS (n=53), a change of medication was documented in 89% (n=47), endoscopy performed after examinations in 15% (n=8), 23% (n=12) were prescribed laxatives and 2% (n=1) were admitted to hospital.

Abnormal IUS and change in medication following IUS was higher in symptomatic than asymptomatic patients (54.7% vs 23.1%, p<0.001 and 54.7% vs 12.0%, p<0.001, respectively). Faecal calprotectin (n=105) (p=0.03) and magnetic resonance imaging (n=8) (p=0.06) results within a month prior to IUS were directly correlated with bowel wall thickness >3mm on IUS. Nineteen endoscopies were done within 1 month after examinations, which was also positively correlated with IUS result (p=0.01).

Conclusion: Our real-world study showed that POC IUS plays a role in 'treat-to-target' strategy in patient-management decisions, especially among symptomatic patients, allowing rapid treatment decisions. In addition to other objective markers of disease, including faecal calprotectin, POC IUS has the potential to reduce the need for more invasive endoscopic assessment of disease activity.

Disclosure: None.

PP0739

REPRODUCIBILITY OF DISEASE EXTENT ON MR ENTEROGRAPHY AND RELATIONSHIP WITH RESPONSE TO ANTI-TNF-A THERAPY IN SMALL BOWEL CROHN'S DISEASE: CLINICAL UTILITY OF A NOVEL INTEGRATED RADIOLOGY REPORTING WORKFLOW

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Introduction: Consistent reporting of disease activity and extent on MR enterography (MRE) is essential for 'treat-to-target' management of Crohn's disease (CD) [1]. The simplified magnetic resonance index of activity (sMaRIA) is a fast and reliable tool for assessing disease activity in research settings [2] but clinical use is limited. In contrast, the length of affected bowel is often reported as it is important for surgical planning. Until recently, limited image analysis tools meant that disease length could only be estimated within ±5cm [3].

We assessed the clinical utility of an integrated radiology reporting workflow combining sMaRIA and disease length measurements for clinical follow-up of SBCD patients on anti-TNF-α therapy.

Aims & Methods: Our primary aim was to assess the relationship between change (Δ) in sMaRIA score and Δ length of the most severe segment (mSS) with patients' clinical response to anti-TNF-α therapy for SBCD. Our secondary aim was to investigate inter-reader agreement for disease extent and mSS length. Two consultant GI radiologists (R1 & R2) blinded to clinical data reviewed pre- and post-therapy MREs acquired between 2006-2014 [4]. They used a cloud-based workflow (EntrolyticsTM, Motilent, London, UK) to report the number of SB disease segments (>3cm considered distinct) and the location, sMaRIA score and length of the mSS. Clinical 'Response' was based on a physician's global assessment as 'Responder' Δ ≤ -1; or ‚Non-responder' Δ ≥ 0 on a 4-point scale. Baseline and Δ post therapy were summarised for 'Responders' and 'Non-responders' as median [Q1;Q3] and differences assessed using the Wilcox test. Inter-reader agreement was quantified as % agreement on the number and location of disease segments and Bland-Altman bias (95% CI) ± coefficient of repeatability.

Results: Of 30 patients included in the primary analysis (57% male; age 25 [22;46]), 67% responded to anti-TNF-α therapy. The interval between scans for 'Responders' was 1.0 years [0.5; 1.7] compared to 'Non-responders' 2.4 [1.6; 3.3] (p = 0.09). According to R1, there was no difference in segmental sMaRIA score or disease length at baseline or Δ following therapy between groups (Table 1).

	Non-responder	Responder	p-value
sMaRIA (baseline)	2.5 [2;3]	3 [2;3]	0.31
Δ sMaRIA (follow-up)	-0.5 [-1;0]	-1 [-1;0]	0.66
Length, cm (baseline)	15 [8;29]	11 [6;17]	0.40
Δ Length, cm (follow-up)	-1 [-3;4]	-0.4 [-7;1]	0.50

Table 1.

R2 agreed on mSS location in 78% and number of individual disease sites in 41% of patients. According to both R1 & R2, the location of mSS changed in 10% patients. After excluding 4 patients with extremely long disease (>25cm), the mean difference at baseline was 0.6 cm (95% CI: -4.3 to 5.5) ± 23.9 cm and follow-up 1.1 cm (95% CI: -4.2 to 2.0) ± 15.1 cm. Inter-reader agreement for the Δ length following therapy was -1.72 cm (95% CI: -6.5 to 3.1) ± 23.4 cm.

Conclusion: Assessment of the most severely affected segment alone was not sufficient to detect response to anti-TNF-α therapy as there was no difference in Δ sMaRIA score or Δ length between 'Non-responders' compared to 'Responders'. Radiologists agreed on the mSS location in a high proportion of cases compared to the number of disease sites. There was no systematic bias in the measurement of disease length, but the coefficient of repeatability was high compared to clinically relevant ranges of 0-5cm; 5-15cm and 15cm [3]. This should be considered when using global scores that are based on the sum of multiple segments and/or include disease length (e.g. sMaRIA, MEGS).

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Disclosure:

H E Fitzke has ongoing research collaborations with Motilent, the medical imaging analysis company who developed the 3D polyline tool and previously received funding from the BBSRC to undertake two internships with Motilent. S A Taylor has ongoing research collaborations and holds share options in Motilent and G Bhatnagar is a paid consultant for Motilent.

PP0740

ARTIFICIAL INTELLIGENCE ASSISTS IN THE IMPROVEMENT OF COLONOSCOPY OBSERVATIONAL POWER

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Introduction: Endoscopy is the method of choice for detecting gastrointestinal diseases and colorectal cancer in humans. Computer-aided analysis of colonoscopy videos is helpful for the diagnosis and severity assessment of the disease. However, a large number of images captured during colonoscopy are uninformative, so the detection and removal of these non-informative frames is an important first step towards automated images analysis.

Aims & Methods: 15 colonoscopy videos of IBD patients were collected. An algorithm for automatic identification of non-informative frames in colonoscopy videos using ResNext101 network were developed. An innovative method of expert scoring and labeling "non-informative frames" was established. Four experts scored each original image for score 0 (informative) or score 1 (non-informative). All images were assigned a score from 0 to 4. After scoring, the final label of a frame with a score greater than or equal to the noninformative threshold score is non-informative. Accuracy, sensitivity, specificity and other metrics were calculated to evaluate the performance of the model in distinguishing informative frames from non-informative frames.

Results: A total of 9589 frames were extracted from the videos. 7945 frames were used as the training set, 764 frames were used as the validation set, and 880 frames for the test set. When the non-informative threshold was set to 4, the accuracy, sensitivity and specificity of the model for detecting non-informative frames could reach 93%, 84.8% and 95.7%, respectively. When the threshold was set to 3, the model reached 90.8%, 82.8% and 95.8%, respectively. When the threshold was set to 2, the above indicators could reach 88%, 91.2% and 81.4%, respectively. When the threshold was set to 1, the above indicators could reach 93.9%, 95.7% and 82.4%, respectively.

Conclusion: The proposed automatic and accurate non-informative frame detection system is essential for further colonoscopy video analysis. Doctors can choose different non-information frame thresholds according to different clinical application scenarios. Accurate detection and removal of non-informative frames can effectively improve the accuracy of disease severity assessment and reduce computational cost.

Disclosure: Nothing to disclose.

PP0741

SHOULD WE PERFORM ROUTINE TRANSIENT ELASTOGRAPHY (FIBROSCAN®) TO ASSES LIVER FIBROSIS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE? (ONGOING STUDY)

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Introduction: Hepatobiliary disease is one of the most common extra-intestinal manifestations of chronic inflammatory bowel disease (IBD), but the prevalence of liver disease in IBD patients remains poorly understood and may be underestimated due to the use of invasive methods such as liver biopsy for diagnosis. Ultrasound pulse elastometry (FibroScan®) is a direct, non-invasive and effective physical approach to assess liver fibrosis.

Aims & Methods: The objective of the study is to assess the prevalence of liver fibrosis in IBD patients using ultrasound pulse elastometry (FibroScan®).

This prospective study included 56 patients with chronic inflammatory bowel disease, epidemiological, clinical and therapeutic data were collected. Liver elasticity was assessed by ultrasound pulse elastometry (FibroScan®) performed by a single physician. The cutoff value for significant liver fibrosis was F ≥2: 8 kPa.

Results: In this study, 56 patients were included, 22 men and 34 women with a sex ratio M/F of 0.6, the mean age was 32.9 years old, 43 patients had CROHN disease, 13 patients had UC. The mean duration of disease progression was 4.7 years. The mean value of liver stiffness was 7 kPa. The median IQR was 0.7 with an average success rate of 100%. 80.3% of patients had a fibrosis value < F2, and 19.6% of patients had a fibrosis value > F2. There were no differences in liver stiffness (LS) depending on type of IBD. Age and female sex, however, were independently associated with a higher LS.

Conclusion: This study confirms the relatively high prevalence of fibrosis in IBD patients, there were no differences in liver stiffness (LS) depending on type of IBD or BMI. Age and female sex, however, were independently associated with a higher LS. , Fibroscan is a non-invasive and efficient technique, which can be potentially useful for evaluation and follow-up of liver fibrosis in IBD patients.

Disclosure: Nothing to disclose.

PP0742

CORRELATION OF THE IBD DISK WITH INTESTINAL ULTRASOUND IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: The Inflammatory Bowel Disease (IBD) Disk represents a self-administered questionnaire that can facilitate, in real time, assessment of IBD related disability, and IBD-related daily life burden[1,2]. Surrogate markers of IBD activity tend to associate with increased disability. Intestinal ultrasound (IUS) is a non-invasive tool that can objectively and accurately define disease activity and complications in IBD patients.

Aims & Methods: The aim of our study was to investigate the correlation between IBD-Disk and IUS in IBD patients. We performed a cross-sectional study that included formally diagnosed IBD patients who underwent IUS and subsequently completed the IBD-Disk questionnaire. Active disease on IUS was defined as bowel wall thickness (BWT) >3 mm at the most affected bowel segment. The overall IBD-Disk score was calculated as the sum of its 10 components, ranging from 0 to 100 (best score: 0, worst score: 100). We explored the correlation between IBD-Disk and its components with IUS. We additionally investigated the correlation of IBD-related daily life burden with IUS. (IBD-Disk total score > 40: high IBD related daily life burden vs IBD-Disk total score ≤ 40: low IBD related daily life burden[2]).

PATIENT CHARACTERISTICS	CROHN'S DISEASE n= 42	ULCERATIVE COLITIS n= 27
SEX	18 males/ 24 females	12 males/ 15 females
AGE [median, IQR]	34 [23.8-44.8]	40 [32-55]
AGE AT FIRST DIAGNOSIS (Montreal Classification)	A1:10 A2:31 A3:1	<40 years: 19 >40 years: 8
DISEASE DISTRIBUTION (Montreal Classification)	L1:24, L2:4, L3:14, L4:1	E1:1 E2:19 E3:12
DISEASE BEHAVIOR	B1:21, B2:18, B3:10	
PERIANAL DISEASE-p	p:4	
OPERATED PATIENTS	n =11	n=0
CLINICAL ACTIVITY SCORES	HBI <5: 26 5-7: 12 8-16: 4 >16: 0	PARTIAL MAYO SCORE < 2: 6 2-4: 8 5-6: 6 7-9: 7
CURRENT TREATMENT	Biologics/JAK Inhibitors (IFX, ADA, VEDO, UST): 38 IMM (AZA, MTX): 2 Corticosteroids: 1 5-ASA: 0 No TRT: 2	Biologics/JAK Inhibitors (IFX, ADA, VEDO, UST, TOFA): 19 IMM (AZA, MTX): 1 Corticosteroids: 3 5-ASA: 7 No TRT: 0

HBI: Harvey Bradshaw Index, IFX: Infliximab, ADA: Adalimumab, VEDO: Vedolizumab, UST: Ustekinumab, TOFA: Tofacitinib, IMM: Immunomodulators, AZA: Azathioprine, MTX: Methotrexate, 5-ASA: 5-Aminosalicylates, TRT: Treatment

Table 1: Patients characteristics.

Results: We included 69 patients (Table 1), who underwent IUS for disease monitoring (56.5%) and symptoms suggestive of disease flare (43.5%). Median IBD-Disk total score in our cohort was 48 (IQR 19-56.5). Median IBD-Disk total score was 52 (IQR 47-58.5) in IUS active vs 16 (IQR 6-23) in IUS inactive patients (p<0.001). The area under the ROC curve of IBD-Disk total score in predicting IUS activity was 0.909 (95% C.I: 0.819-0.99, p<0.001). IBD-Disk score >33 predicted disease activity in IUS with 93.5% sensitivity and 91.3% specificity. We observed a moderate correlation between IBD-Disk score and BWT (ρ=0.554, p<0.001) as well as between IBD-Disk score and C-reactive protein (ρ=0.686, p<0.001). Among the components of the IBD-Disk, 7/10 (abdominal pain, regulating defecation, education/work, sleep, energy, sexual function and interpersonal interactions) manifested a moderate correlation with BWT. IBD-Disk score > 40 was found in 40/46 (87%) of IUS active and 2/23 (8.7%) of IUS inactive patients, while IBD-Disk score ≤ 40 was found in 6/46 (13%) of IUS active and 21/23 (91.3%) of IUS inactive patients respectively (p<0.001). Median BWT was 2.1 mm (IQR 1.6-2.9) in patients with IBD-Disk score ≤ 40 and 6 mm (IQR 4.8-6.8) in patients with IBD-Disk score > 40 (p<0.001).

Conclusion: IBD-Disk displayed a significant correlation with IUS evidence of disease activity in IBD patients. Active disease in IUS was significantly correlated with a high IBD-related daily life burden as expressed by IBD-Disk total score > 40. IBD-Disk could be used in clinical practice to evaluate disease activity and severity in IBD patients.

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PP0743

MAGNETIC RESONANCE IMAGING-BASED MEASURE OF FIBROSIS IN ENTERIC CROHN'S DISEASE

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Introduction: In Crohn's disease (CD), 10% of patients present with fibrostenosis with a further 10% progressing from inflammatory to a fibrostenotic disease behaviour over 7 years[1]. The prevalence of CD fibrostenosis is >20%[2]. 40% of fibrostenotic CD patients need surgery at 5 years compared to ~10% with inflammatory disease[2]. Fibrotic tissues exhibit excessive accumulation of collagen type 1 and 3, with amide protons in the collagen backbone showing potential for quantification using MT imaging [3].

GI-Seg by Motilent is a tool that uses advanced image analysis algorithms to segment the gastrointestinal tract in MRI scans. The software creates a three-dimensional model of the GI tract, allowing clinicians to visualize and analyse the structure and volume of the organs in detail. GI-Seg is designed to save clinicians time and increase the accuracy of their diagnoses by automating the segmentation process, which can be a time-consuming and error-prone task when done manually.

Aims & Methods: The primary objective of this study is to undertake biological validation of the candidate MRI measures as independent imaging biomarkers of histological fibrosis with the primary outcome being the

correlation between MRI measures and histological fibrosis measures. Patients with CD histological diagnosis and in need of surgical resection for stenosis attended a one-hour 3T MRI scanning session within 12 weeks prior to their intestinal resection surgery.

After the surgical resection, consecutive sections were cut in the sample and scored by a specialized gastrointestinal pathologist for inflammation, fibrosis, and muscular hypertrophy. A global score was derived for these variables for each individual bowel wall layer and for the whole bowel wall.

An expert radiologist with the help of the histopathologist located the strictures on the magnetisation transfer (MT) and T2 weighted scans. Z-spectrum quantification involved fitting z-spectra to a three-pool model using the Levenberg-Marquardt algorithm, with voxel-wise mapping of the fitted parameters. The GI-seg tool was also used to generate a 3D model of the stricture on T2 weighted scans measuring bowel wall volume and mean signal intensity of each stricture.

Pearson correlation coefficient was used to quantify the correlation between the variables.

Results: A total of 8 CD (19 strictures) patients were recruited. Strictures were identified in histopathology and located on the in-vivo T2 weighted and MT scans by the radiologist. Out of the 8 patients, 6 were used for Z-spectrum quantification. Bowel wall volumes in mm^3 and Mean signal intensity were calculated using the GI-seg tool.

MT Z- spectrum amplitude fit showed a high correlation with global fibrosis ($r(10) = .775$, $p = .008$), and inflammation scores ($r(10) = .824$, $p = .003$). Mean T2 signal intensity measured using GI-Seg highly correlated with global fibrosis scores ($r(19) = .617$, $p = .005$) , global inflammation scores ($r(19) = .692$, $p = .001$) and MT Z- spectrum amplitude fit ($r(10) = .941$, $p < .001$).

The volume of each stricture showed a moderate correlation to global fibrosis scores ($r(19) = .383$, $p = .106$), global inflammation scores ($r(19) = .425$, $p = .069$) and muscular hyperplasia ($r(19) = .404$, $p = .086$).

Conclusion: This study reveals a strong correlation between mean T2 signal intensity and global fibrosis, muscular hyperplasia, and inflammation scores in CD strictures. The GI-seg tool accurately measured bowel wall volume and signal intensity, indicating potential as independent imaging biomarkers for fibrosis, inflammation, in CD strictures.

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Dr Alex Menys and Dr Andrew Bard are employed by Motlient.

PP0744

SEMI-AUTOMATED SEGMENTATION OF INFLAMED BOWEL WALL ON NONCONTRAST T2-WEIGHTED MRI FOR STREAMLINED VOLUMETRIC ASSESSMENT OF CROHN'S DISEASE

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Introduction:

Crohn's disease (CD) is a chronic, auto-immune, inflammatory condition affecting the digestive tract. Accurate evaluation of CD activity is crucial to ongoing treatment monitoring. Magnetic resonance enterography (MRE) is used to characterise disease behaviour, but its interpretation remains subjective. There are validated MRE activity scores available, such as the simplified magnetic resonance enterography index (sMARIA), but they often fail to capture early treatment response. Much current evaluation is based on an isolated 2D evaluation of a subjectively-chosen area of diseased bowel rather than assessing the full disease volume; even in this limited context, reductions in bowel wall thickness are associated with treatment response. It is believed that segmentation of abnormal bowel volume may allow more objective, quantitative assessment for tracking disease activity and treatment response. This is not feasible without automation due to constraints on clinician's time.

To address this issue, we developed a segmentation protocol and semi-automated pipeline for use on coronal T2-weighted MRI, routinely acquired during Crohn's monitoring.

Aims & Methods: Imaging data from patients with confirmed CD from the METRIC / METRIC EF trials [1,2] were collected from 6 different hospitals. Abnormal bowel segments, identified based on pre-existing clinical information, had centrelines drawn by expert radiologists on coronal T2-weighted noncontrast MRI. Volumetric segmentation was performed based on these by a technician or radiologist. All annotations were performed on Entrolytics® (Motilent Ltd, UK).

Patients were randomly split to train, validation and test at project start. The train set (60 segments, 49 patients) was used for explicit optimisation (parameter fitting). The validation set (20 segments, 18 patients) was used for interim performance quantification. The test set (37 segments, 34 patients) was held out during development. To examine inter-reader agreement, N=18 cases from the VIGOR++ [3] study were annotated with centrelines drawn through the Terminal Ileum, and segmentation performed independently by two readers in isolation, from the same centreline.

The algorithm uses k-means clustering to divide images into partitions, which are characterised using a custom feature set. The fraction of their voxels contributing to the segmentation is predicted by a trained Random Forest Regressor.

We quantify agreement for bowel wall segmentations based on the same centreline, using three standard metrics for segmentation quality: Dice score, symmetric Hausdorff distance and mean contour distance. We compare agreement between readers with agreement between algorithm and human readers using the Kolmogorov-Smirnov test.

Results: Between human readers (N=18), levels of agreement are moderate (mean Dice score = 0.603, Symmetric Hausdorff Distance = 13.1mm, Mean Contour Distance = 1.30mm). Between algorithm and human (N=37), levels of agreement are comparable (mean Dice score = 0.521, Symmetric Hausdorff Distance = 15.1mm, Mean Contour Distance = 2.28mm). Difference in Dice scores between these two distributions cannot be detected (K-S statistic = 0.285, p = 0.230). Difference in SHD cannot be detected (K-S statistic = 0.339, p = 0.099). Differences in MCD can be detected (K-S statistic = 0.697, $p = 4.51\times10^{-6}$).

Conclusion: Our semi-automated algorithm agrees with humans at a similar level to inter-reader agreement. This algorithm will be embedded within a web-based platform in order to further aid researchers and clinicians in deriving quantitative imaging biomarkers.

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PP0745

EFFECT OF REDUCING THE VOLUME OF ORAL CONTRAST ON BOWEL DISTENSION & DIARRHEA FOLLOWING MR ENTEROGRAPHY: A CROSS-OVER STUDY IN HEALTHY VOLUNTEERS

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Introduction: Crohn's disease is routinely monitored via Magnetic Resonance Enterography (MRE), requiring patients to drink large volumes of hyperosmolar oral contrast to distend the bowel. This is poorly tolerated and associated with lower gastrointestinal symptoms up to 48 hours after the scan [1].

The use of most contrast agents (e.g. mannitol) for MRE is 'off label' and there is little consensus on the volume, timing or concentration or agent used [2].

Aims & Methods: This study assesses the impact of modifying the oral contrast protocol used in routine MRE on diagnostic quality of images and reported symptoms. Full standard prep (1.6L of 1.67% Mannitol over 60mins, FSP) was compared with a Modified Reduced prep (0.6L of 1.67% Mannitol over 60mins, with 0.3L nutrient drink, MRP) and a Reduced Prep (1.0L of 1.67% mannitol over 45 mins, RP). These were given to healthy volunteers (age 18-55, BMI 18-35, with no MRI contraindications) fasted for 4 hours prior to the scan, which was performed on a Philips 3T scanner for 40mins. Volunteers were asked to rate their cramps and diarrhoea on a scale from 1 to 100 before the drink and after the scan. Images were reviewed by a blinded radiologist, ranking them for diagnostic quality from 0 (very poor distension) to 4 (excellent distension) and lumen diameter in the terminal ileum (TI).

All statistical comparisons were performed using Paired Wilcox tests with Holm correction for multiple comparisons were used to assess FSP vs MRP, and FSP vs RP, separately.

Results: Sixteen healthy volunteers were recruited: median age 29 (IQR: 28 - 31); 29% female. Immediately following imaging, reported severity of cramps was found to be similar between FSP (9.5 IQR: 1 - 37) and RP (1.0 IQR: 1 - 19, p = 1.0); and reduced in MRP (1 IQR: 1 - 4, p = 0.045).

Severity of diarrhoea was rated high with FSP (6 IQR: 4.25 - 7) and substantially reduced with MRP (1 IQR: 1 - 2, p=0.017), with a trend for RP (3 IQR: 1.25 - 4, p=0.068). Distension quality was equivalent with a median of 2 ‚Fair' in FSP and 3 'Good' in RP groups (p=0.149).

However, it was worse in MRP with a median of 1 ‚Poor' (p=0.015). TI diameter was equivalent (p=0.149) between FSP (18 mm IQR: 17 - 20) and RP (19 mm IQR: 18 - 21) and lower in MRP (15 mm IQR: 11 - 19, p = 0.015).

Conclusion: The modified reduced prep (MRP) was associated with reduced cramp and diarrhoea severity compared to full standard prep (FSP), but also reduced distension quality. Using the reduced prep (RP), diarrhoea symptoms improced, but with no reduction in image quality. The findings suggest that modifying the MRE protocol may improve patient tolerance, particularly in Crohn's disease patients who require frequent monitoring.

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Disclosure: H E Fitzke has ongoing research collaborations with Motilent, the medical imaging analysis company who developed the 3D polyline tool and previously received funding from the BBSRC to undertake two internships with Motilent. S A Taylor has ongoing research collaborations and holds share options in Motilent and G Bhatnagar is a paid consultant for Motilent.

PP0746

MRI FACTORS ASSOCIATED WITH RELAPSE FOLLOWING DISCONTINUATION OF BIOLOGIC MEDICATION IN CROHN'S DISEASE

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Introduction: The decision to stop biologic medication in Crohn's Disease (CD) in apparent clinical remission is challenging. We investigated MR enterography (MRE) observations associated with future relapse.

Aims & Methods: 49 CD patients discontinuing biologics due to clinical remission and undergoing MRE within 12-months prior, or 1-month after, were identified. Two blinded radiologists subjectively assessed small bowel disease presence/activity and disease length, wall-thickness, fat-wrapping [1] and sMARIA score [2]. ‚Relapse' status was assigned based on full clinical records including patient symptoms, biochemistry, imaging and drug prescription. Per-patient analysis was performed using the most severely affected segment and groups were compared with Chi-Square and Wilcox test.

Results: Mean patient age was 30.1 (SD: 13.0, 19 female). Median follow-up was 55 months (6-110). Twenty-five (51%) had disease relapse (DR) and 24 (49%) no relapse (NDR). Sixteen of 24 (67%) and 15/25 (60%) of the NDR and DR respectively still had small bowel disease present on MRE prior to biologic cessation. This was subjectively deemed active in 10/15 (66%) DR vs just 5/16 (31%) of NDR. One patient was excluded from the quantitative analysis due to image artifacts. Maximum wall thickness in the most severely affected segment was the only MRE observation associated with subsequent relapse (Table 1).

		Relapse?		Difference
		No (N = 24)	Yes (N = 24)	p-value
Number of SB disease segments	0	8 (33%)	9 (38%)	0.88
	1	16 (67%)	13 (54%)	
	>1	0 (0%)	2 (8%)	
Maximum wall thickness, mm		5.4 [3.4; 6.6]	7.3 [6; 9.6]	0.01
Length of abnormal segment, cm		8 [6; 13]	14 [5; 23]	0.49
Segmental sMaRIA score		1 [1; 2]	1 [1; 2]	0.39
Fat wrap	Absent	13 (54%)	8 (33%)	0.11
	Present	4 (17%)	10 (42%)	

Table 1.

Conclusion: Simple presence or absence of residual small bowel abnormality does not in itself predict future relapse. However, in those with residual disease, simple bowel wall thickness is greater in those who relapse and may be a simple tool to guide the decision to discontinue biologic medication.

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Disclosure: H E Fitzke has ongoing research collaborations with Motilent, the medical imaging analysis company who develop the image analysis tools and previously received funding from the BBSRC to undertake two internships with Motilent. S A Taylor has ongoing research collaborations and holds share options in Motilent.

PP0747

CONTRAST-ENHANCED ULTRASOUND DISTINGUISHES INFLAMMATORY FROM NON-INFLAMMATORY STENOSIS IN CROHN'S DISEASE: FIRST RESULTS FROM THE STRICTURE STUDY

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Introduction: Stenotic complications affect 30%-50% of patients with Crohn's disease (CD)[1]. There is currently no imaging modality to identify stricture composition, which would allow early targeted (anti-inflammatory vs surgical) treatment. Intestinal ultrasound (IUS) and its advanced modalities (contrast-enhanced and elastography) have the potential for transmural disease evaluation. The aim of the STRICTURE study was to investigate (advanced) IUS and MRI techniques to distinguish between inflammatory- (IP) and non-inflammatory predominant phenotypes (non-IP) of stricturing CD.

Aims & Methods: In this prospective, longitudinal study, consecutive patients with small bowel stricturing CD undergoing surgery were included. Patients were eligible if they had a non-passable stricture during endoscopy in the small bowel or at the valve/anastomosis and/or a stricture at cross-sectional imaging (IUS or MRE) with a bowel wall thickness (BWT) >3.0 mm in combination with narrowing of the lumen <1.0 cm or a prestenotic dilation (lumen width ≥2.5 cm)[3]. Clinical scores (Harvey-Bradshaw index and Crohn's Disease Obstructive Score[4]) and biochemical parameters were collected. All patients underwent conventional IUS (B-mode/colour Doppler signal)[5], CEUS and SWE and cine-loops were scored by one rater. After surgery, histological slides were retrieved at the same distance from the valve/anastomosis as measurements were made on IUS. Subsequently, a blinded expert pathologist scored all slides as [1] inflammatory (IP; BWT based on inflammatory infiltrates and edema according to the Nancy score), [2] fibrotic (FP; BWT based on structural changes due to fibrosis, adipose tissue and/or muscular hypertrophy[6]) or [3] mixed phenotype (MP; BWT with inflammatory and fibrotic aspects but no predominant phenotype). FP and MP were both classified as non-IP.

Results: A total of 36 patients (female: 58%, age: 42 ± 18 years) with a mean BWT of 6.7 ± 1.7 mm were included. Median time between IUS and surgery was 14 [3-50] days. A total of 7 patients had an IP, 18 a FP and 11 a MP. For the conventional IUS parameters, loss of bowel wall stratification was more frequently found in IP strictures (OR: 7.87 [1.24-50.00], p=0.029). Clinical, biochemical, other conventional IUS parameters, length of the

stricture (13 [8-18] cm vs 10.5 [7.5-17.5] cm) and width of the prestenotic dilation (2.70 [1.70-2.80] cm) vs 2.30 [1.75-3.35] cm) were not significantly different between patients with IP and non-IP. However, CEUS, including wash-in and wash-out parameters, were significantly higher in IP versus non-IP strictures (Table 1).

When excluding MP strictures, CEUS was the only modality that could distinguish between IP and FP. SWE inversely correlated with CEUS (Table 1) but did not differentiate between IP and non-IP (33.30 [26.00-44.80] kPa vs 43.49 [28.30-54.00] kPa, p=0.48) or IP and FP (33.30 [26.00-44.80] kPa vs 41.23 [24.36-48.60 kPa, p=0.95).

CEUS parameter in decibel	Inflammatory phenotype	Non-inflammatory phenotype (fibrosis and mixed)	Signi-ficance	Cut-off value (AUC/sens/spec)	SWE correlation
Peak enhancement (median [IQR])	31.6 [31.0-35.7]	29.38 [27.29-31.50]	p=0.014	31.0 (0.8/86%/69%)	ρ=-0.36, p=0.04
Wash-in area under the curve (median [IQR])	39.4 [38.3-41.5]	36.09 [32.27-38.26]	p=0.005	38.2 (0.84/86%/77%)	ρ=-0.32, p=0.08
Wash-in perfusion index (median [IQR])	29.6 [29.3-33.7]	27.63 [25.40-29.64]	p=0.016	29.2 (0.8/86%/69%)	ρ=-0.37, p=0.04
Wash-out area under the curve (median [IQR])	43.1 [41.3-45.1]	38.90 [36.50-41.85]	p=0.016	41.8 (0.8/71%/77%)	ρ=-0.37, p=0.04
Wash-in and Wash-out area under curve (median [IQR])	44.3 [43.1-46.7]	40.74 [38.23-43.54]	p=0.008	43.0 (0.82/86%/69%)	ρ=-0.36, p=0.05

Conclusion: CEUS accurately distinguishes predominant inflammatory from not-predominant inflammatory strictures in CD and inversely correlates with SWE. CEUS, could be of additional value in this specific population to select patients most suitable for anti-inflammatory treatment. Reproducibility of advanced IUS techniques is under investigation.

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PP0748

VOLUMETRIC MEASUREMENT OF CROHN'S DISEASE ON MAGNETIC RESONANCE ENTEROGRAPHY: FEASIBILITY, CLINICAL UTILITY, AND ROLE IN ASSESSING TREATMENT RESPONSE

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Introduction: Accurate evaluation of Crohn's disease (CD) activity is crucial to optimise and monitor treatment. Magnetic resonance enterography (MRE) has an important role in characterising disease behaviour, but its interpretation remains subjective. Currently available validated MRE activity scores such as the simplified magnetic resonance enterography index (sMARIA) often fail to capture early treatment response; changes in constituent parameters may lag behind clinical improvements by several months.

Furthermore, current evaluation is based on an isolated 2D assessment of subjectively the worst area of diseased bowel rather than assessing the full disease volume.

Nonetheless, reductions in bowel wall thickness are associated with treatment response, but are subjective, and small reductions may not be detected reliably.

We hypothesised that disease volume may be a more responsive imaging biomarker for disease response than conventional MRE scores.

Aims & Methods: This study aimed to evaluate the technical feasibility and clinical utility of volumetric measurement of terminal ileal (TI) CD on MRE compared to an endoscopic reference standard, and sMARIA activity score. We also assessed whether volumetric changes in disease burden measured on MRE are responsive to changes induced by biologic therapy.

Patients with CD proven by histopathological analysis who prospectively underwent both MRE and ileocolonoscopy scored with Crohn's Disease Endoscopic Index of Severity (CDEIS) within 1 month were included.

A board-certified abdominal radiologist placed a centreline through the lumen of the TI that defined the length of diseased bowel on the T2-weighted non-fat saturated sequence. Centrelines were used as the basis for manual segmentations of the involved bowel wall performed independently by two board-certified abdominal radiologists. If there was no disease apparent on MRE, 5 cm of "normal" bowel wall was segmented. The mean volume of disease was compared to CDEIS and sMARIA. Inter-observer agreement for segmentation was assessed using Bland-Altman analysis.

We also examined a group of patients with CD who had been treated with biologics, undergone paired pre- and post- treatment MRE, and classified as treatment responders by their treating gastroenterologist based on all available clinical data (global physician assessment). We compared the volumetric burden of CD on their pre- and post- biologic treatment MRE.

Results: Thirty patients (median age of 29 (IQR 24, 34) years, 18 females) with available MRE and endoscopy were included. The mean difference of volume of disease between the 2 readers was -3.0 cm^3 (limits of agreement -21.8, 15.9). The median of the mean volume of disease in those with endoscopically active terminal ileal CD (CDEIS ≥ 3, n = 15) was 20.9 cm^3 (IQR 11.3, 44.0) compared to 5.7 cm^3 (2.9, 9.8) with no active CD on endoscopy (n = 15). The median of the mean volume of disease of patients with active CD by sMARIA (>= 1) (n = 23) was 15.0 cm^3 (8.7, 44.0) compared to 2.85 cm^3 (2.6, 3.1) for those with inactive CD.

In a further group of 6 clinically responding patients, the median volume of disease on the pre-treatment scan was 28.5 cm^3 (26.4, 31.3) and 11 cm^3 (4.8, 16.6) on the post-treatment scan, with a median percentage difference of -110% (-147%, -51%).

Conclusion: Volumetric measurement of CD burden on MRE is a feasible method, relates to the endoscopic burden of disease, and is sensitive to changes induced by biologics. This represents a novel, objective biomarker using MRE for assessing disease activity and treatment response in CD, worthy of further validation.

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BB and AB are employees at Motilent, a medical imaging analysis company
AM is the CEO of Motilent
S A Taylor holds shares in Motilent.

PP0749

DISAGREEMENT BETWEEN ENDOSCOPIC AND TRANSMURAL HEALING IN CROHN'S DISEASE AND THE IMPACT OF DISEASE DURATION

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Introduction: Transmural healing (TH) has been proposed as a therapeutic target in Crohn's Disease (CD) with studies showing a better prognosis than endoscopic healing (EH). However, EH is not always accompanied by TH and vice versa.

Aims & Methods: We aimed to evaluate the endoscopic and radiological factors associated with the discordance between EH and TH, the impact of earlier biological initiation on this mismatch and the long-term effect on prognosis. Multicentric retrospective study in patients with CD under biologic therapy who had a baseline computed tomography enterography (CTE) or magnetic resonance enterography (MRE) before therapy initiation and a follow-up ileocolonoscopy and MRE at 12±6 months. EH was defined as an SES-CD<3 or absence of ulcers and TH as the complete normalization of mural and extra-mural inflammation. All radiologic examinations were reviewed by expert radiologists after a consensus and the analysis was performed by inflamed intestinal segments using the McNemar's test. The impact of the time of biological therapy initiation was assessed using logistic regression. After 5 years of follow-up, we assessed for the presence of long-term bowel damage defined as the need for intestinal resection or progression in disease phenotype (presence of new stenosis or fistula or worsening of previously existing stenosis or fistula).

Results: 84 patients were included (52% females) with a median age at diagnosis of 27 yo (IQR 22-37). Half had ileocolonic involvement, 42% isolated ileal disease and 8% colonic disease; most had inflammatory phenotype before treatment (51%) and a median disease duration of 15 months (IQR 4-84). Almost half of the patients (49%, n=41) achieved EH and of those 63% (n=26) did not achieve TH; 23% (n=19) attained TH, of whom 21% (n=4) did not achieve EH. Most of the patients who achieved EH but not TH had persistent disease in the small bowel when compared to the large bowel (88.5% vs 11.5%, p<0.01). Among patients who achieved EH, 71 intestinal segments with signs of inflammation before treatment initiation were analysed. Only the presence of a stricture had a non-significant variation with therapy when compared with the baseline assessment (Table 1). Among the endoscopic variations in patients who achieved TH, only the presence of endoscopic stenosis did not achieve a significant variation and remained persistent (Table 1). There were no differences according to the time of initiation of biological therapy. The persistence of a radiological stricture in patients with EH was associated with long-term bowel damage (13% vs 67%, p=0.02).

Variables	Pre-treatment (0 months)	Post-treatment (12±6 meses)	p-value	% of segments in endoscopic remission with persistent lesions in MRE
Increased bowel wall thickness >3mm	68/71 (96%)	29/71 (41%)	<0.01	29/68 (43%)
Increased contrast enhancement	69/71 (97%)	28/71 (39%)	<0.01	28/69 (41%)
Perienteric stranding	34/71 (48%)	9/71 (13%)	<0.01	8/34 (24%)
Stricture	12/71 (17%)	11/71 (16%)	0.65	9/12 (75%)
Penetrating lesions	11/71 (15%)	3/71 (4%)	0.01	3/11 (27%)
Variables	Pre-treatment (0 months)	Post-treatment (12±6 meses)	p-value	% persistent endoscopic lesions in patients with TH
Deep ulcers	8/14 (57%)	2/19 (11%)	<0.01	1/8 (12.5%)
Large ulcers	6/13 (46%)	1/19 (5%)	0.01	0/6 (0%)
Stricture	3/13 (23%)	2/19 (11%)	0.32	2/3 (67%)

Table 1 – Persistent radiological and endoscopic lesions in patients with EH and TH, respectively.

Conclusion: In patients with CD who achieved EH, the persistence of radiological lesions is frequent and does not seem to be modified by earlier biological therapy. The persistence of a radiological stricture is associated with long-term bowel damage. The evaluation of the endoscopic changes in patients with TH was limited by the small sample size.

Disclosure: Nothing to disclose.

PP0750

INTESTINAL ULTRASONOGRAPHY AS AN ALTERNATIVE TO FAECAL CALPROTECTIN TO MONITOR PATIENTS WITH CROHN'S DISEASE: EXPERIENCE FROM A NOVICE ULTRASONOGRAPHIST (FUSION STUDY)

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Introduction: While faecal calprotectin (Fcal) is now recommended, the positioning of intestinal ultrasonography (IUS) is still unknown to monitor patients with CD.

Aims & Methods: We aimed to assess the agreement between IUS and Fcal to detect active CD and to compare these two monitoring tools to determine the need of therapeutic escalation. We also compared the acceptability between IUS and Fcal and evaluated the potential learning curve of a novice ultrasonographist.

In this cross-sectional prospective study, we consecutively included CD patients ≥ 18 years-old with concomitant IUS and Fcal testing within 7 days. IUS was performed by a novice ultrasonographist.

The endpoints were 1) the agreement between IUS and Fcal (> 150 µg/g) to detect active CD and 2) the need for therapeutic escalation. Active CD per US was defined as one among the following lesions: abnormal bowel thickness (> 3 mm), abnormal vascular pattern (colour Doppler signal > 1), or loss of bowel wall layer stratification or mesenteric fat wrapping). The need for therapeutic escalation was based on the judgement of an experienced IBD physician blinded from the IUS results. Acceptability by the patients was assessed by an acceptability numerical scale ranging from 0 to 10 (10 = perfect acceptability).

Results: Among 66 patients undergoing IUS, 56 patients had also Fcal testing (adherence rate = 84.5%). The agreement between IUS and Fcal to detect an active CD was 80.4 % (κ-coefficient=0.536±0.127). Fcal, IUS or both had respectively the following positive predictive values (76.9% [54.0–99.8], 70.0% [49.9–90.1], and 81.8% [59.0–100.0]) and negative predictive values (81.4% [69.8–93.0], 88.9% [78.6–99.2], and 80.0% [68.3–91.7]) to detect active CD requiring therapeutic escalation.

Using a 10 points-acceptability numerical scale, IUS presented with a better acceptability than Fcal (9.5 ± 1.2 vs 8.0 ± 2.3, p < 0.0001). As expected, the duration of IUS procedure decreased over time (correlation coefficient = - 0.54, p = 0.001) and ranged from 40 to 15 minutes. Of note, this duration plateaued between 15 and 20 minutes-long from the 24th procedure. In contrast, the agreement between IUS and faecal calprotectin, as well as the performances of IUS to identify the need for therapeutic escalation did not change over time.

Conclusion: IUS and faecal calprotectin do not give the same information and could be complementary to monitor patient with CD. The implementation of IUS in IBD centers seems to be quickly feasible.

Disclosure: Nothing to disclose.

PP0751

HUMORAL RESPONSE TO SARS-COV-2 VACCINATION AMONG PATIENTS WITH INFLAMMATORY BOWEL DISEASE RECEIVING IMMUNOSSUPRESSIVE MEDICATIONS

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Introduction: Patients with inflammatory bowel disease (IBD) frequently use immunosuppressants and immunobiologicals for maintenance treatment. The humoral responsiveness to COVID-19 vaccines in this group of patients using this drugs is still not fully understood, as the need for more vaccine boosters.

Aims & Methods: Our study aims to evaluate the humoral response to different types of vaccines against SARS-Cov-2 in this population, as well as to compare this response with the healthy population. Patients with IBD enrolled at the Policlinic Piquet Carneiro (UERJ) were prospectively followed with serial blood collection between July 2021 and July 2022. Samples were screened to determine antibody titers, and patients were stratified by demographic and clinical characteristics, naturally occurring infection, vaccination schemes, and IBD medications.

Anti-spike IgG antibody titers against the SARS-Cov-2 were determined by ELISA before and one month after the two doses of different vaccination schemes in patients with IBD, regularly followed-up at the outpatient unit. The results were compared with those of a healthy control group during the same period.

Results: In the IBD group (46 individuals), mean antibody titers were 430.3 AU/ml pre-vaccination and 8038.4 AU/ml after the two vaccine doses. In comparison, in the control group (92 individuals), mean antibody titers were 90.5 AU/ml pre-vaccination and 7697.5 AU/ml after the two doses. In both groups, there was a significant increase in the titer of antibodies after the two vaccine doses (p<0.001). When comparing antibody titers one month after the 2nd dose, there was no difference between the two groups (p=0.731).

On the other hand, in the IBD group, there was a difference between the vaccination schemes, with higher titers in those who received Pfizer, as well as in younger patients (p<0.005) and in those with previous natural COVID-19 infection (p<0.012).

Diagnosis of Crohn's disease or ulcerative colitis, sex, race, smoking status, clinical variables related to disease localization, extension, behavior, clinical activity, and type of medical therapy did not significantly affect the immune response to vaccines.

Conclusion: The use of immunosuppressants and immunobiologicals does not affect the overall humoral response to the COVID-19 vaccination among patients with IBD. Nevertheless, specific vaccine schemes, age, and previous COVID-19 infection significantly affect antibody titers.

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Disclosure: Nothing to disclose.

PP0752

COVID-19 OUTCOME AND ASSOCIATION TO ANTI-SPIKE ANTIBODY CONCENTRATIONS IN PATIENTS WITH IMMUNE MEDIATED INFLAMMATORY DISEASES ON IMMUNOSUPPRESSIVE THERAPY; A PROSPECTIVE COHORT STUDY

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Introduction: Patients with immune mediated inflammatory diseases (IMIDs) on immunosuppressive therapies have attenuated vaccine responses (1-3) and are prone to severe infections. Knowledge of COVID-19 outcome following vaccine and hybrid immunity, and identification of protective anti-Spike antibody concentrations are important to further develop vaccine strategies in this vulnerable patient group.
Aims & Methods: In this prospective observational study, adult patients with IMID on immunosuppressive therapies were followed from February 15, 2021, to February 15, 2023. Throughout the study, patients and controls reported data regarding COVID-19, COVID-19 related hospital admissions were recorded from The Norwegian Patient Registry. Anti-Spike antibodies were assessed 2-4 weeks following vaccination and COVID-19. The objectives of this study were to investigate the outcomes of COVID-19 in a large cohort of IMID patients compared to healthy controls, and to identify any associations between anti-Spike antibody concentrations and disease course.
Results: Of 2250 IMID patients included in the study, a total of 1729 with a documented COVID-19 history were included in the present analyses (305 Crohn's disease, 215 ulcerative colitis, 648 rheumatoid arthritis, 272 psoriatic arthritis, and 289 spondyloarthritis) (median age 54 years (IQR 42-64), 971 (56 %) females). Of the patients, 1080 of 1729 (62%) used anti-TNF treatment (65% monotherapy, 35% combination therapy).
1140 (66%) of patients and 236 of 350 (67%) healthy controls (HC) reported COVID-19, the majority (85%) within the Omicron era. COVID-19 reinfection was reported in in 141 (12%) patients and 32 (14%) HC (p=0.66). Compared to hybrid immunity (COVID-19 after three vaccine doses), the risk of COVID-19 was six times higher following vaccine series only (HR 5.9, (95% CI [4.45, 7.80]), p<0.001). Anti-Spike antibody concentrations <8000 BAU/ml were predictive of COVID-19 after three (HR 1.5 (95% CI [1.14, 1.90]), p=0.003) and four vaccine doses (HR 1.4 (95% CI [1.13, 1.83]), p=0.003), and in hybrid immunity (HR 2.6 (95% CI [1.32, 5.13]), p=0.006). In the entire cohort, the median anti-Spike antibody concentration after the 2nd vaccine dose was 2823 BAU/ml (IQR 999-6199), after the 3rd dose 6529 BAU/ml (IQR 2325-10140), after the 4th dose 7624 BAU/ml (3809-12751) and following hybrid immunity 23506 BAU/ml (11423, 37007). Hospitalisation due to COVID-19 (severe disease) occurred in 22 (2%) patients, 9 (41%) before any vaccination, and none of HC. Four patients were admitted to intensive care. Prior to hospitalisation, the median anti-Spike antibody concentration was 444 BAU/ml (IQR 31-1634). Patients with severe disease were older than non-hospitalised (median age 61 years (IQR 48-74) vs. 54 (42-64), p=0.04) and had a higher frequency of comorbidities (19/22 (86%) vs. 474/1118 (42%), p=0.02). No COVID-19 related deaths occurred.
Prolonged COVID-19 (symptoms >14 days) were reported by 201 (18%) patients compared to 29 (12%) HC (p=0.09). The risk of prolonged disease was higher in the vaccine group compared to the hybrid group (HR 8.5 (95 % CI [3.84, 18.90]), p<0.001).
Conclusion: IMID patients and healthy controls had a comparable occurrence of COVID-19, prolonged disease and reinfection. However, severe disease developed only in the patient group. Hybrid immunity protects against COVID-19 and prolonged disease. A high anti-Spike antibody concentration protects against COVID-19, supporting the role of repeated vaccination in IMID patients on immune-suppressive therapy.
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Disclosure: Have received speakers bureaus from Bristol-Myers Squibb and Roche.

PP0753

FACILITATING EQUITABLE IBD CARE TRUST-WIDE: A NEED FOR TREATMENT TARGETS IN IBD?

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Introduction: Timely biological therapy in IBD is associated with reduced disease progression, especially in CD (Berg et al 2019). However, there are no clear UK standards detailing the timescale in which IBD care should be delivered. We evaluated the time between initial consideration of therapy and first dose in a district general hospital and tertiary referral centre in Barts Health NHS Trust.

Aims & Methods: Details of patients receiving biologics for IBD at Newham (NUH) and Royal London Hospital (RLH) (between 2018 – 2022) were obtained from infusion clinics; electronic records were reviewed for the 50 most recent referrals. The following information was collected: demographics, phenotype, drug, first documentation of consideration of biologic, completion of funding application, onset of therapy.

Results: Demographics:

NUH: Age (median(IQR)) = 43.5(30.3 – 50.56) Gender (F:M) = 26:24, CD:UC = 34:16, Biologic: infliximab:vedolizumab:ustekinumab:adalimumab: 29:5:11:5, First biologic: n=34

RLH: Age (median(IQR)) = 31.6 (24.6 – 41.1) Gender (F:M) = 27:23 CD:UC = 23:27, Biologic: infliximab:vedolizumab:ustekinumab:adalimumab: 34:12:3:1, First biologic: n=25

There was substantially longer (median (IQR)) time between initial consideration of therapy and first dose delivered at NUH (94.5 days (44 – 174)) compared with RLH (35.5 days (23.75 – 69), p<0.01). However, time from completion of funding application to first dose did not differ significantly between sites (43.5 days (30.3 – 50.6) vs 31.6 days (24.6 – 41.1), p=0.42). In patients receiving first biologic, there was a trend towards a longer time since diagnosis at NUH (3.2 years (1.0 – 9.1) vs 1.7 years (0.5 – 4.3), p=0.08).

Conclusion: Patients treated in a tertiary referral centre started biologics sooner after consideration, and earlier in disease course. This does not appear due to availability of infusion services, but due to time to complete initial investigations and finalise escalation. This may reflect differences in service set-up; in particular, NUH manages IBD care with a single IBD nurse, and fewer options for fast-track clinic follow up. A clear UK IBD standards framework identifying recommended time frames for establishing biologics is indicated, to ensure equity in care across tertiary and DGH settings.

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Disclosure: HG has received speaker fees from Ferring, Janssen and Abbvie.

PP0754

VACCINATIONS IN PATIENTS WITH CHRONIC INFLAMMATORY DISEASES, PATIENT KNOWLEDGE AND AWARENESS: RESULTS FROM A NORDIC SURVEY

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Introduction: Patients with chronic inflammatory diseases (CID) have an increased risk for contracting infections. For patients with inflammatory bowel diseases (IBD), European Crohn's and Colitis Organization (ECCO) provides guidelines for vaccination against vaccine-preventable diseases.

Aims & Methods: To assess the knowledge and awareness of common vaccinations and extent of immunization among patients with CID in Denmark, Finland, Norway, Sweden (Nordics), and to identify gaps between the existing ECCO guidelines and current practice as experienced by patients.

A structured anonymous online survey for patients with CID (IBD, rheumatological disease (RD) and dermatological diseases (DD)) was conducted in 2022. The survey was answered by 1748 respondents (IBD n=543, RD n=1031, DD n=563).

Results: Among respondents, 89% were female, 58% had disease duration >10 years, and majority had ongoing systemic immunosuppressive treatment (IT) (65%). Most of the IBD (66%) and RD (59%) patients and minority of DD patients (38%) were treated in specialised care.

Forty-nine percent stated their healthcare professional (HCP) did not inform them about increased risk of infection – however, 55% believed they are somewhat or much more likely to suffer from infections than those without CID or treatment.

In total, 68% considered it important to get vaccinated due to their CID or treatment (RD (74%), IBD (61,3%), DD (57%)). This despite that 63% stated they had not received any information regarding vaccinations at the start of their treatment, 44% considered the information on vaccinations related to their CID and treatment was difficult to find and 71% would like to receive more information.

Commonly recommended vaccinations in all disease groups vs. IBD were COVID-19 (66% vs. 67%), influenza vaccination (IV) (63% vs. 62%) and pneumococcal vaccination (PV) (45% vs. 44%). Comparing respondents ≥65 and <65 years in all disease groups, a difference was observed in how often IV (71% vs. 57%) and PV (57% vs. 38%) were recommended.

Only 22% had their vaccination status checked *before* initiating treatment; lowest in DD (16%) and highest in RD (25%). Moreover, 64% (IBD 66%, RD 57%, DD 71%) did not have vaccination status assessed regularly. Eighty-six percent did not receive a vaccination plan in relation to their CID and treatment and 43% were dissatisfied with the follow-up of vaccination status. Respondents of ≥65 years were more satisfied than those <65 years (34% vs. 25% very satisfied) and respondents with RD were more satisfied than those with IBD or DD (33% vs. 25% vs. 20%).

The vaccination rate among patients with IBD *before* start with IT was highest for IV (40%) (COVID-19 18%, PV 29%, Herpes zoster vaccine (HZV) 0%). No major differences between disease groups were observed except for COVID-19 vaccination, which was received by 30% of all patients.

The vaccination rate among patients with IBD *while on* IT was highest for COVID-19 (82%) (PV 43%, IV 70%, HZV 1%). No major differences between disease groups were observed in HZV (1%) but PV, IV and COVID-19 vaccines were received by 37%, 62% and 74% of all the CID patients, respectively.

Conclusion: This Nordic survey provides insights on patients' information needs and sources, and own experiences related to recommendations on vaccinations in relation to their CID and IT. The results confirm a gap between the ECCO guidelines and patients' expectations, and demonstrate a need for increased vaccination rate for common vaccinations and awareness among patients and HCP regarding ECCO guidelines in patients with IBD.

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Disclosure: MP is an employee of MedEngine Oy and contractor for Pfizer Oy.

DH is former employee of Pfizer, and own stocks in the company.

PP0755

EFFECT OF TOFACITINIB ON COLECTOMY RISK IN ANTI TNF-ALFA REFRACTORY ULCERATIVE COLITIS

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Introduction: Tofacitinib is an oral janus kinase inhibitor (JAK) approved for patients with moderate to severe ulcerative colitis (UC) and either inadequate response or loss of response or intolerance to conventional or biologic therapy. The 5-year and 10-year cumulative risk of colectomy in UC is 10%–15%.[1] Due to the increasing number of anti tumor necrosis factor (TNF)-alfa non responders, tofacitinib seems a valuable therapeutic alternative. This study aims to assess the effectiveness of tofacitinib in preventing colectomy in patients with moderate-to-severe UC refractory to anti TNF-alfa agents.

Aims & Methods: We performed an observational retrospective and prospective multicenter study in five Italian IBD referral units including adult patients with confirmed diagnosis of moderate-to-severe UC (defined by a total Mayo score ≥ 6), treated with tofacitinib because of response failure or intolerance to anti TNF-alfa agents. Primary aim was the effectiveness of tofacitinib in preventing colectomy during a follow-up of 52 weeks. Secondary aims were: survival without colectomy, survival without tofacitinib discontinuation, clinical remission (defined as Mayo partial score ≤ 2) at week 8, 24 and 52, endoscopic remission (defined as Mayo endoscopic score ≤ 1) and steroid-free clinical remission (Mayo Partial score ≤ 2 without steroid) at week 52; adverse events (AE) to tofacitinib. Descriptive statistics and Kaplan Meier analyses of survival were performed.

Results: From January 2021 to October 2022 45 patients were included. During the follow-up, 6 patients (13%) underwent colectomy and all of them before week 24. Survival without colectomy and survival without tofacitinib discontinuation are represented in Figs.1-2. Clinical remission was reached by 17 patients (37.7%) at week 8, by 20 (44.4%) at week 24, and by 22 patients (48.8%) at week 52. Among the 11 patients with an endoscopic evaluation available after completing 52-week treatment, 9 (82%) achieved endoscopic remission. At week 52, 22 patients (49%) maintained steroid-free clinical remission. In eighteen patients (40%) tofacitinib was interrupted, because of failure in 15 and because of a severe AE in 3. AE occurred in 9 patients (20%), but in 3 only (6.7%) were severe and entailed treatment interruption.

Conclusion: These data confirm effectiveness and safety of tofacitinib in preventing colectomy in moderate-to-severe UC refractory to anti TNF-alfa agents.

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Disclosure: Nothing to disclose..

PP0756

EFFICACY AND SAFETY OF PROACTIVE DRUG MONITORING IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE DURING MAINTENANCE TREATMENT WITH ANTI-TNF AGENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Proactive therapeutic drug monitoring (TDM) has been suggested to improve outcomes in patients with inflammatory bowel disease (IBD) treated with anti-tumour necrosis factor (anti-TNFα) therapy. A systematic review and a meta-analysis of the literature was conducted to assess treatment efficacy and safety, and a systematic review to compare the cost-effectiveness of proactive TDM versus conventional management during maintenance treatment with anti-TNFα.

Aims & Methods: A search was conducted of MEDLINE, EMBASE, and the Cochrane Library up to January 2022. The primary outcome was the ability to maintain clinical remission at 12 months. The certainty of evidence was determined using the GRADE approach.

Results: Nine studies were identified: one systematic review, six randomised clinical trials, and two cohort studies (for safety evaluation). The analysis of the clinical trials showed no superior efficacy of proactive TDM [relative risk 1.16; 95% confidence interval (CI): 0.98–1.37, n=528; I^2=55%]. In contrast, the analysis of the cohort studies and systematic review revealed that proactive TDM could improve the durability of anti-TNFα treatment [odds ratio (OR) 0.12; 95%CI: 0.05–0.27; n=390; I^2=45%), prevent acute infusion reactions (OR 0.21; 95%CI: 0.05–0.82; n=390; I^2=0%), decrease adverse events (OR 0.38; 95%CI: 0.15–0.98; n=390; I^2=14%), and reduce the probability of surgery, at lower economical expenditure.

Conclusion: The analysed evidence did not confirm the superiority of proactive TDM of anti-TNFα agents over conventional management. Therefore, proactive TDM should not be recommended for the management of IBD patients receiving maintenance anti-TNFα treatment.

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PP0757

EFFICACY, SAFETY AND IMMUNOGENICITY OF SUBCUTANEOUS INFLIXIMAB (CT-P13 SC) MONOTHERAPY VERSUS COMBINATION THERAPY WITH IMMUNOSUPPRESSANTS – POST HOC ANALYSIS OF LIBERTY-CD STUDY AND LIBERTY-UC STUDY

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Introduction: CT-P13 subcutaneous (SC) infliximab formulation demonstrated superiority over placebo in maintenance therapy in Crohn's disease (CD)[1] and Ulcerative Colitis (UC)[2] patients in two parallel 54 weeks studies (LIBERTY-CD and LIBERTY-UC).

We performed a post-hoc subgroup analysis comparing patients treated with CT-P13 SC with and without combination immunosuppressants (IS) at baseline in CD and UC.

Aims & Methods: Patients with moderately to severely active CD and UC who responded at W10 to CT-P13 intravenous infliximab 5mg/kg (Weeks 0, 2 and 6) were randomized (2:1) to receive CT-P13 SC 120 mg (CT-P13 SC) or placebo every 2 weeks until W54 as maintenance therapy. IS (azathioprine [AZA], 6-mercaptopurine [6-MP], or methotrexate [MTX]) were allowed if patients maintained stable doses at least 8 weeks prior to W0, and stable doses were maintained up to W54.

Results: 231 CD and 294 UC patients were randomized to receive CT-P13 SC maintenance therapy. Among them, 71 (30.7%) and 65 (22.1%) patients received CT-P13 SC with IS in CD and UC, respectively (In CD; 63, 4 and 4 patients of AZA, 6-MP, MTX, respectively, In UC; 63, 2 and 0 patients of AZA, 6-MP, MTX, respectively). There were no statistically significant differences in all of the efficacy outcomes between monotherapy and combination therapy groups at W54 in both studies (Table 1). A trend is seen for higher rates of corticosteroid-free remission with combination therapy in both CD and UC patients.

No statistically significant differences were seen between monotherapy and combination therapy groups in the maintenance period in incidences of treatment-emergent adverse event (TEAE), systemic injection reactions (SIR) in combined analysis of CD and UC patients (TEAE 68.0% vs 74.3% [p=0.1989], SIR 3.3% vs 1.4% [p=0.3743], respectively).

A significantly lower incidence of infection was seen with monotherapy during the maintenance period in combined analysis of both studies (26.9 % monotherapy vs 36.4% combination therapy [p=0.0400]). In the combined analysis of both studies, the serious infections were reported for 10 (2.5%) patients in the monotherapy and 3 (2.1%) patients in the combination therapy.

In combined analysis of CD and UC patients, rate of anti-drug antibody [ADA] positive conversion up to W54 was statistically lower in combination therapy group (70.2% monotherapy vs 47.8% combination therapy [p<0.0001]).

CT-P13 SC 120mg in LIBERTY-CD				CT-P13 SC 120mg in LIBERTY-UC			
n (%)	Monotherapy (N=160)	Combination therapy (N=71)	P-value[a]	n (%)	Monotherapy (N=229)	Combination therapy (N=65)	P-value[a]
Clinical remission[b]	97 (60.6)	47 (66.2)	0.7194	Clinical remission[h]	95 (41.5)	32 (49.2)	0.4119
Endoscopic response[c]	81 (50.6)	37 (52.1)	0.9492	Endoscopic-histologic mucosal improvement[i]	78 (34.1)	27 (41.5)	0.4763
Clinical response[d]	103 (64.4)	49 (69.0)	0.7686	Clinical response[j]	124 (54.1)	34 (52.3)	0.5760
Corticosteroid-free remission[e]	27/76 (35.5)	13/23 (56.5)	0.4875	Corticosteroid-free remission[k]	32/94 (34.0)	12/26 (46.2)	0.1966
Clinical remission (alternative definition)[f]	89 (55.6)	42 (59.2)	0.5647	-	-	-	-
Endoscopic remission[g]	55 (34.4)	25 (35.2)	0.8439	-	-	-	-

[a] The nominal p-value was obtained from Cochran-Mantel-Haenszel test
[b] Clinical remission at Week 54, defined as an absolute Crohn's disease activity index (CDAI) score of <150 points
[c] Endoscopic response at Week 54, defined as a 50% decrease in Simplified endoscopic activity score for Crohn's disease (SES-CD) score from the baseline value
[d] Clinical response at Week 54, defined as a decrease in CDAI score of 100 points or more from the baseline value
[e] Corticosteroid-free remission at Week 54, defined as being in clinical remission (by an absolute CDAI score of <150) in addition to not receiving any corticosteroids for at least 8 weeks prior to Week 54, among the patients who used oral corticosteroids at baseline
[f] Clinical remission at Week 54, defined as Stool frequency subscore of 0 or 1 point, rectal bleeding subscore 0 point, and endoscopic subscore 0 or 1 point
[g] Endoscopic remission at Week 54, defined as an absolute SES-CD score of ≤4 and at least 2-point reduction from the baseline value with no sub-score of >1
[h] Clinical remission at Week 54, defined as modified Mayo score with stool frequency subscore of 0 or 1 point, rectal bleeding subscore 0 point, and endoscopic subscore 0 or 1 point
[i] Endoscopic-histologic mucosal improvement at Week 54, defined as absolute endoscopic subscore of 0 or 1 point from modified Mayo score and an absolute Robarts Histopathology Index (RHI) score of 3 points or less with an accompanying lamina propria neutrophils and neutrophils in epithelium subscore of 0 point
[j] Clinical response at Week 54, defined as decrease in modified Mayo score from baseline of at least 2 points and at least 30%, with an accompanying decrease in the rectal bleeding subscore of at least 1 point or an absolute rectal bleeding subscore of 0 or 1 point
[k] Corticosteroid-free remission at Week 54, defined as being in clinical remission (by modified Mayo score) in addition to not requiring any treatment with corticosteroid for at least 8 weeks at Week 54, among the patients who used oral corticosteroids at baseline

Table 1. Proportion of patients achieving efficacy outcomes at W54

Conclusion: No statistical differences in efficacy outcomes at W54 were observed between monotherapy and combination therapy in CD and UC patients. Concomitant IS use was associated with less ADA formation, whereas more infections are seen for combination therapy during maintenance period in CD and UC patients. The overall safety profile during maintenance period was otherwise comparable between monotherapy and combination therapy in CD and UC patients. This post-hoc analysis suggests limited benefit of concomitant IS with CT-P13 SC but a higher infection risk. Notably, patients were not randomized according to IS use nor were the studies 'powered' to demonstrate differences.

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PP0758

TREATMENT DISCONTINUATION FOR BIOSIMILAR VERSUS ORIGINATOR IN INFLIXIMAB INITIATORS

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Introduction: Infliximab biosimilars (INF-B) to treat inflammatory arthritis and inflammatory bowel disease have been on the North American markets since 2014. However, relatively few evaluations of real-world patterns of use and discontinuation have been conducted.

Aims & Methods: We aimed to compare discontinuation among initiators of INF-B and INF-O in the context of provincial public health insurance in Canada.

We analyzed claims data from provincial public drug plans across Canada (except Quebec) from the National Prescription Drug Utilization Information System. We studied infliximab-naïve patients (≥18 years) with at least 1 infliximab infusion from January 2015-December 2019. Discontinuation was defined as a ≥ 90-day gap between infusions without restarting therapy until the end of follow-up. We used Cox regression to compare time to discontinuation. We adjusted for age, sex, prior use of biologic/systemic steroids, province, and calendar year.

Results: We studied 7,220 infliximab-naïve individuals (28.3% initiating INF-B), of whom 51.9% were women. Subjects had a mean age of 45.5 years (standard deviation 18.4). Most resided in Ontario (33.9%), British Columbia (26.9%) and Alberta (15.4%). During follow-up, 325 individuals (15.9%) initiating INF-B and 1,222 (23.6%) initiating INF-O discontinued therapy completely. Comparing INF-B to INF-O, there was no clear difference in discontinuation rate (adjusted hazard ratio, 1.09; 95% confidence interval 0.95-1.24). Older age independently predicted discontinuation: the higher discontinuation in Ontario may, in part, represent demographics (Ontario's public drug plan covers seniors only) or other factors.

Variables	HR (95% CI)	
	Unadjusted	Adjusted*
Female (biological sex)	1.031 (0.933, 1.139)	1.032 (0.934, 1.140)
Age at INF initiation (years)	1.001 (0.998, 1.004)	1.000 (0.997, 1.003)
Biosimilar	1.050 (0.927, 1.189)	1.076 (0.940, 1.232)
Corticosteroids prior to initiation	0.824 (0.717, 0.947)	0.886 (0.762, 1.031)
Biologic prior to initiation	0.924 (0.751, 1.138)	0.994 (0.795, 1.244)
Ontario province	1.308 (1.179, 1.450)	1.293 (1.161, 1.439)
Calendar year ≥2018	0.881 (0.777, 1.000)	0.831 (0.726, 0.952)

* Adjusted for all variables shown.

Table 1. Unadjusted and adjusted hazard ratio (HR) for discontinuation of infliximab (INF)

Conclusion: Canadian public drug plan beneficiaries initiating INF-B and INF-O had similar rates of discontinuation in this 5-year analysis. Limitations of claims data include the lack of information on the decision to prescribe and discontinue INF-B vs. INF-O, as well as the inability to control for factors not found in administrative data (e.g., race/ethnicity).

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PP0759

TOFACITINIB IN ULCERATIVE COLITIS: THE RELATIONSHIP BETWEEN OCTAVE INDUCTION WEEK 8 SYMPTOMATIC REMISSION AND OCTAVE SUSTAIN WEEK 52 REMISSION

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Introduction: Tofacitinib is an oral small molecule Janus kinase inhibitor for the treatment of ulcerative colitis.

Aims & Methods: This post hoc analysis aimed to 1) identify baseline factors associated with symptomatic remission at Week 8 in patients who received tofacitinib 10 mg twice daily (BID) in OCTAVE Induction 1&2 (NCT01465763; NCT01458951),[1] and 2) compare the efficacy of tofacitinib 5 and 10 mg BID after 52 weeks of maintenance treatment in OCTAVE Sustain (NCT01458574)[1] in patients who achieved symptomatic remission at maintenance baseline (ie after 8 weeks of induction therapy) vs those who did not. Logistic regression analysis was performed for symptomatic remission as the dependent variable, with each induction baseline predictor as an independent covariate. The proportions of patients in remission, corticosteroid-free remission (CSFR) and sustained CSFR at Week 52 were summarised in those who were symptomatic remitters vs non-remitters at maintenance baseline.

Results: Prior tumour necrosis factor inhibitor exposure or failure was associated with lower odds of achieving symptomatic remission at Week 8 of induction studies (odds ratio [OR] 0.44, 95% confidence interval [CI] 0.25, 0.77; OR 0.42, 95% CI 0.23, 0.75; respectively). Baseline total Mayo score (<9 vs ≥9) and lower stool frequency (2 vs 3) and endoscopic subscore (2 vs 3) were associated with higher odds of achieving symptomatic remission at Week 8 of induction studies (OR 2.82, 95% CI 1.63, 4.88; OR 3.04, 95% CI 1.63, 5.65; OR 2.86, 95% CI 1.65, 4.97; respectively). A numerically higher proportion of maintenance baseline symptomatic remitters vs non-remitters achieved remission at Week 52 (47.1% vs 34.2%; all tofacitinib doses). No differences were seen between maintenance baseline symptomatic remitters and non-remitters at Week 52 (all tofacitinib doses) in terms of achievement of CSFR (26.9 vs 26.3%, respectively) and sustained CSFR (41.2% vs 41.0%, respectively; Table).

Outcome at Week 52 of OCTAVE Sustain	Maintenance treatment		
	Tofacitinib 5 mg BID	Tofacitinib 10 mg BID	All tofacitinib doses
Remission, n/N (%)			
Symptomatic remission status at Week 8 of OCTAVE Induction 1&2:			
Yes[b]	14/36 (38.9)	18/32 (56.3)	32/68 (47.1)
No	41/134 (30.6)	51/135 (37.8)	92/269 (34.2)
CSFR, n/N (%)[c]			
Symptomatic remission status at Week 8 of OCTAVE Induction 1&2:			
Yes[b]	4/16 (25.0)	3/10 (30.0)	7/26 (26.9)
No	19/72 (26.4)	16/61 (26.2)	35/133 (26.3)
Sustained CSFR, n/N (%)[d]			
Symptomatic remission status at Week 8 of OCTAVE Induction 1&2:			
Yes[b]	11/36 (30.6)	17/32 (53.1)	28/68 (41.2)
No	9/21 (42.9)	7/18 (38.9)	16/39 (41.0)

[a]Only patients receiving tofacitinib 10 mg BID who achieved a clinical response (a decrease from induction study baseline total Mayo score of ≥3 points and ≥30%, plus a decrease in rectal bleeding subscore of ≥1 point or an absolute rectal bleeding subscore of 0 or 1) in OCTAVE Induction 1&2, and were re-randomised to receive tofacitinib 5 or 10 mg BID in OCTAVE Sustain, were included in this analysis

[b]Symptomatic remission was defined as a total Mayo score of ≤2 with no individual subscore >1, and both rectal bleeding and stool frequency subscores of 0 at the end of OCTAVE Induction 1&2

[c]Includes patients who were receiving corticosteroids at OCTAVE Sustain baseline. CSFR at Week 52 was defined as a total Mayo score of ≤2 with no individual subscore >1, and a rectal bleeding subscore of 0 (based on centrally read endoscopic subscores), in addition to not requiring any treatment with corticosteroids for at least 4 weeks prior to the Week 52 visit

[d]Includes patients who were in remission at OCTAVE Sustain study baseline. Sustained CSFR was defined as CSFR (based on centrally read endoscopic subscores) at both Week 24 and Week 52 of OCTAVE Sustain

BID, twice daily; CSFR, corticosteroid-free remission; N, number of patients in each treatment subgroup; n, number of patients with specified endpoint

Table. Proportion of responders in remission endpoints at Week 52 of OCTAVE Sustain, by maintenance treatment group and symptomatic remission status at Week 8 of OCTAVE Induction 1&2[a,b]

Conclusion: A numerically higher proportion of patients who were symptomatic remitters vs non-remitters after 8 weeks of induction therapy with tofacitinib achieved remission at Week 52 of OCTAVE Sustain, but those who did not achieve symptomatic remission after 8 weeks of induction treatment could still achieve efficacy endpoints with both tofacitinib maintenance doses at Week 52.

References: 1. Sandborn WJ et al. N Engl J Med 2017;376:1723–36.

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PP0760

AN INDIRECT COMPARISON OF ADALIMUMAB AND AZATHIOPRINE IN THE MANAGEMENT OF STEROID DEPENDENT INFLAMMATORY BOWEL DISEASE: A SINGLE CENTER REAL WORLD STUDY

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Introduction: Anti-TNF alfa and Azathioprine (AZA) are treatments of choice in the setting of steroid-dependent Inflammatory Bowel Disease (IBD). Thanks to its low cost (with the advent of biosimilars),manageability and lack of immunogenicity Adalimumab (ADA) is the most used anti-TNF. Comparative data between ADA and AZA are scanty.

Aims & Methods: The aim of this study was to compare ADA and AZA in terms of efficacy, safety and persistence in treatment in patients with steroid dependent IBD naive to biologics and/or immunosuppresive therapy. A retrospective-prospective observational study was conducted on consecutive IBD-patients in follow up in our tertiary referral center, who started ADA or AZA between 01/2016 and 01/2022. A minimum follow up of 12 weeks was required. Drug choice was upon clinical judgement.

Primary outcome was clinical remission at week 12, 36, 60 and 84, assessed by HBI for CD and p-Mayo score for UC. Secondary outcomes were probability of persistence in treatment and safety.

Results: 100 patients were enrolled (54 CD, 46 UC), The two treatment groups showed similar baseline characteristics regarding age, sex, familial predisposition, smoking, previous surgery, and concomitant therapies. The use of systemic steroids at week 0 was documented in 25/48 (52,1%) of patients who started ADA and in 18/52 (28,9%) patients on AZA (p=0,079). The results on primary outcome are described in the table below.

In CD both treatments showed similar effectiveness, while patients affected by UC had a significant higher rate of clinical remission when treated with AZA. Six adverse events were registered in the ADA group, 13 AE occurred in the AZA group (p=0,113). Overall retention rate was 38/48 (79,2%) for ADA and 29/52 (55,7%) for AZA (p=0,013).

The cumulative probabilities of persistence in treatment was similar in the two groups (p=0,554), but after 84 week a higher trend to treatment discontinuation was observed with AZA. According to IBD type, treatment persistence with ADA was higher in patients with CD (p=0,007) with a retention rate of 92,9% for ADA versus 42,3% for AZA (P<0,001); while in UC the cumulative probability of persistence in treatment was higher for patients treated with AZA (p=0,016) with a retention rate of 69,2% versus 60% for ADA (p=0,519).

CLINICAL REMISSION	CD ADA	CD AZA	P-VALUE	UC ADA	UC AZA	P-VALUE
W12	20/28 (71,43%)	20/26 (76,92%)	0,648	13/20 (65%)	22/26 (84,61%)	0,126
W36	22/26 (84,62%)	20/22 (90,9%)	0,516	5/15 (33,33%)	20/21 (95,23%)	<0,001
W60	20/22 (90,9%)	17/19 (89,47%)	0,878	0/1	16/16	<0,001
W84	15/17 (88,23%)	13/14 (92,85%)	0,670	-	13/13	

Table.

Conclusion: Our results show good effectiveness, in terms of clinical remission, in patients with CD in both treatment groups, although ADA has a significant higher probability of persistence in treatment. In UC, AZA group have significant better effectiveness and higher retention rate compared to ADA, while the cumulative probability of persistence in treatment is not statistically significant.

These findings suggest the need of a different therapeutic approach in steroid-dependent CD and UC; in particular AZA should be preferred to ADA in patients with UC. In CD both treatments represent a valuable therapeutic option, but ADA may guarantee a better persistence in treatment. These data need to be confirmed in larger series.

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PP0761

THE LONG-TERM EFFECT ON SURGERY-FREE SURVIVAL OF BIOLOGICAL COMPARED TO CONVENTIONAL THERAPY IN CROHN'S DISEASE IN REAL WORLD-DATA: A PROPENSITY-SCORE MATCHED STUDY

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Introduction: The introduction of biological drugs has led to great expectations and growing optimism in the possibility that this new therapeutic strategy could favourably change the natural history of Inflammatory Bowel Disease (IBD) and in particular that it could lead to a significant reduction in surgery in the short and long term. The evaluation of the incidence of intestinal resection after the introduction of biological therapy is very complex and subject to several potential bias, the most prominent being the shift in IBD management over the last few decades.

Aims & Methods: This study aims to assess the impact of biological versus conventional therapy on surgery-free survival time (from the diagnosis to the first bowel resection) and on the overall risk of surgery in patients with Crohn's disease (CD) who were never with the surgical option.

This is a retrospective, double-arm study including CD patients treated with either biological or conventional therapy (mesalamine, immunomodulators, antibiotics, or steroids). All CD patients admitted at the GI Unit of the S. Salvatore Hospital (L'Aquila, Italy) and treated with biological therapy since 1998 were included in the biological arm. Data concerning the CD patients receiving a conventional therapy were retrospectively collected from our database. These patients were divided into a pre-1998 and post-1998 group (pre and post biologic era, respectively). Our primary outcome was the evaluation of the surgery-free survival since CD diagnosis to the first bowel resection. Surgery-free time and event incidence rates were calculated and compared among all groups, both in the original population and in the propensity-matched population.

Results: 203 CD patients (49 biological, 93 conventional post-1998, 61 conventional pre-1998) were included in the study. Kaplan-Mayer survivorship estimate shows that patients in the biological arm had a longer surgery-free survival compared to those in the conventional arm (p=0.03). However, after propensity matching analysis, no significant difference was found in surgery-free survival (p=0.3). A sub-group analysis showed shorter surgery-free survival in patients on conventional therapy in the pre-biologic era only (p=0.02) while no significative difference was found between the biologic and conventional post-biologic groups (p=0.15).

Conclusion: This study shows that the introduction of biological therapy had only a slight impact on the occurrence of surgery in CD patients over a long observation period. Despite the milder disease, patients in the conventional group in the biologic era had the same surgery-free survival compared to patients in biological therapy. Nevertheless, biological therapy appears to delay the first intestinal resection. However, the cumulative incidence of first intestinal resection between patients who underwent biological or conventional therapy ends up being similar considering a very long period.

Disclosure: None.

PP0762

TARGETING IMPROVED TREG SELECTIVITY WITH THE IL-2 MUTEIN EFAVALEUKIN ALFA: RATIONALE FOR IL-2 THERAPY IN ULCERATIVE COLITIS

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Introduction: Targeting interleukin (IL)-2 and its ability to expand regulatory T cells (Treg) represents a novel therapeutic mechanism for the treatment of ulcerative colitis (UC). Low-dose recombinant IL-2 (aldesleukin) has shown disease-modifying activity in UC in early clinical studies.[1,2] However, low dose IL-2 has a small selectivity window for Treg over conventional CD4+ T cells (Tcon) and natural killer (NK) cells, with the potential for inflammatory cell expansion and adverse events (AE) related to low selectivity. Efavaleukin alfa is an IL-2 mutein Fc fusion protein with a mutation that decreases binding to IL-2Rβ and increases dependence on IL-2Rα (CD25), which is expressed constitutively at high levels on Treg.

Here we evaluated the selectivity of efavaleukin alfa for Treg expansion, using data from preclinical[3] and phase 1 (NCT03451422)[4] studies to support the biologic rationale for a phase 2 clinical study of efavaleukin alfa in UC patients.

Aims & Methods: In vitro activity and selectivity were assessed according to levels of phosphorylated STAT5 (pSTAT5) and proliferation of Treg, Tcon, and NK cells in primary human peripheral blood mononuclear cells (PBMC) cultured with increased doses of efavaleukin alfa or aldesleukin. The in vivo effects on body temperature, C-reactive protein (CRP), proinflammatory cytokine production, and peripheral blood Treg, Tcon, and NK cell numbers were evaluated in cynomolgus monkeys after escalating single SC doses of efavaleukin alfa or 5 consecutive daily SC doses of aldesleukin.

Safety, tolerability, and pharmacodynamics of efavaleukin alfa vs placebo were evaluated in a single-dose phase 1a study in healthy subjects and in a multiple ascending dose phase 1b study in patients with systemic lupus erythematosus (SLE).

Results: In human PBMC cultures, efavaleukin alfa led to a more selective Treg response (pSTAT5 and proliferation) than aldesleukin, with lower levels of IL-2 signaling observed in non-Treg (Tcon and NK) cells and proliferation of inflammatory cells only observed at higher doses of efavaleukin alfa vs aldesleukin. Dose-dependent expansion of FoxP3+ Treg in aldesleukin-treated cynomolgus monkeys was accompanied by increased body temperature and levels of CRP and IL-6. However, efavaleukin alfa stimulated Treg expansion with no increases in IL-6 and without significant effects on body temperature or CRP except at the highest dose, suggesting an increased therapeutic window compared with aldesleukin.

In phase 1 studies, peak Treg expansion was observed at 8 days post-dose, and mean Treg levels remained above baseline through the end of the follow-up period. The mean peak increases in FoxP3+ Treg were 4.7-fold above baseline after a single dose administered to healthy subjects and 17.4-fold above baseline after multiple doses in SLE patients. In contrast, there were minimal changes in fold-change of Tcon, CD8+ T

cells, B cells, or NK cells with efavaleukin alfa. In phase 1 studies, the most common AEs were mild-moderate (grade 1-2) injection site reactions, and no dose-limiting toxicities, treatment-related serious AEs, or deaths were reported.

Conclusion: Efavaleukin alfa is a novel IL-2 therapy that has an increased therapeutic window compared with aldesleukin. Preclinical and phase 1 results with efavaleukin alfa demonstrated highly selective expansion of Treg with minimal effects on pro-inflammatory immune cells. These findings support the rationale and design of an ongoing phase 2b study investigating the safety and efficacy of efavaleukin alfa induction therapy in patients with moderate to severe active UC (NCT04987307).

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PP0763

ANTI-INFLAMMATORY EFFECT OF MAQUI EXTRACT ON PPAR-A EXPRESSION IN EPITHELIAL AND MACROPHAGE CELLS IN COLON TISSUE FROM EXPERIMENTAL MODEL OF CROHN'S DISEASE

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Introduction: Inflammatory bowel disease (IBD) represents a cluster of chronic systemic intestinal disturbances that comprise Crohn's disease (CD) and ulcerative colitis. It has been shown that the transcription factor peroxisome proliferator activated receptor-gamma (PPAR-α) exerts its anti-inflammatory action by negatively influencing the expression and activity of inflammatory transcription factor called NF-kb. In the absence of (PPAR-α) gene, IBD pathologies are exacerbated. (1)

We have previously shown that the polyphenolic extract from maqui fruit decreased reactive oxygen species (ROS) in a dose-dependent manner and its administration in an experimental animal model of CD significatively ameliorated the clinical course of the disease and intestinal inflammation.

Aims & Methods: We explored whether maqui extract had an anti-inflammatory role through modulating PPAR-α expression in epithelial cells and macrophage cells from colon tissue. Male Balb/c mice 12-14 weeks old which were exposed to 2,4,6-trinitrobenzene sulfonic acid (TNBS) via intracolonic administration and were randomly assigned in 4 groups (n=6) as follows: i) Control Group (EtOH 50%) ii) Crohn's Disease Group (100 mg/kg of TNBS plus EtOH 50%), iii) Curative Group (maqui at 50mg/kg for 4 days after TNBS induction), iv) Preventive Group (maqui at 50mg/kg 7 days prior TNBS and 4 days after induction).

Results: In the epithelial cells, TNBS induced a slight decrease of PPAR-α expression when we compared with the control group. Notably, this difference did not reach statistical significance. The administration of maqui extract did not alter epithelial PPAR-α level. Similar PPAR-α staining intensity and expression was showed either for curative or preventive groups remained like the control group.

In terms of specific macrophage PPAR-α levels, a stronger positive staining and intensity was observed in the CD mice when compared to the controls. However, this difference was not significant. Similarly, an increase in PPAR-α staining intensity and PPAR-α positive macrophages was also observed in mice that received curative maqui treatment, whereas colons from mice receiving maqui extract as a preventive treatment yielded a significative PPAR-α staining.

Conclusion: Maqui extract treatment elicit an anti-inflammatory action by increasing the expression of PPAR-α in immune cells during the earlier phase of the disease. These data support the preventive effect of polyphenols from maqui extract and its potential antiinflammatory effect in IBD.

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Disclosure: Nothing to disclose.

PP0764

PREGNANCY OUTCOMES IN THE OZANIMOD CLINICAL DEVELOPMENT PROGRAM IN ULCERATIVE COLITIS, CROHN'S DISEASE, AND RELAPSING MULTIPLE SCLEROSIS

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Introduction: Ozanimod is an oral sphingosine 1-phosphate (S1P) receptor 1 and 5 modulator approved in multiple countries for the treatment of adults with moderately to severely active ulcerative colitis (UC) and relapsing multiple sclerosis (RMS). Ozanimod is also being studied in the treatment of Crohn's disease (CD). S1P receptors are involved in vascular formation during embryogenesis, and prescribing information for S1P receptor modulators, such as ozanimod, contain recommendations for effective contraception use as well as general statements about potential fetal risk based on data from preclinical studies.

Aims & Methods: The objective of this analysis was to review pregnancy outcomes during ozanimod use in the clinical development program in all studies in which patients with UC, CD, or RMS or healthy volunteers received ozanimod. Within studies in the ozanimod clinical development program, female patients of childbearing potential were required to use effective contraception while receiving ozanimod and for up to 3 months after discontinuing the drug; treatment discontinuation was required when pregnancy was confirmed. Pregnancy outcomes in the ozanimod clinical development program were assessed through November 19, 2022.

Results: In ozanimod clinical trials, 78 patient pregnancies occurred: 14 in those with UC, 6 in those with CD, 57 in those with RMS (there were 58

outcomes due to twins), and 1 in a healthy volunteer (Table). All patient pregnancy exposures to ozanimod occurred during the first trimester. Patients discontinued study medication promptly after pregnancy was confirmed, except for those who elected pregnancy termination and remained on study medication. The incidence of spontaneous abortion in clinical trial patients was 15%. The preterm birth rate was 10% of all live births. Outcomes in patients with UC included 7 live births (no congenital abnormalities or premature births), 3 spontaneous early losses, and 4 elective terminations (Table). No teratogenicity was observed in patients with ozanimod exposure during early pregnancy.

	UC	CD	RMS	Healthy volunteer	Total
Pregnancies	14	6	57[a]	1	78
Live birth without congenital anomaly	7	2	28	0	37
Live birth with congenital anomaly	0	0	1[b]	0	1
Premature birth	0	0	4	0	4
Ongoing	0	1	5	0	6
Spontaneous early losses	3	1	8[c]	0	12
Elective termination	4	0	10	1	15
No information	0	2	2	0	4

[a]58 outcomes due to twins. [b]Duplex kidney. [c]A twin pregnancy led to 1 early loss and 1 live birth.

Table. Pregnancy outcomes during the ozanimod clinical development program by patient population.

Conclusion: Pregnancy should be avoided in patients receiving ozanimod and for 3 months after discontinuing ozanimod. Clinical experience with ozanimod during pregnancy is limited. In this small cohort of patients, there has been no increased incidence of fetal abnormalities or adverse pregnancy outcomes seen with ozanimod exposure in early pregnancy.

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LC and AK: employees and/or shareholders of Bristol Myers Squibb.

KWS: consultant for Biogen, Celgene, Genzyme, Merck, Novartis, Ono Pharma, Roche, Synthon, and Teva.

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PP0765

REINITIATION OF OZANIMOD AFTER DOSE INTERRUPTION: ASSESSMENT OF EFFECT ON HEART RATE

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Introduction: Ozanimod (OZA), a selective sphingosine 1-phosphate (S1P) receptor 1 and 5 modulator, is approved in multiple countries for the treatment of adults with moderately to severely active ulcerative colitis and relapsing multiple sclerosis. Treatment with OZA and other S1P receptor modulators has been associated with bradycardia likely due to the pharmacologic effect of $S1P_1$ receptors on heart rate (HR). Thus, dose titration with OZA is implemented to mitigate this risk.

Aims & Methods: This randomized, double-blind, placebo (PBO)–controlled, adaptive phase 1 study evaluated the effects of OZA reinitiation on HR. OZA was reinitiated at a maintenance dose of 0.92 mg (equivalent to OZA HCl 1 mg) after different washout intervals relative to dose escalation in healthy adults. Participants were randomized to receive once-daily OZA (dose titration: 0.23 mg for Days 1–4, 0.46 mg for Days 5–7, and 0.92 mg thereafter) or PBO for 28 days in Period 1, followed by a washout of 3, 7, or 14 days, and then treatment reinitiation with a single dose of either OZA 0.92 mg or PBO in Period 2. The changes at Period 2 Day 1 from Period 1 Day 1 (CFP1) in the HR_{Nadir} from 0–12 hours postdose were compared between OZA/OZA and PBO/PBO groups after each washout interval and were analyzed using an ANCOVA model with fixed effects for treatment, Period 1 Day 1 HR_{Nadir} (0–12 hours), sex, and treatment × Period 1 Day 1 HR_{Nadir} (0–12 hours); least squares (LS) mean differences between OZA/OZA and PBO/PBO with 90% CI were calculated. The maximum reductions in hourly HR using the change from predose HR minimum value from 0–12 hours relative to dosing on the corresponding day of interest (CFP_{min} HR) and time to HR_{Nadir} were compared between combined OZA (OZA/OZA and OZA/PBO; n=51) and PBO/PBO participants. Safety was also assessed.

Results: Of 64 healthy adults who completed the study, 15, 16, and 15 received OZA/OZA and completed the 3-, 7-, and 14-day washout intervals, respectively; 18 individuals received PBO/PBO (6 in each washout period; they were combined for all washout interval comparisons). LS mean CFP1 Day 1 HR_{Nadir} changes were generally similar between OZA/OZA and PBO/PBO groups at each washout interval: 3 days = 3.51 vs 1.73 beats per minute (bpm), 7 days = 0.85 vs 1.87 bpm, and 14 days = 0.27 vs 1.81 bpm, respectively. The CFP1 Day 1 HR_{Nadir} LS mean differences between OZA/OZA and PBO/PBO (90% CI) at each washout interval were 3 days = 1.78 bpm (–1.76 to 5.32), 7 days = –1.02 bpm (–3.88 to 1.85), and 14 days = –1.54 bpm (–4.20 to 1.11). During the OZA dose escalation, CFP_{min} HR changes ranged from –11.90 to –8.70 bpm for OZA (combined) and from –9.45 to –7.79 bpm for PBO/PBO. Predose HR values for OZA (combined) on Days 5 and 8 were ~5 bpm lower than on Day 1. Postdose CFP_{min} HR changes were similar between Days 5 and 8 for OZA (combined), which were ~3 bpm lower than on Day 1. Median time to HR_{Nadir} was similar between OZA (combined; 4 hours) and PBO/PBO (3–4 hours). Repeated dosing of OZA for 28 days (including the 7-day dose escalation) and reinitiation of OZA 0.92 mg after all washout intervals was generally safe and well tolerated in healthy participants.

Conclusion: Overall, reinitiation of OZA at the maintenance dose of 0.92 mg once daily after dose interruption of 3, 7, or 14 consecutive days was not associated with meaningful changes in HR. OZA can be safely reinitiated at the maintenance dose without repeating dose titration within 14 days of drug discontinuation.

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PZ, MS, SW, GT, BM, and DT: employees and/or shareholders of Bristol Myers Squibb.

PP0766

TOFACITINIB RELATED CANCER RISK: RESULTS FROM A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: Tofacitinib is a relatively novel therapy for immune-mediated inflammatory diseases, including rheumatoid arthritis, psoriatic arthritis, and ulcerative colitis. It is a small-molecule drug that exerts its effects by inhibiting Janus kinases. Recently, concerns have been raised about the drug's safety in terms of cardiovascular side effects and cancer risk.

Aims & Methods: This meta-analysis determined the risk of cancer in patients treated with tofacitinib for different clinical indications, compared to both a placebo and other therapies. We searched PubMed (accessed on november 1st 2022) for original articles regarding tofacitinib's cancer risk when used for rheumatoid arthritis, ulcerative colitis, Crohn's disease, psoriatic arthritis, and ankylosing spondylitis.

Results: Of the 2047 initial records, 22 articles describing 26 controlled studies (including 22 randomized controlled trials) were selected. In the comparison between tofacitinib and any control treatment, the relative risk (RR) for any cancer was 1.06 (95% CI, 0.86–1.31; p = 0.95). In separate comparisons between tofacitinib and either a placebo or biological therapy, no difference was found in the overall cancer risk (vs. placebo, RR = 1.04; 95% CI, 0.44–2.48; p = 0.95; vs. biological drugs, RR = 1.06; 95% CI, 0.86–1.31; p = 0.58). When tofacitinib was compared to tumor necrosis factor (TNF) inhibitors, the overall cancer RR was 1.40 (95% CI, 1.06–2.08; p = 0.02). Similarly, significant results were obtained for all cancers, except for non-melanoma skin cancer (RR = 1.47; 95% CI, 1.05–2.06; p = 0.03), and for this skin cancer alone (RR = 1.30; 95% CI, 0.22–5.83; p = 0.88).

Conclusion: In conclusion, no difference in the overall cancer risk was found between tofacitinib and either a placebo or biological drugs, while a slightly higher risk was found in patients treated with tofacitinib than anti-TNF agents. Further studies are needed to better define the cancer risk of tofacitinib therapy.

Disclosure: Nothing to disclose.

PP0767

IMPROVEMENT IN INFLAMMATORY BIOMARKER LEVELS THROUGH WEEK 12 IN MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS PATIENTS TREATED WITH GUSELKUMAB: RESULTS FROM THE PHASE 3 QUASAR INDUCTION STUDY

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Introduction: C-reactive protein (CRP) and fecal calprotectin (FeCal) are non-invasive inflammatory biomarkers used to assess disease activity in UC. The Phase 3 QUASAR induction study evaluated the efficacy and safety of guselkumab (GUS), an IL-23 p19 subunit antagonist, in patients (pts) with moderately to severely active UC.

Here, we analyze the effect of GUS treatment on CRP and FeCal through Week (Wk) 12 in pts with elevated CRP and/or FeCal.

Aims & Methods: Pts with a modified Mayo score of 5-9 and a Mayo endoscopy subscore ≥2 at baseline (BL) were randomized 3:2 to receive either GUS 200mg IV or placebo (PBO) IV at Wks0, 4, and 8. CRP and FeCal were assessed at BL, Wk4, Wk8 (for CRP only), and Wk12.

Results: A total of 701 pts were evaluated and approximately 50% of randomized pts had a history of inadequate response/intolerance to advanced therapies (ADT) for UC; 47.4% of these pts had inadequate response/intolerance to ≥2 ADT classes. Median BL concentrations of CRP and FeCal were similar between the GUS-treated and PBO-treated pts (4.34 vs 3.83mg/L and 1651 vs 1606mg/kg, respectively).

Among pts with elevated CRP and/or FeCal at BL, greater reductions in CRP and FeCal were observed at the earliest timepoint assessed (Wk4) with GUS and continued through Wk12 compared with PBO (Table).

At BL, 248 GUS-treated pts and 160 PBO-treated pts had elevated CRP (>3mg/L); the proportions were similar between treatment groups (58.9% vs 57.1%, respectively). Among these pts, median change from BL in CRP concentration (mg/L) at Wk12 for the GUS and PBO cohorts were -3.99 and -0.51mg/L, respectively (nominal p<0.001); the proportions of pts achieving 50% and 75% reduction in CRP levels (or ≤3mg/L) at Wk12 were higher for GUS-treated pts than those receiving PBO (59.7% vs 28.1% and 47.2% vs 19.4%, respectively; both nominal p<0.001).

Similarly, a higher proportion of GUS-treated pts achieved CRP≤3mg/L at Wk12 than PBO-treated pts (40.3% vs 16.3%, nominal p<0.001).

At BL, 333 GUS-treated pts and 225 PBO-treated pts had elevated FeCal (>250mg/kg); the proportions were similar between treatment groups (79.1% vs 80.4%, respectively).

Median change from BL in FeCal concentration (mg/kg) for pts with elevated FeCal at BL at Wk12 were -800 and -86mg/kg for the GUS and PBO cohorts, respectively (nominal p<0.001); the proportions of pts achieving 50% and 75% reduction in FeCal levels (or ≤250 mg/kg) at Wk12 were higher for GUS-treated pts than those receiving PBO (51.1% vs 33.8% and 41.4% vs 23.6%, respectively; both nominal p<0.001).

A larger percentage of pts treated with GUS achieved FeCal≤250mg/kg at Wk12 than pts treated with PBO (29.4% vs 17.3%, nominal p<0.001).

	Placebo IV	Guselkumab 200 mg IV
CRP (mg/L)		
Baseline, N	160	248
Median [IQR]	8.02 [5.40; 16.85]	9.26 [5.31; 18.05]
Wk 4, N	158	245
Median change from baseline [IQR]	-2.06 [-5.70; 1.58]	-3.35 [-8.60; -0.23]***
Wk 8, N	156	239
Median change from baseline [IQR]	-1.75 [-5.68; 1.46]	-3.80 [-10.77; -0.19]***
Wk 12, N	153	239
Median change from baseline [IQR]	-0.51 [-4.64; 2.72]	-3.99 [-11.46; -0.85]***
FeCal (mg/kg)		
Baseline, N	225	333
Median [IQR]	1743 [1120; 3395]	1787 [920; 4009]
Wk 4, N	213	308
Median change from baseline [IQR]	-227 [-1041; 658]	-603 [-1866; 230]***
Wk 12, N	201	293
Median change from baseline [IQR]	-86 [-1254; 504]	-800 [-2532; 0]***

****Nominal P≤0.001.* Patients who had a prohibited change in UC medication, an ostomy or colectomy, or discontinued study agent due to lack of efficacy or an AE of worsening of UC or other reasons except for COVID-19 related reasons (excluding COVID-19 infection) or regional crisis in Russia and Ukraine prior to the designated timepoint had their baseline value carried forward from the time of the event onward. The p-values of treatment comparison were based on the mixed-effect model repeated measures with CRP and FeCal values being log-transformed.

Table. Change from baseline in CRP and FeCal through Week 12 among patients with elevated CRP (>3mg/L) or FeCal (>250mg/kg) at baseline.

Conclusion: In this phase 3 induction study, pts with moderately to severely active UC and elevated inflammatory markers treated with GUS 200mg IV induction showed greater improvement from BL in both CRP and FeCal levels compared with PBO. Differences were observed as early as the first assessments at Wk4 and continued through Wk12.

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PP0768

IMPACT OF OZANIMOD (OZA) ON C-REACTIVE PROTEIN (CRP) LEVELS AND THE ASSOCIATION WITH OZA EFFICACY IN PATIENTS (PTS) WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS (UC): RESULTS FROM THE PHASE 3 TRUE NORTH (TN) STUDY

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Introduction: OZA is approved in multiple countries for treatment of moderately to severely active UC in adults. In the phase 3 TN study, OZA was efficacious for up to 52 wk in pts with moderately to severely active UC. CRP is a widely used serum indicator of inflammation and prognosis in inflammatory bowel disease.

Aims & Methods: The effect of OZA on CRP levels and the association of CRP levels with OZA efficacy were assessed in all TN pts. During the 10-wk induction period, pts in Cohort 1 were randomized to OZA 0.92 mg or placebo (PBO) or received open-label OZA 0.92 mg in Cohort 2. Pts with clinical response to OZA at Week (W) 10 were rerandomized to OZA or PBO for maintenance through W52. Serum CRP levels were assessed at baseline (BL) through W52.

Disease activity scores (rectal bleeding subscore [RBS], stool frequency subscore, Physician's Global Assessment subscore, endoscopy subscore, and partial and total Mayo scores) were assessed at BL and W10. Efficacy endpoints (clinical remission, clinical response, endoscopic improvement, mucosal healing, and histologic remission) were assessed at W10. Associations of CRP levels with disease activity and efficacy endpoints were assessed using Spearman's correlation and logistic regression, respectively.

Results: 645 pts were randomized to OZA (n=429) or PBO (n=216) and 367 pts received open-label OZA for 10 wk; 230 and 227 OZA-treated pts who responded were rerandomized to OZA and PBO, respectively, for maintenance through W52 (69 PBO-treated pts who responded continued on PBO). Pts on OZA showed reductions from BL in CRP levels at W10, which was significant vs PBO (P<0.001, both cohorts) (Table).

Reductions in CRP levels were significantly greater in pts with vs without clinical response at W10 in all treatment groups (P<0.001, all groups) (Table).

Significantly greater reductions in CRP levels occurred with OZA vs PBO at W10 regardless of prior biologic or anti–tumor necrosis factor exposure (P<0.05, all groups). Reductions in CRP levels were maintained through W52; pts who continued OZA had similar reductions at W52 as pts who switched to PBO (Table).

Decreases in CRP levels in W52 responders were maintained through W52 of treatment, while W52 nonresponder CRP levels started to rise following induction toward BL values (Table).

BL CRP levels were significantly positively correlated with most BL disease activity scores (Spearman's *rho* 0.2–0.3, P<0.05, all scores) except RBS. BL CRP levels and change in CRP levels at W5 were prognostic for W10 response. Higher BL CRP levels were associated with lower endoscopic improvement, mucosal healing, and histologic remission at W10 and greater reductions in CRP levels at W5 were associated with better clinical response at W10, independent of treatment.

Change in CRP levels at W10 was significantly positively correlated with change in most disease activity scores at W10 with OZA and PBO (Spearman's *rho* 0.1–0.3, P<0.05, all scores in both groups) except endoscopy with PBO.

	Induction (Week 10)			Maintenance (Week 52)	
	PBO (C1) (n=216)	OZA (C1) (n=429)	OZA (C2) (n=367)	OZA/PBO (n=227)	OZA/OZA (n=230)
All pts	–1.2 (–13.3, 12.7) n=192	–26.8 (–33.3, –19.8) n=407	–25.7 (–32.7, –18.1) n=336	–19.9 (–30.9, –7.1) n=125	–23.5 (–32.7, –13.0) n=181
Responders[a]	–39.9 (–52.5, –24.0) n=55	–45.9 (–52.2, –38.9) n=204	–40.4 (–47.5, –32.3) n=189	–33.1 (–44.1, –20.0) n=91	–30.9 (–40.4, –20.0) n=135
Nonresponders[b]	12.0 (–3.5, 29.9) n=137	–10.7 (–20.9, 0.9) n=203	–7.4 (–19.8, 7.0) n=147	3.1 (–20.3, 33.4) n=34	–2.9 (–23.0, 22.6) n=46

[a]Responders are pts who achieved clinical response at W10 for the induction period and at W52 for the maintenance period. [b]Nonresponders are pts who did not achieve clinical response at W10 for the induction period and at W52 for the maintenance period.
C1, Cohort 1; C2, Cohort 2.

Table. Adjusted mean percent change from BL in CRP levels (95% CI)

Conclusion: In moderately to severely active UC pts, OZA led to reductions in CRP levels. Higher BL CRP levels were associated with worse disease outcomes and greater reductions in CRP levels were associated with better disease outcomes regardless of treatment, supporting CRP levels as a prognostic biomarker for UC.

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PP0769

IMPACT OF OZANIMOD (OZA) ON INTERLEUKIN-17A (IL-17A) LEVELS AND THE ASSOCIATION WITH OZA EFFICACY IN PATIENTS (PTS) WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS (UC): RESULTS FROM THE PHASE 3 TRUE NORTH (TN) STUDY

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Introduction: OZA is a sphingosine 1-phosphate receptor modulator approved for the treatment of moderately to severely active UC. In the phase 3 TN study, OZA was efficacious for up to 52 wk with a favorable safety profile. IL-17A, a proinflammatory cytokine, sustains the release of other inflammatory mediators and is associated with inflammatory bowel disease.

Aims & Methods: This analysis assessed the effect of OZA on IL-17A levels and the association of IL-17A levels with OZA efficacy during TN. During the 10-wk induction period, pts in Cohort 1 were randomized to OZA 0.92 mg or placebo (PBO) and pts in Cohort 2 received open-label OZA 0.92 mg. Pts with clinical response to OZA at Week (W) 10 were rerandomized to OZA or PBO for maintenance through W52. IL-17A levels were assessed at baseline, W10, and W52.

Disease activity scores (rectal bleeding and stool frequency subscores, Physician's Global Assessment subscore, endoscopy subscore, and partial and total Mayo scores) were assessed at baseline and W10. Efficacy endpoints (clinical remission, clinical response, endoscopic improvement, mucosal healing, and histologic remission) were assessed at W10 and W52. Associations of IL-17A levels with disease activity and efficacy endpoints were assessed using Spearman's correlation and logistic regression, respectively.

Results: In all, 645 pts were randomized to OZA (n=429) or PBO (n=216) and 367 pts received open-label OZA; 230 and 227 OZA-treated pts were rerandomized to OZA and PBO, respectively, for maintenance. Pts on OZA demonstrated reductions from baseline in IL-17A at W10, which was significant vs PBO (P<0.001, both cohorts) (Table). IL-17A reductions were significantly greater in pts with vs without clinical response at W10 in all OZA and PBO treatment groups (P<0.01, all groups) (Table). Significantly greater IL-17A reductions occurred with OZA vs PBO at W10 regardless of prior biologic or anti–tumor necrosis factor exposure (P<0.001, all groups). IL-17A reductions were maintained through W52; pts who continued OZA had significantly greater IL-17A reductions at W52 vs pts who switched to PBO (P<0.001) (Table). IL-17A reductions were significantly greater in pts with vs without clinical response at W52 (P<0.001, OZA and PBO groups) (Table). Baseline IL-17A levels were significantly correlated with all baseline disease activity scores (Spearman's *rho* 0.1–0.2, P<0.05, all scores), but were not associated with treatment responses at W10. Change in IL-17A from baseline to W10 was significantly correlated with change in all disease activity scores at W10 with OZA and PBO (Spearman's *rho* 0.2–0.4, P<0.05, all scores in both groups).

Furthermore, greater reductions from baseline to W10 in IL-17A was significantly associated with higher probability of achieving clinical remission, clinical response, endoscopic improvement, and mucosal healing at W52 (P<0.05, all endpoints) in pts on continuous OZA through W52.

IL-17A adjusted mean percent change from baseline (95% CI)	Induction (W10)			Maintenance (W52)	
	C1: PBO (n=216)	C1: OZA (n=429)	C2: OZA (n=367)	OZA/PBO (n=227)	OZA/OZA (n=230)
All pts	–10.5 (–18.1, –2.2) n=159	–33.5 (–37.5, –29.3) n=340	–40.3 (–44.0, –36.4) n=294	–37.5 (–43.6, –30.7) n=112	–50.7 (–54.9, –46.1) n=152
Responders[a]	–27.8 (–38.0, –15.9) n=47	–46.6 (–50.6, –42.2) n=177	–46.6 (–50.6, –42.2) n=175	–44.1 (–50.3, –37.2) n=80	–55.8 (–60.0, –51.3) n=113
Nonresponders[b]	–5.3 (–14.2, 4.5) n=112	–19.1 (–25.4, –12.2) n=163	–30.9 (–37.2, –24.0) n=119	–10.5 (–25.1, 7.0) n=32	–27.5 (–38.5, –14.6) n=39

[a]Responders are pts who achieved clinical response at W10 for the induction period and at W52 for the maintenance period. [b]Nonresponders are pts who did not achieve clinical response at W10 for the induction period and at W52 for the maintenance period.
C1, Cohort 1; C2, Cohort 2.

Table. Change from baseline in IL-17A at W10 and W52

Conclusion: OZA led to IL-17A reductions, indicative of decreases in inflammatory responses. Higher baseline IL-17A was associated with higher baseline disease activity, and greater reductions in IL-17A were associated with better short- and long-term disease outcomes. These data support IL-17A as a good disease marker for UC.

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PP0770

HEALTHCARE RESOURCE UTILIZATION AND TREATMENT USAGE AMONG FLARING AND NON-FLARING PATIENTS WITH ULCERATIVE COLITIS – A REAL-WORLD GLOBAL STUDY

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Introduction: Despite increasing treatment opportunities for ulcerative colitis (UC), patients often suffer acute periods of increased disease severity. Since little is known regarding how healthcare resource utilization (HCRU) and drug dosing differ between flaring and non-flaring patients in a real-world clinical setting, we aimed to assess these differences.

Aims & Methods: Data were extracted from the Adelphi UC Disease Specific Programme, a point-in-time survey of gastroenterologists and patients conducted in France, Germany, Italy, Spain, the United Kingdom, and the United States from January 2020 - March 2021. Gastroenterologists provided clinical characteristics, treatment history and HCRU for their next 5-7 consulting UC patients with a history of moderate-severe disease. Patients were categorized based on whether they had experienced a flare in the last 12 months, and compared using Fisher's exact, t-test and Mann-Whitney tests. Two subgroups were analysed separately to explore drug dosing patterns for flaring and non-flaring patients; those on targeted therapies (TT; biologics, Janus kinase inhibitors) who had been receiving their therapy for ≥12 months and those who were currently receiving corticosteroids.

Results: This study included 2,019 patients; 968 (47.9%) were reported by their gastroenterologist to have flared in the last 12 months, while 1,051 (52.1%) had no flares. While age and sex were similar across the patient subgroups, flaring patients had a shorter disease duration (p=0.05) and greater disease extension (p<0.01) than non-flaring patients (Table 1).

	Not flared in the last 12 months (n=1,051)	Flared in the last 12 months (n=968)	p-value
Age, mean (SD)	40.4 (14.4)	40.1 (14.3)	0.63
Sex, Male, n (%)	576 (54.8)	511 (52.8)	0.37
Ethnicity, White/ Caucasian, n (%)	939 (89.3)	826 (85.3)	<0.01
Disease duration, years Mean (SD)	n=956 5.3 (6.2)	n=924 4.7 (5.6)	0.05
Total number of consultations in the last 12 months Mean (SD)	n=740 5.3 (4.6)	n=767 7.2 (6.2)	<0.01
Number of hospitalizations in the last 12 months Mean (SD)	n=947 0.1 (0.9)	n=892 0.4 (0.8)	<0.01
Has the patient received corticosteroids in the last 12 months? Yes, n (%)	146 (13.9)	381 (39.4)	<0.01
During the course of the current regimen, has the corticosteroid dose changed? Escalated, n (%) Not escalated, n (%)	n=90 5 (5.6) 85 (94.4)	n=274 27 (9.9) 247 (90.2)	0.28
During the maintenance phase, has the dose of targeted therapy changed? Escalated, n (%) Not escalated, n (%)	n=436 51 (11.7) 385 (88.3)	n=171 44 (25.7) 127 (74.3)	<0.01

Table 1. Gastroenterologist-reported patient demographics, clinical characteristics, healthcare resource utilization, and treatment usage.

Differences were seen across all HCRU measures with a greater number of consultations (7.2 vs 5.3), hospitalizations (0.4 vs 0.1), biopsies, endoscopies, stool and blood tests in the last 12 months for flaring patients compared to non-flaring patients (all p<0.01).

A higher proportion of flaring patients had received corticosteroids in the last 12 months compared to non-flaring patients (39.4% vs 13.9%, p<0.01), and among those currently receiving corticosteroids, 9.9% of flaring patients had their corticosteroid dose escalated vs 5.6% of non-flaring patients (p=0.28).

Of those patients receiving their current TT for ≥12 months, 25.7% of flaring patients had their TT dose escalated compared to 11.7% of non-flaring patients (p<0.01).

Conclusion: Almost half of patients with UC in our cohort had experienced a flare within the last 12 months. These patients had greater HCRU, increased corticosteroid use, and those on TT were more likely to receive escalated drug doses, highlighting the need for additional treatment options to target disease control, entailing the potential for a reduced burden of flares on UC patients and healthcare systems.

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PP0771

THE ADDITION OF BOWEL URGENCY IMPROVEMENT TO THE ACHIEVEMENT OF CLINICAL RESPONSE AND REMISSION WAS ASSOCIATED WITH BETTER QUALITY OF LIFE IN PATIENTS WITH ULCERATIVE COLITIS FROM MIRIKIZUMAB PHASE 3 TRIALS

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Introduction: Mirikizumab (miri), an anti-IL-23p19 antibody, demonstrated efficacy and safety in patients with moderately-to-severely active ulcerative colitis (UC) in the Phase 3 LUCENT-1 induction[1] (NCT03518086) and LUCENT-2 maintenance[2] (NCT03524092) trials. Bowel urgency (BU) remission and clinically meaningful improvement (CMI) are associated with clinical response and remission.[3]

This analysis evaluated if the addition of BU improvement to the achievement of clinical response or remission was associated with better quality of life (QoL).

Aims & Methods: In LUCENT-1, patients were randomized 3:1 to miri 300mg intravenous or placebo every four weeks. Miri-treated patients achieving clinical response to miri at week 12 (W12) were re-randomized 2:1 to subcutaneous miri 200mg or placebo Q4W for 40 weeks in LUCENT-2 (continuous treatment up to W52). Clinical remission is based on the modified Mayo Score (MMS) and was defined as: stool frequency subscore = 0 or 1 with a ≥1-point decrease from baseline; rectal bleeding (RB) subscore = 0; endoscopic subscore = 0 or 1.

Clinical response was defined as ≥2-point and ≥30% decrease in the MMS from baseline, and RB = 0 or 1, or ≥1-point decrease from baseline. Patients' QoL was measured using the Inflammatory Bowel Disease Questionnaire (IBDQ): IBDQ response (≥16-point improvement from baseline in IBDQ total score) and IBDQ remission (IBDQ total score ≥ 170; higher scores indicating better disease specific QoL).[4,5] BU was assessed using the Urgency Numeric Rating Scale (UNRS), an 11-point scale ranging from 0 ("no urgency") to 10 ("worst possible urgency"), with both BU CMI (≥3-point change) and BU remission (UNRS score of 0 or 1), measured in patients with a baseline UNRS of ≥3.[6]

The association between BU improvement (CMI or remission) and IBDQ (response or remission) was evaluated using the chi-square test of association among patients with baseline UNRS ≥3 who achieved clinical response. This analysis was repeated among patients who achieved clinical remission.

Results: Among patients achieving clinical response, a significantly higher proportion achieved IBDQ response and IBDQ remission when they also achieved BU CMI or BU remission compared with those who did not both at W12 and W52 (p<0.005) (Table 1). Among patients who achieved clinical remission, achievement of BU CMI was significantly associated with IBDQ response (p<0.005) but not IBDQ remission, and achievement of BU remission was significantly associated with IBDQ remission (p<0.005) but not IBDQ response at W12; achieving BU remission was significantly associated with better IBDQ response and IBDQ remission at week 52 (p<0.05).

	IBDQ Response (W12), p-value*		IBDQ Remission (W12), p-value*		IBDQ Response (W52), p-value*		IBDQ Remission (W52), p-value*	
Clinical Response + BU CMI	368 (91.54%)		291 (72.39%)		261 (95.26%)		233 (85.04%)	
Clinical Response - BU CMI	165 (71.74%)	<.0001	126 (54.78%)	<.0001	71 (83.53%)	0.0003	59 (69.41%)	0.0012
Clinical Response + BU Remission	178 (93.19%)		169 (88.48%)		174 (96.67%)		166 (92.22%)	
Clinical Response - BU Remission	355 (80.50%)	<.0001	248 (56.24%)	<.0001	158 (88.27%)	0.0026	126 (70.39%)	<.0001
Clinical Remission + BU CMI	157 (93.45%)		134 (79.76%)		171 (98.28%)		157 (90.23%)	
Clinical Remission - BU CMI	49 (80.33%)	0.0035	42 (68.85%)	0.0836	37 (88.10%)	0.0017	32 (76.19%)	0.0135
Clinical Remission + BU Remission	83 (92.22%)		84 (93.33%)		125 (99.21%)		119 (94.44%)	
Clinical Remission -BU Remission	123 (88.49%)	0.3587	92 (66.19%)	<.0001	83 (92.22%)	0.0074	70 (77.78%)	0.0003

Note: Data is represented as n (%). *Used the chi-square test of association. P-values less than 0.05 are bolded.

Table 1. Association of Clinical Remission and Response with achievement of Bowel Urgency Remission and CMI on IBDQ Response/Remission in patients with UC at W12 and W52 of Continuous Treatment

Conclusion: Among patients with UC from miri phase 3 trials, the additional improvement of BU (CMI or remission) to the achievement of clinical response or remission was associated with greater QoL assessed by IBDQ response and remission.

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PP0772

ADHERENCE TO AZATHIOPRINE AND MERCAPTOPURINE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Azathioprine and mercaptopurine are commonly used to treat Inflammatory Bowel Disease (IBD), with around 6 in 10 patients being prescribed them at some point. Adherence to treatment is important to maintain disease control, prevent flare ups, reduce the need for steroids and improve wellbeing. A good response to treatment may delay or negate the need to escalate treatment to Biologic medications or surgery. Despite this, treatment non-adherence is a common problem among patients with chronic diseases, averaging at around 50%. In IBD specifically, the data varies widely, but non-adherence to oral therapy has been reported to be as high as 72%.

Aims & Methods: The aim of this study was to determine the adherence to azathioprine and mercaptopurine in IBD patients across the Bristol, North Somerset, South Gloucestershire Integrated Care Board (BNSSG ICB). Primary care records were searched to identify all patients with IBD prescribed azathioprine or mercaptopurine. Demographic data as well as data on disease type, length of treatment and co-prescription with a Biologic treatment was collected. Medication adherence was determined by GP records of pharmacy refill data.

Results: A total of 1313 patients were identified as having IBD and a current prescription for azathioprine or mercaptopurine, from 78 GP surgeries (98% of surgeries within the BNSSG ICB). 154 patients were excluded as they had been on azathioprine for less than 1 year. 59% of the 1159 included patients had Crohn's disease. 360 patients (31%) were on combination therapy with a Biologic medication. 324 patients (28%) were found to be non-adherent with their medication based on prescription refill data suggesting that they do not have an adequate supply of medication.

Conclusion: Our data suggests that adherence to the immunosuppressant medications azathioprine and mercaptopurine in patients with IBD is comparable or slightly better than in other chronic diseases. However,

pharmacy refill data is an indirect measure of medication adherence so adherence may have been overestimated. There remains a substantial proportion of patients who are not adhering to treatment, which is likely to be associated with poorer outcomes.

References: Chan W, Chen A, Tiao D, et al. Medication adherence in inflammatory bowel disease. Intest Res. 2017 Oct;15(4):434-445

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PP0773

FIRST CLINICAL EXPERIENCE OF ORAL FERRIC MALTOL TREATMENT IN PREGNANT WOMEN WITH INFLAMMATORY BOWEL DISEASE AND IRON DEFICIENCY ANAEMIA

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Introduction: Iron deficiency (ID) and iron deficiency anaemia (IDA) are common complications of inflammatory bowel diseases (IBD). Ferric maltol is an oral iron therapy which increased haemoglobin within 12 weeks and sustainably improved the quality of life in patients with IBD and IDA. [1,2] While IDA is also frequently associated with pregnancy [3], there is no available data on the efficacy and safety of ferric maltol in pregnancy or in pregnant women with ID/IDA.

Aims & Methods: This study documented the first known clinical experience of ferric maltol in pregnant women with IBD and either ID or IDA. Retrospective clinical data from January 2017 to February 2023 in the MVZ Immunology database included pregnant patients with a confirmed diagnosis of IBD and treatment with ferric maltol during their pregnancy. The following patient data were collected: haematological parameters [haemoglobin (Hb), transferrin saturation level (TSAT), soluble transferrin receptor (stfR), ferritin], biomarkers for intestinal inflammation (calprotectin) and safety data. Descriptive results are reported here.

Results: A total of 27 female IBD patients with ID/IDA were included in this analysis, 11 with ulcerative colitis and 16 with Crohn's disease. The mean age was 35.9 years. A total of 29 pregnancies were treated with ferric maltol therapy (two patients had two pregnancies during this period). Prescriptions started after a mean of month 5 of pregnancy. In the course of most pregnancies, dosing was one capsule daily, as patients tended to have mild anemia. The number of prescribed boxes (56 capsules of ferric maltol: one capsule twice a day) per pregnancy was 1 in 82.8% [24/29], 2 in 13.8% [4/29], and 3 in 3.4% [1/29]. Nine cases with Hb < 11g/dl did take two capsules per day. After FM therapy, mean Hb levels increased from 11.3 to 12.36 g/dl (4-7 months), mean stfR levels increased from 1.2 to 1.5 mg/l, and mean ferritin levels increased from 27.2 to 30.0 ng/l, while mean TSAT decreased slightly from 17% to 15.4% (Table).

	Before FM	After FM
Hb (g/dl), Mean	11.3	12.3
Hb (g/dl), Median	11.3	12.6
TSAT (%), Mean	17	15.4
TSAT (%), Median	13	12.5
stfR (mg/l), Mean	1.2	1.5
stfR (mg/l), Median	1.0	1.2
Ferritin ng/ml, Mean	27.2	30.0
Ferritin ng/ml, Median	9.0	16.5

Table.

Two patients developed side effects: One had new onset of abdominal pain shortly after starting, one had abdominal pain and increased meteorism. Both patients discontinued ferric maltol treatment and complaints then stopped. At the time of the current analysis, all 27 completed pregnancies proceeded without complications and ended with healthy neonatal infants without abnormalities. Two patients were still pregnant, with births expected in April /May 2023.

Conclusion: These first clinical data on the use of ferric maltol in pregnancy suggest that ferric maltol appears to have a favourable safety profile with few side effects for pregnant patients with IBD and ID/IDA.

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PP0774

THE ADDITION OF BOWEL URGENCY IMPROVEMENT TO THE ACHIEVEMENT OF CLINICAL RESPONSE OR REMISSION WAS ASSOCIATED WITH BETTER WORK PRODUCTIVITY IN PATIENTS WITH ULCERATIVE COLITIS FROM MIRIKIZUMAB PHASE 3 TRIALS

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Introduction: Mirikizumab (miri), an anti-IL-23p19 antibody, demonstrated efficacy and safety in patients with moderately-to-severely active ulcerative colitis (UC) in LUCENT Phase 3 trials.[1,2]

Bowel urgency (BU) clinically meaningful improvement (CMI) and BU remission were associated with clinical response and remission and also contributed to the improvement in Work Productivity and Activity Impairment Questionnaire UC (WPAI:UC) scores.[3,4]

This analysis evaluated if the addition of BU improvement to clinical response or remission was associated with better work productivity.

Aims & Methods: In LUCENT-1 (NCT03518086), patients were randomized 3:1 to induction miri 300mg intravenous or placebo every four weeks (Q4W). Patients who achieved clinical response to miri at week 12 (W12) were re-randomized 2:1 to maintenance subcutaneous injection of miri 200mg or placebo Q4W for 40 weeks in LUCENT-2 [52 weeks (W52) continuous treatment] (NCT03524092). Clinical response and remission were assessed along with change from baseline in WPAI:UC domain scores (activity impairment, absenteeism, presenteeism, and overall work impairment).[5] BU was assessed using the Urgency Numeric Rating Scale (UNRS), an 11-point scale ranging from 0 ("no urgency") to 10 ("worst possible urgency"), with both BU CMI (≥3-point change) and BU remission (UNRS score of 0 or 1), measured in patients with a baseline UNRS of ≥3.[6] The association between BU (CMI or remission) with the change of WPAI:UC was evaluated using analysis of variance among patients with baseline UNRS ≥3 who achieved clinical response. This analysis was repeated among patients who achieved clinical remission.

Results: The addition of BU CMI was positively associated with reduction of activity impairment, presenteeism, and overall work impairment in patients who achieved clinical response or remission at both W12 and W52 ($p<0.005$) (Table 1). Achieving clinical response and BU remission was significantly associated with greater reduction of activity impairment,

	Activity Impairment (Change from BL at W12), p-value*	Absenteeism (Change from BL at W12), p-value*	Presenteeism (Change from BL at W12), p-value*	Overall Work Impairment (Change from BL at W12), p-value*	Activity Impairment (Change from BL at W52), p-value*	Absenteeism (Change from BL at W52), p-value*	Presenteeism (Change from BL at W52), p-value*	Overall Work Impairment (Change from BL at W52), p-value*
Clinical Response + BU CMI[1]	-32.15(24.47)	-10.94(30.46)	-28.66(22.85)	-29.77(25.37)	-41.21(25.10)	-12.40(27.30)	-36.82(24.18)	-38.25(26.25)
Clinical Response - BU CMI[2]	-17.11(26.39), <.0001	-9.45(22.11), 0.634	-14.43(24.64), <.0001	-17.19(26.48), <.0001	-27.26(27.35), <.0001	-10.85(26.03), 0.7116	-19.62(24.09), <.0001	-21.18(28.03), <.0001
Clinical Response + BU Remission[3]	-34.52(24.63)	-10.31(27.38)	-29.72(22.76)	-31.05(24.91)	-41.94(25.59)	-11.64(24.31)	-36.96(23.91)	-39.55(25.44)
Clinical Response - BU Remission[4]	-23.30(26.13), <.0001	-10.46(27.98), 0.9635	-20.33(24.74), 0.0012	-22.23(26.75), 0.0048	-33.81(26.42), 0.0034	-12.35(29.33), 0.8462	-27.82 (25.83), 0.0096	-28.15(28.76), 0.0031
Clinical Remission + BU CMI[5]	-35.03(23.87)	-14.17(27.32)	-31.83(22.93)	-34.37(25.77)	-44.05(24.25)	-14.54(28.78)	-37.47(24.09)	-39.76(25.70)
Clinical Remission - BU CMI[6]	-18.64(29.80), <.0001	-6.30(17.37), 0.1334	-15.00(29.68), 0.0015	-17.28(30.59), 0.0031	-31.71(23.12), 0.0035	-10.49(28.23), 0.5077	-20.77(21.34), 0.0016	-21.41(26.58), 0.0016
Clinical Remission + BU Remission[7]	-36.07(23.09)	-12.72(27.29)	-32.50(21.41)	-34.91(24.60)	-43.10(25.38)	-12.13(24.79)	-37.37(24.79)	-39.91(26.14)
Clinical Remission -BU Remission[8]	-27.30(28.01), 0.0147	-12.00(24.22), 0.8744	-24.23(28.01), 0.0772	-26.75(29.76), 0.109	-39.66(23.12), 0.3134	-15.94(33.46), 0.4496	-28.78(23.15), 0.0545	-29.80(27.03), 0.0394

Note: data is represented as mean (SD).

N-values (W12: Activity Impairment, Absenteeism, Presenteeism, Overall Work Impairment; W52: Activity Impairment, Absenteeism, Presenteeism, Overall Work Impairment):
1: W12: 396, 220, 220, 220; W52: 272, 160, 160, 160.
2: W12: 225, 122, 122, 122; W52: 84, 56, 56, 56.
3: W12: 188, 114, 114, 114; W52: 180, 106, 106, 106.
4: W12: 433, 228, 228, 228; W52: 176, 110, 110, 110.
5: W12: 167, 100, 100, 100; W52: 173, 106, 106, 106.
6: W12: 59, 31, 31, 31; W52: 41, 28, 28, 28.
7: W12: 89, 56, 56, 56; W52: 126, 79, 79, 79.
8: W12: 137, 75, 75, 75; W52: 88, 55, 55, 55.

BL = Baseline; BU = Bowel Urgency; CMI= Clinical Meaningful Improvement; SD: standard deviation; W12: week 12; W52: week 52. Clinical remission: stool frequency subscore = 0 or 1 with a ≥1-point decrease from baseline; rectal bleeding (RB) subscore = 0; and endoscopic subscore = 0 or 1. Clinical response: ≥2-point and ≥30% decrease in the modified Mayo Score from baseline, and RB = 0 or 1, or ≥1-point decrease from baseline.

*Evaluated using ANOVA (Analysis of variance) model including BU CMI (yes/no) or BU remission (yes/no). P-values less than 0.05 are bolded.

PP0774 TABLE 1. Association of Clinical Remission/Response with achievement of Bowel Urgency Remission/CMI on Change from Baseline of WPAI:UC Domain Scores in Patients with UC at W12 and W52 of Continuous Treatment.

presenteeism, and overall work impairment compared to patients with clinical remission only at both W12 and W52 (p<0.01). The combined improvement of achieving both clinical remission and BU remission was significantly associated with higher reduction in activity impairment at W12 (-36.1% vs -27.3%; p=0.0147) and overall work impairment at W52 (-39.9% vs -29.8%; p=0.0394). Patients who achieved both clinical response or clinical remission and BU CMI or BU remission did not show a significant difference in absenteeism compared to those who achieved clinical response or remission alone.

Conclusion: Among patients with UC from miri phase 3 trials, the addition of BU (CMI or remission) to the achievement of clinical response or remission was associated with reduction of WPAI:UC scores: activity impairment, presenteeism, and overall work impairment.

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PP0775

GOOD DRUG SUSTAINABILITY IN INFLAMMATORY BOWEL DISEASE PATIENTS IN CLINICAL REMISSION ON THIOPURINE MONOTHERAPY

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Introduction: Immunomodulator monotherapy is an important component in the treatment of inflammatory bowel disease (IBD). However, there is conflicting litterature about thiopurines maintaining long-term remission in patients with active IBD.The aim of this study is to determine the durable clinical remission rate in adults with Crohn's disease (CD) or ulcerative colitis (UC) on thiopurine monotherapy.

Aims & Methods: We performed a retrospective analysis of adult patients diagnosed from 2004 to 2016,. We included IBD patients who initiated thiopurine monotherapy and were in remission for at least 3 years, with a minimum follow-up period of 7 years. The Mayo score (MS) and Crohn disease activity index (CDAI) were used to assess disease activity in UC and CD patients, respectively. The primary endpoint was sustained clinical remission on thiopurines at 7 years of follow-up . This included patients who had not relapsed or discontinued the drug due to side effects. The secondary endpoint was clinical relapse over the follow-up period, which was defined as CDAI > 150 in CD and MS > 3 in UC.

Results: We evaluated 94 patients (52 female, 41 male sex ratio H/F = 0,7 mean age 35.9 ± 15 years) .Among our patients 12 were smoking, 52 among our patients were diagnosed with Crohn's disease (CD), 38 ulcerative colitis (UC), 4 inclassed IBD. Among our patients 43 (45.7%) were treated with azathioprine monotherapy . At 7 years of follow up, 29 patients (67%) remained in clinical remission on thiopurine monotherapy. Three patients presented complications such as deep collection in two cases and ileal stenosis in one case. Eleven patients (25%) stopped treatment for haematological toxicity in 8 cases, liver toxicity in two cases and digestive intolerance in one case.

Conclusion: This analysis demonstrates that there is good sustainability of clinical remission in IBD patients on thiopurine monotherapy. However, this treatment was poorly tolerated by the quarter of patients.

Disclosure: Nothing to disclose.

PP0776

DEVELOPMENT OF A CARE BUNDLE FOR MANAGING ACUTE SEVERE COLITIS ON THE ACUTE MEDICAL TAKE - A QUALITY IMPROVEMENT PROJECT

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Introduction: Acute Severe Colitis (ASC) is a relatively common presentation to hospital which is associated with a high morbidity and mortality and requires aggressive and competent treatment. Initial assessment and management is typically performed by a non-gastroenterologist who may have had limited experience managing this subset of patients. The aim of this project was to create a care bundle for managing ASC for use on the acute medical take across Cwm Taf Morgannwg University Health Board, Wales to provide standardised care for these patients which would improve confidence and knowledge of the junior doctors treating them and in turn improve patient care.

Aims & Methods: An electronic questionnaire would be sent to a variety of junior doctors at different stages in their training who all work on the acute medical take to assess their confidence and knowledge in managing patients with ASC on the acute take and assess whether the project would be a worthwhile idea. The care bundle would then be developed and implemented and a second questionnaire would then be sent to see if it would achieve improved confidence and knowledge, ultimately providing standardised care and inevitably better patient outcomes.

Results: We received 25 responses to our initial questionnaire from junior doctors who work on the acute medical take. 20% of our respondees had never managed a patient with ASC before and 60% did not feel confident managing patients with ASC. 24% did not know exactly what drugs to administer/avoid and 28% would not feel comfortable identifying a toxic megacolon on an Abdominal X-Ray. 100% of responses thought the project would have a positive impact on the standard of care and outcomes for these patients as well as improve confidence and knowledge of the assessing doctors on the medical take.

After implementation of the care bundle, a second questionnaire was sent which received 19 responses from junior doctors who work on the acute medical take. 100% of respondees felt the care bundle gave them increased confidence and knowledge in managing patients with ASC and that it would improve patient outcomes and overall care.

Conclusion: Our project has shown an ASC care bundle can improve confidence, knowledge and training for junior doctors who encounter such patients on the acute medical take. By providing a framework for implementing best medical practice and standardised care, patient outcomes, satisfaction and overall care will inevitably be better.

References: Lamb CA, Kennedy NA, Raine T, *et al.* British Society of Gastroenterology consensus guidelines on the management of inflammatory bowel disease in adults. *Gut* 2019;**68:**s1-s106.

Disclosure: Nothing to disclose.

PP0777

ANALYSIS OF HISTOLOGICAL FEATURES PREDICTING THE RESPONSE TO VEDOLIZUMAB IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Not all patients with ulcerative colitis (UC) respond initially to treatment with biologic agents, and predicting their efficacy prior to treatment is difficult. Vedolizumab, a humanized monoclonal antibody against alpha 4 beta 7 (α4β7) integrin, suppresses immune cell migration by blocking the interaction between α4β7 integrin and mucosal addressin cell adhesion molecule 1, and is used to treat patients with UC with moderate-to-severe activity. Reports about histological features that predict vedolizumab efficacy are scarce.

Aims & Methods: We evaluated the infiltration of inflammatory cells in the colonic mucosa prior to the induction of vedolizumab and examined the association between histological features and vedolizumab efficacy.

This was a multicenter, retrospective study. Patients with UC who were treated with vedolizumab between November 2018 and April 2021 were enrolled in this study. All eligible patients had moderate-to-severe disease activity at the time of the initial treatment with vedolizumab. Biopsy specimens taken from the colonic mucosa prior to vedolizumab induction were used, and the areas positively stained for CD4, CD68, and CD45 per

unit area of the lamina propria were calculated. Clinical and histological features were compared between those with and without remission at week 22, and the factors associated with clinical outcomes were identified.

Results: A total of 42 patients were included in this study. 17 (40.5%) patients achieved clinical remission at week 22. Significantly more CD4+ cells were found in the colonic mucosal tissues of patients with remission than in those without remission (odds ratio [OR]=1.44, P=0.014). In contrast, the CD68-positive area and the CD45-positive were not significantly different between the two groups. The concomitant use of corticosteroids and high Mayo scores had a negative association with the vedolizumab response (OR=0.11, P=0.008 and OR=0.50, P=0.009, respectively).

Conclusion: A high CD4+ infiltration in the colonic mucosa was associated with remission after vedolizumab treatment. Histological evaluation for CD4+ cell infiltration may be helpful in selecting patients who can benefit from vedolizumab.

Disclosure: Nothing to disclose.

PP0778

OUTCOMES OF VEDOLIZUMAB DOSE INTENSIFICATION: RESULTS FROM AN ASIAN INFLAMMATORY BOWEL DISEASE (IBD) COHORT STUDY

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Introduction: Vedolizumab (VDZ) is a monoclonal antibody approved for use in both Crohn's Disease (CD) and Ulcerative Colitis (UC). Some patients treated with VDZ have suboptimal disease response to induction and 8-weekly maintenance dosing. Dose intensification (DI) by shortening the dosing interval is a strategy used to improve response to treatment. This study aims to identify factors associated with DI in an Asian cohort of IBD patients.

Aims & Methods: This was a retrospective cohort study performed in a single tertiary center in Singapore. Patients who received VDZ between Sept 2016 to Sept 2022 were identified from a prospectively maintained registry. Patient demographics, disease phenotype, treatment history and biochemical parameters were retrieved. Factors predictive of requiring DI were analysed. Statistical analysis was performed using SPSS v23.0.

Results: A total of 69 IBD patients who received VDZ were identified. Mean age was 57.1 years (SD=20.1). Males made up 63.1% of the cohort, with 3 patients (4.6%) being active smokers. Thirty-nine patients (60.0%) had prior exposure to immunomodulators, 32 patients (49.2%) had prior anti-tumour necrosis factor-alpha inhibitor exposure, 5 patients (7.7%) had prior ustekinumab exposure. None of the patients had prior exposure to small molecules.

A total of 4 patients (6.2%) had prior exposure to 2 biologic agents, 30 patients (45.2%) had prior exposure to 1 biologic agent, and 31 patients (47.7%) were biologic-naïve. Disease duration prior to VDZ use was 8.4 years (SD=8.0). VDZ treatment duration was 24.4 months (SD=19.2).

A total of 25 patients (10 CD, 15 UC) underwent DI. Time from induction to DI was 384.4 days (SD=301.2). Gender, active smoking status, age of diagnosis, previous treatment or biologic exposure, higher pre-induction C-reactive protein and stool calprotectin did not predict for need for DI. (Figure 1)

Four patients achieved clinical remission post induction but subsequently required DI. Fourteen patients underwent DI to Q6W dosing and 11 patients received Q4W dosing. Patient demographics are shown in Figure 2a. Outcomes of DI at 52-weeks post DI is shown in Figure 2b. Eight patients (32.0%) achieved treatment endpoints of corticosteroid-free remission (n=2), biochemical remission (n=2) and endoscopic remission (n=4). Mean duration on VDZ with DI in CD was 9.9months (SD=9.1), and 35.9months (SD=19.9) in UC.

Ten patients were switched to another biologic. Five (2 UC, 3 CD) patients required surgery despite DI. One patient had recurrent *Clostridium difficile* infections while on VDZ. [illegible]ere no other complications or hospitalizations associated with DI.

Conclusion: This is the first VDZ DI study in Asia. One third of patients who receive VDZ required DI, of which a third achieved remission by week 52. Some Asian patients with IBD may require DI to achieve remission.

Disclosure: Nothing to disclose.

PP0779

EFFECTIVENESS OF PARTIAL ENTERAL NUTRITION TO TREAT ADULTS WITH CROHN'S DISEASE WHO LOST RESPONSE TO BIOLOGICAL THERAPY

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Introduction: Partial enteral nutrition (PEN) is a consolidated treatment in children with Crohn's disease (CD). However, the benefit of PEN is not well-established for adults with CD. Hence, we aimed to assess the effectiveness of PEN in combination with biological therapy on transmural response/remission and clinical outcomes in adults with CD who lost response to biologics.

Aims & Methods: We performed a single-centre retrospective observational study by including patients who received PEN due to loss of response to biologics. The primary endpoint was the transmural response/remission rate at six months. We defined transmural remission as bowel wall thickness ≤3 mm, while transmural response as a decrease in BWT≥25%. Secondary endpoints included clinical remission, defined as Harvey Bradshaw Index<5, and selected clinical outcomes such as surgery, hospitalisations, and therapy change at six months. Patients were considered adherent when they completed PEN for 6-8 weeks as required for induction of remission, whereas they were not adherent when they stopped or did not tolerate it.

Results: Forty-two patients,25 males (59,5%) with a mean age of 36,1 ±15,6yo and a mean disease duration of 138,0 ±113,1 months, were enrolled.14 patients completed PEN at eight weeks, with a rate of adherence of 33,3%. While 16(38.1%) patients stopped the treatment for intolerance and maintained only biological therapy, 12(28.6%) underwent surgery before six months follow-up. At six months, patients treated with PEN+biologic had a transmural response of 64,9% compared to 25% treated only with biologics (p=0.03). In both groups, no patients achieved transmural remission.

Nevertheless, clinical remission was obtained in 9 (64,3%) patients treated with PEN+biologic compared to 4 (25%) with biologic (p=0.03). Three patients (18.7%) underwent surgery, all intolerant to PEN. Patients who interrupted PEN and maintained biologics had a higher rate of 56,2% of dose escalation/interval and 68,7% changed therapy at six months compared to 7,1% and 14,2% respectively treated with PEN+biologic(p<0.05) [Table 1].

	PEN + Biologic (n=14)	Biologic therapy (n=16)	p-value
HBI	4,8 (±2,1)	7,1 (±2,5)	0,01
FC (µg/g)	335,5 (±651,9)	405,4 (±611,8)	0,76
CRP (mg/L)	7,4 (±6,4)	10,1 (±10,1)	0,40
BMI (kg/m^2)	20,5 (±1,8)	19,7 (±2,2)	0,27
Clinical remission	9 (64,3%)	4 (25,0%)	< 0,05
Transmural response	9 (64,3%)	4 (25,0%)	< 0,05
Surgery	0	3 (18,7%)	0,14
Dose/interval escalation	1 (7,1%)	9 (56,2%)	< 0,05
Swap/switch of therapy	2 (14,2%)	11 (68,7%)	< 0,05

Table 1.

In multivariate analysis, multiple treatment failures were associated with adherence to PEN(OR=1,583; CI=1,06-2,36;p<0.05).

Conclusion: For patients who lost response to biological therapy, the addition of PEN was associated with transmural response and clinical remission. Multiple failures to biologics were associated with adherence to PEN. Therefore, it should be considered in difficult-to-treat patients.

Disclosure: None to declare.

PP0780

PREDICTORS OF RELAPSE IN CASES OF ULCERATIVE COLITIS THAT ACHIEVED MUCOSAL HEALING WITH BIOLOGICS

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Introduction: Biologics are useful for the treatment of moderate to severe ulcerative colitis (UC) and can achieve mucosal healing (MH). Many papers have reported that relapse can be prevented by targeting MH. However, recurrences of UC is possible even in cases that MH was once obtained.

Aims & Methods: In this study, we investigated cases of relapse after MH was achieved with biologics, aiming to determine the predictors of recurrences.

Forty-five patients who were successfully treated with biologics (including Tofacitinib) at our hospital and confirmed MH were stratified into those who relapsed during the course of treatment and those who did not. Patient background (age, gender, extent of inflammation, severity, disease type, pre-treatment history, time to biologics introduction, Mayo Endoscopic Score (MES), smoking history), and clinical data (leukocyte count, hemoglobin level, albumin level, CRP level) at the time of biologics introduction were compared. For statistical analysis, χ-square and Mann-Whitney *U* tests were used for univariate analysis and logistic regression analysis was used for multivariate analysis, with $p < 0.05$ as a significant difference.

Results: Of the 45 eligible patients, 21 (47 %) relapsed during follow-up after the introduction of biologics (mean 28.6 months, range 8-95 months). Univariate analysis of the patients stratified into 21 patients with relapse and 24 patients without relapse showed that MES at the introduction of biologics was 3 (71 % vs. 29 %, $p = 0.0047$) and that those with history of smoking were significantly more frequent in the relapse group (8.3 % vs. 43 %, $p = 0.0072$). In addition, the relapse group had slightly higher CRP levels (mean 4.4 mg/dl vs. 2.3 mg/dl, $p = 0.184$), younger age (mean 39 vs 46 years, $p = 0.10$), severe disease activity (mild: moderate: severe 3: 19: 2 vs. 3: 11: 7, $p = 0.094$), and history of tacrolimus use (9.5 % vs 0 %, $p = 0.12$), although the differences were not significant. A multivariate analysis on these factors showed that MES 3 (OR 9.21, 95 % CI 1.18-72.0, $p = 0.034$) and smoking history (OR 25.2, 95 % CI 1.20-529.0, $p = 0.038$) were independent predictors of relapse.

Conclusion: In the present study conducted at our hospital, nearly half of the patients had relapsed even when MH was achieved with the use of biologics for UC. Furthermore, the severity of the endoscopic findings at the introduction of biologics was an important predictor of recurrence. In other words, patients with severe endoscopic findings at the time of introduction of biologics should be treated keeping in mind the high risk of relapse, even if MH is achieved. This fact is considered very important for the introduction of biologics with UC patients in future and the construction of treatment a strategy after the introduction.

Disclosure: Nothing to disclose.

PP0781

THE IMPACT OF COVID-19 ON THE THERAPEUTIC DECISIONS AND MONITORING OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A RETROSPECTIVE SINGLE-CENTER STUDY

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Introduction: The management of patients with inflammatory bowel disease (IBD) during the coronavirus disease 2019 (COVID-19) pandemic has been a challenge, as immunosuppressant therapies comprise the cornerstone of IBD treatment and social distancing is recommended to diminish the virus spread. The aim of this study is to investigate the impact of COVID-19 on the therapeutic decisions and management of patients with IBD.

Aims & Methods: Records from patients diagnosed with ulcerative colitis (UC), Crohn's disease (CD) and unclassified-IBD (IBD-u), under follow-up by a single IBD center, were retrospectively screened from March 2020 to May 2021. Primary and secondary outcomes were predetermined to be changes in therapeutic decisions and monitoring respectively, during the pandemic.

Results: A total of 201 patients were included in the study [125 (62%) UC, 69 (34%) CD and 7 (3%) IBD-U]. Patients with UC were treated with 5-aminosalicylic acid [(5-ASA), 89], infliximab [(IFX), 21], combination therapy with 5-ASA and azathioprine (AZA), (11) and adalimumab [(ADA), 4)]. To avoid hospital environment, two patients under IFX (10%) switched to subcutaneous home-infusions with ADA and in eight patients treated with IFX (38%), infusion intervals increased to ten weeks (drug holiday). No complications were observed. Patients with CD were treated with IFX (39), ADA (12), vedolizumab (8), AZA (4), combination therapy with AZA or methotrexate (4) and ustekinumab (2). To avoid hospital environment, two patients under IFX (5%) switched to subcutaneous home-infusions with ADA and in 12 patients treated with IFX (30%), infusion intervals increased to ten weeks (drug holiday). One patient in clinical remission discontinued IFX and received AZA. Although a significant number of outpatient visits, endoscopic procedures and non-urgent surgeries were postponed, two patients with CD (IFX) required emergency surgery which was performed without delay. Patients' monitoring was carried out through telemedicine (remote monitoring, intangible prescription and drug home delivery).

Conclusion: The vast majority of patients treated with biologics did not discontinue maintenance therapy and a significant number extended intravenous infusion intervals. The setting of this critical and unprecedented situation has led to significant changes in decision making in IBD management, based on patients' preferences aiming an efficient and safer care.

Disclosure: Nothing to disclose.

PP0782

IMPACT OF ETRASIMOD ON BLOOD PRESSURE AND HYPERTENSION: DATA FROM THE ETRASIMOD ULCERATIVE COLITIS CLINICAL PROGRAMME

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Introduction: Increased blood pressure (BP) and hypertension are known adverse effects of sphingosine 1-phosphate ($S1P)_{1,4,5}$ receptor modulators. Etrasimod is an investigational, oral, once-daily, selective $S1P_{1,4,5}$ receptor modulator in development for the treatment of moderately to severely active ulcerative colitis (UC).

Aims & Methods: We assessed the impact of etrasimod on BP and hypertension development among patients (pts) in the etrasimod UC clinical programme. Pivotal (placebo [PBO]-controlled phase [p]3 [NCT03945188; NCT03996369] studies) and All UC (PBO-controlled plus open-label extension [OLE]; p2 [NCT02447302], p3 and OLE [NCT03950232 and NCT04176588, data snapshot Jan 31, 2022; NCT02536404] studies) cohort data were analysed. BP was assessed at each visit and at 2 and 4 weeks (wks) post-treatment cessation. Proportions and exposure-adjusted incidence rates (EAIRs; pts with AEs divided by the total pt-years [PY] at risk for AEs, per 1 PY) of treatment-emergent Hypertension (Medical Dictionary for Regulatory Activities preferred term [PT]) AEs among pts receiving etrasimod (2 mg once daily; both cohorts) or PBO (Pivotal UC cohort) were assessed.

Characteristics of pts with Hypertension AEs that met sponsor-designated events of interest (SDEI) criteria (related to hypertension associated with sustained increases in BP [systolic/diastolic: ≥ 160/100 mmHg], or requiring new or increased antihypertensive therapy) were analysed descriptively.

Results: In the Pivotal and All UC cohorts, 11/527 (2.1%; EAIR, 0.04; PBO: 2/260 [0.8%; EAIR, 0.02]) and 20/942 (2.1%; EAIR, 0.03) etrasimod-treated pts had PT Hypertension, respectively; none led to study treatment discontinuation. In the All UC cohort, 19/942 (2.0%; EAIR, 0.02) etrasimod-treated pts had hypertension-related SDEIs.

Of these events, 6 were in pts with hypertension history; none were serious or led to treatment discontinuation; 6 resolved (5 with intervention), 8 were resolving/unknown outcome and 5 were unresolved. Etrasimod-treated pts had minimal changes in BP over time (All UC cohort, mean change in systolic/diastolic BP at Wk52: 2.9/1.2 mmHg, respectively; Table). In the All UC cohort, at Wk104, no etrasimod-treated pts had a systolic/diastolic BP > 160/100 mmHg, respectively.

Time point	Pivotal UC cohort				Time point	All UC cohort	
	Systolic BP, mmHg		Diastolic BP, mmHg			Systolic BP, mmHg	Diastolic BP, mmHg
	Etrasimod 2 mg QD (N=527)	PBO (N=260)	Etrasimod 2 mg QD (N=527)	PBO (N=260)		Etrasimod 2 mg QD (N=942)	
Baseline[a], mean (SD) [etrasimod, n=527; PBO, n=260]	120.7 (12.50)	121.3 (13.08)	75.8 (8.53)	77.2 (9.56)	Baseline[a], mean (SD) [n=942]	119.6 (12.89)	75.6 (8.57)
Change at Wk12, mean (SD) [etrasimod, n=474; PBO, n=231]	2.0 (11.17)	-1.4 (10.68)	1.6 (8.08)	-0.4 (8.07)	Change at Wk12, mean (SD) [n=821]	2.1 (10.78)	1.7 (8.01)
Change at Wk52, mean (SD) [etrasimod, n=162; PBO, n=44]	2.2 (11.08)	1.3 (9.16)	0.4 (8.47)	-0.8 (8.52)	Change at Wk52, mean (SD) [n=246]	2.9 (10.39)	1.2 (8.36)
Change at Wk78/ Wk104[b], mean (SD) [N/A]	-	-	-	-	Change at Wk78/ Wk104, mean (SD) [Wk78, n=147; Wk104, n=29]	1.9 (10.65)/ -0.7 (13.54)	1.1 (8.05)/ 0.8 (7.40)
Change at 2-/4-wk follow-up visit[c], mean (SD) [2-wk: etrasimod, n=39; PBO, n=6; 4-wk: etrasimod, n=36; PBO, n=10]	0.2 (10.66)/ -0.4 (11.47)	6.7 (10.61)/ 8.1 (8.18)	1.6 (7.99)/ 0.2 (10.40)	3.2 (3.71)/ 3.0 (7.12)	Change at 2-/4-wk follow-up visit[c], mean (SD) [2-wk; n=203; 4-wk, n=105]	2.6 (13.73)/ 1.9 (12.43)	1.3 (8.74)/ 1.4 (9.18)

Pivotal UC cohort comprised patients from the placebo-controlled p3 ELEVATE UC 52 (NCT03945188) and p3 ELEVATE UC 12 (NCT03996369) studies. All UC cohort comprised patients from the p2 OASIS (NCT02447302), p2 OASIS OLE (NCT02536404 [completed Nov 01, 2018]), p3 ELEVATE UC 52 (NCT03945188), p3 ELEVATE UC 12 (NCT03996369) and p3 ELEVATE UC OLE (NCT03950232 [data snapshot Jan 31, 2022]) studies, and the open-label phase of the p3 study NCT04176588 (data snapshot Jan 31, 2022)

[a]Baseline is defined, by study treatment group received, as the last non-missing measurement taken on or prior to the study treatment group start date

[b]Wk78 and 104 data are not provided for the Pivotal UC cohort as only data up to Wk52 of ELEVATE UC 52 are included for pts in this cohort

[c]Pts who did not participate in the OLE study had 2-wk and 4-wk follow-up visits after their last treatment administration

BP, blood pressure; N, total number of patients; n, number of patients with evaluable data at a visit; N/A, not applicable; OLE, open-label extension;
p, phase; pts, patients; PBO, placebo; QD, once daily; SD, standard deviation; UC, ulcerative colitis; wk, week

Table. Change from baseline in BP over time among pts in the etrasimod UC clinical programme (Pivotal and All UC cohorts).

Conclusion: Hypertension events were infrequent among etrasimod-treated pts. No clinically meaningful changes in BP with etrasimod 2 mg over time or following treatment discontinuation were observed up to 2 years. Data interpretations are limited by small pt numbers.

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PP0783

A SINGLE CENTRE AUDIT REVIEWING THE PRACTICE OF ACUTE SEVERE ULCERATIVE COLITIS (ASUC) MANAGEMENT USING CALCINEURIN INHIBITOR AND BIOLOGICAL THERAPY. ARE THEY SHOWING GOOD OUTCOME AND SUCCESS IN AVOIDING COLECTOMY AT 30 DAYS AND 1 YEAR MARK?

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Introduction: Up to 30% of patients inflicted with acute severe ulcerative colitis (ASUC) requires an urgent colectomy during their inpatient stay[1], despite use of corticosteroid therapy. In younger population cohort, of which Ulcerative Colitis (UC) is fairly prevalent, the idea of having a colectomy with stoma formation does not constitute an ideal physical image, hence many prefer to be managed conservatively through medical therapy. The two options licensed for this purpose are infliximab and ciclosporin[2].

Aims & Methods: Our audit aims to look at the use of infliximab and ciclosporin to manage an ASUC and whether they result in long term remission and significant colon retention rate at 30 days and 1 year mark.

We carried out a retrospective audit on 74 patients who received said therapies between 2021 to 2022 for ASUC. Subsequently we calculated the number of patients who required re-admission with flare-ups, the colon retention rate at 30 days and 1 year post therapy initiation, as well as the 30 days and 1 year mortality rate as a direct or indirect result of said therapies (we defined this as evidence of clinically immunosuppressive state leading to severe sepsis).

Results: There are only 6 patients in total (8.69%) who were given ciclosporin to treat an ASUC episode as compared to infliximab, which forms the majority of the population (68 patients). All of them were commenced in an inpatient setting . On top of that, they failed to improve despite this and subsequently required a form of rescue colectomy. Of these, 5 required ciclosporin as the second line treatment following failed primary therapy with infliximab, going by the recommendation by the BSG Guideline.

Among those who were prescribed infliximab, 32 (47.1%) requires initiation as inpatient (IP) as compared to 36 (52.9%) who commenced in an outpatient (OP) setting. Among those who requires IP initiation, we saw there is 84.4% complete colon retention rate at 1 year mark and 6.25% colon retention rate lasting less than 30 days and more than 30 days but less than 1 year respectively. 1 patient died within 1 year of receiving the scheduled infliximab therapy as a result of overwhelming chest sepsis, which may or may not be related to this. Most patients successfully avoided further flare up at 1 year mark post infliximab initiation (78.1%).

Further focusing onto infliximab therapy initiation as IP, 14 patients were co-prescribed purine analogues as compared to 18 who were not. All these 14 patients successfully avoided colectomy at 1 year mark as compared to 14 out 18 patients from the other group.

Accelerated infliximab therapy was trialled in 2 IP cases and they both demonstrated complete colon retention at 1 year mark, though we acknowledge that our data is too small to make any conclusive statement for or against this regime.

Rescue therapy	Total number of patients included	Further episode of flare up			Colectomy			Death		
		None	within 30 days	within 1 year	None	within 30 days	within 1 year	None	within 30 days	within 1 year
Ciclosporin	6	6	0	0	0	6	0	5	0	1
Infliximab IP	32	25	4	5	27	2	2	32	0	0
infliximab OP	36	36	0	0	36	0	0	35	0	1

Conclusion: In summary, our data on colon retention rate, the survival rate and the need for re-admission demonstrated a strong case to advocate for biological therapy as a mean to avoid colectomy and re-admission in those with ASUC. The rate of colectomy in the calcineurin inhibitor group is high but we must note that their ASUC severity is higher as they failed to respond to the 1st line treatment to begin with. No difference in outcome was seen in the accelerated regime group, but co-prescription of purine analogues appears to be protective.

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PP0784

HEALTH-RELATED QUALITY OF LIFE FROM THE INFLAMMATORY BOWEL DISEASE QUESTIONNAIRE AMONG PATIENTS WITH ULCERATIVE COLITIS STRATIFIED BY PRIOR AND CONCOMITANT THERAPIES: RESULTS FROM THE ETRASIMOD ELEVATE UC CLINICAL PROGRAMME

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Introduction: Etrasimod is an investigational, oral, once-daily, selective sphingosine 1-phosphate $(S1P)_{1,4,5}$ receptor modulator in development for the treatment of moderately to severely active ulcerative colitis (UC). Prior analyses demonstrated etrasimod efficacy in UC[1] and greater improvement from baseline in Inflammatory Bowel Disease Questionnaire (IBDQ) total score and domains vs placebo (PBO).[2]

Aims & Methods: This post hoc subgroup analysis examined the effect of prior and concomitant therapies on IBDQ scores in the phase 3 ELEVATE UC clinical programme. In ELEVATE UC 52 (NCT03945188) and ELEVATE UC 12 (NCT03996369), eligible patients (pts) with modified Mayo scores of 4–9 completed the 32-item IBDQ at Weeks (Wks)12 (both trials) and 52 (ELEVATE UC 52). In this analysis, pts were stratified by prior biologic/Janus kinase inhibitor (bio/JAKi) and baseline corticosteroid (CS) use. Least squares (LS) mean change from baseline in IBDQ total and domain scores were compared for etrasimod vs PBO (data as observed). Proportions of pts with IBDQ remission (total score ≥ 170) were analysed (nonresponder imputation).

Results: Among all randomised patients, there were 304/433 and 236/354 pts without prior bio/JAKi use and 298/433 and 255/354 pts without baseline CS use in ELEVATE UC 52 and ELEVATE UC 12, respectively. Overall, mean baseline IBDQ total scores were similar in pts with and without prior bio/JAKi or baseline CS use. At Wks12 (both trials) and 52 (ELEVATE UC 52), LS mean change from baseline in IBDQ total and domain scores was higher ($p<0.05$) for etrasimod vs PBO in pts without prior bio/JAKi and pts without baseline CS use (Table). IBDQ remission was generally achieved by significantly higher proportions of pts receiving etrasimod vs PBO regardless of prior bio/JAKi or baseline CS use at Wk52 (prior bio/JAKi use: No, 46.8% vs 21.2% [$p<0.001$] and Yes, 25.0% vs 11.1% [$p=0.043$]; baseline CS use: No, 41.3% vs 15.7% [$p<0.001$] and Yes, 38.7% vs 23.8% [$p=0.087$]).

Conclusion: Pts receiving etrasimod had improvements in IBDQ total score and in all 4 domains at Wk12, maintained at Wk52. Significant differences were shown in these outcomes with etrasimod vs PBO in pts without prior bio/JAKi and without baseline CS use. IBDQ remission was generally achieved by higher proportions of pts without vs with prior bio/JAKi or without vs with baseline CS use.

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[n], LS mean change from baseline[a] (SE)	Without prior bio/JAKi use		With prior bio/JAKi use		Without baseline CS use		With baseline CS use	
	Etrasimod 2 mg QD	PBO	Etrasimod 2 mg QD	PBO	Etrasimod 2 mg QD	PBO	Etrasimod 2 mg QD	PBO
ELEVATE UC 52	N=205	N=99	N=84	N=45	N=196	N=102	N=93	N=42
Wk12	*[n=168]*	*[n=79]*	*[n=64]*	*[n=35]*	*[n=151]*	*[n=77]*	*[n=81]*	*[n=37]*
IBDQ total score	47.44 (2.888)***	27.74 (4.144)	33.98 (5.183)	34.27 (7.099)	41.48 (3.035)**	24.97 (4.185)	44.45 (4.537)	35.51 (6.576)
Bowel symptoms	17.10 (0.941)***	9.55 (1.350)	12.79 (1.645)	12.62 (2.262)	15.39 (0.999)***	8.69 (1.380)	15.60 (1.459)	12.51 (2.113)
Systemic symptoms	6.52 (0.467)***	3.58 (0.670)	4.77 (0.843)	5.21 (1.161)	5.98 (0.475)**	3.52 (0.656)	5.75 (0.773)	4.66 (1.120)
Emotional health	15.77 (1.090)***	9.14 (1.563)	11.34 (1.970)	10.83 (2.697)	13.76 (1.149)**	8.59 (1.583)	15.15 (1.683)	11.10 (2.437)
Social function	8.01 (0.548)**	5.56 (0.785)	5.06 (0.989)	5.47 (1.354)	6.38 (0.589)*	4.28 (0.811)	7.87 (0.842)	7.16 (1.217)
Wk52	*[n=116]*	*[n=31]*	*[n=27]*	*[n=10]*	*[n=97]*	*[n=24]*	*[n=46]*	*[n=17]*
IBDQ total score	58.66 (3.209)**	39.75 (5.611)	47.11 (6.797)	29.54 (10.705)	55.75 (3.544)***	30.64 (6.563)	51.84 (5.113)	46.70 (7.772)
Bowel symptoms	20.70 (1.057)**	14.17 (1.877)	17.55 (2.217)	11.88 (3.526)	19.79 (1.177)***	11.48 (2.203)	18.70 (1.690)	16.44 (2.591)
Systemic symptoms	7.86 (0.520)*	5.63 (0.912)	5.96 (1.080)	4.24 (1.687)	7.67 (0.550)**	4.13 (1.009)	6.46 (0.891)	6.94 (1.365)
Emotional health	20.25 (1.218)*	14.28 (2.146)	16.03 (2.618)	9.28 (4.144)	19.83 (1.354)**	11.58 (2.530)	16.88 (1.903)	15.46 (2.891)
Social function	10.22 (0.612)**	6.47 (1.074)	7.90 (1.312)	4.85 (2.074)	8.70 (0.683)**	4.12 (1.253)	10.38 (0.974)	8.49 (1.495)
ELEVATE UC 12	N=159	N=77	N=79	N=39	N=173	N=82	N=65	N=34
Wk12	*[n=129]*	*[n=64]*	*[n=60]*	*[n=31]*	*[n=145]*	*[n=67]*	*[n=44]*	*[n=28]*
IBDQ total score	42.17 (3.321)***	22.29 (4.598)	51.13 (4.408)*	35.64 (6.038)	44.85 (2.929)***	24.79 (4.268)	50.71 (5.343)	39.72 (6.596)
Bowel symptoms	16.21 (1.134)***	8.46 (1.565)	18.26 (1.456)	13.45 (1.996)	16.85 (1.003)***	9.37 (1.462)	18.37 (1.781)	14.38 (2.197)
Systemic symptoms	5.55 (0.545)**	2.75 (0.756)	6.89 (0.761)	4.51 (1.043)	6.02 (0.492)**	3.29 (0.718)	6.94 (0.910)	4.96 (1.123)
Emotional health	13.66 (1.265)**	7.24 (1.747)	17.25 (1.653)*	11.11 (2.264)	14.69 (1.102)***	7.72 (1.605)	16.98 (2.002)	13.08 (2.478)
Social function	6.81 (0.591)**	3.78 (0.820)	8.66 (0.848)	6.63 (1.161)	7.33 (0.526)***	4.30 (0.767)	8.44 (1.008)	7.29 (1.243)

The IBDQ evaluates disease-related quality of life using 32 items examined with 4 domains: bowel symptoms (score range, 10–70), systemic symptoms (score range, 5–35), emotional health (score range, 12–84) and social function (score range, 5–35). For the total score (range, 32–224) and each domain, a higher score indicates a better quality of life
Responses after intercurrent events and missing responses were considered as nonresponses
*$p<0.05$; **$p<0.01$; ***$p<0.001$. Presented p values are for etrasimod 2 mg once daily vs PBO. P values are presented without adjustment for multiplicity
[a]For ELEVATE UC 52, estimates are from a mixed-effect model with repeated measures model for change from baseline with a covariate for baseline score, and factors for naive to bio/JAKi therapy (Yes or No, for with or without baseline CS use subgroups only) or baseline CS use (Yes or No, for with or without prior bio/JAKi use subgroups only), baseline disease activity (MMS: 4–6 or 7–9), treatment, visit and treatment by visit interaction. For ELEVATE UC 12, estimates are from an analysis of covariance model for change from baseline, with a covariate for baseline score, and factors for naive to bio/JAKi therapy (Yes or No, for with or without baseline CS use subgroups only) or baseline CS use (Yes or No, for with or without prior bio/JAKi use subgroups only), baseline disease activity (MMS: 4–6 or 7–9) and treatment
Bio/JAKi, biologic/Janus kinase inhibitor; CS, corticosteroid; IBDQ, Inflammatory Bowel Disease Questionnaire; LS mean, least squares mean; MMS, modified Mayo score; N, total number of pts in the full analysis set; n, number of pts with available IBDQ data at the specified time point; PBO, placebo; pt; patient; QD, once daily; SE, standard error; UC, ulcerative colitis; Wk, week

PP0784 Table. LS mean change from baseline in IBDQ total score and domains by prior bio/JAKi and baseline CS use (full analysis set).

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DTR: grant support: Takeda, Helmsley Charitable Trust and GastroIntestinal Research Foundation; consultancy fees/advisory boards: AbbVie, AltruBio, ASLAN Pharmaceuticals, Athos Therapeutics, Bellatrix Pharmaceuticals, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Chronicles, Syneos, ClostraBio, Connect Biopharma, EcoR1, Genentech/Roche, Gilead Sciences, Iterative Health, Janssen Pharmaceuticals, Kaleido Biosciences, Eli Lilly, Pfizer, Prometheus, Reistone, Seres Therapeutics, Takeda, Target RWE, Trellus Health; Board of Trustees: Crohn's & Colitis Foundation and Cornerstones Health, Inc; stock options: Alike Health, AltruBio, Datos Health, Iterative Health.

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MF, LB, JW: employees and shareholders of Pfizer Inc.

MG: employee & shareholder of Pfizer AG.

AB: employee of Pfizer Healthcare India & shareholder of Pfizer.

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PP0785

TARGET ENGAGEMENT AND PHARMACODYNAMIC MOLECULAR MECHANISM EVALUATION IN A PHASE 1B STUDY OF THE NUCLEOTIDE-BINDING OLIGOMERIZATION DOMAIN, LEUCINE RICH REPEAT CONTAINING X1 (NLRX1) AGONIST NX-13 IN ULCERATIVE COLITIS

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Introduction: Targeting mitochondrial function and oxidative stress is successful in animal models of IBD. NLRX1 is a mitochondrial associated protein upregulating mitochondrial metabolism: It reduces oxidative stress and decreases pro-inflammatory cell differentiation and cytokine release. NX-13 is a first-in-class, orally active, once-daily, gut-selective NLRX1 agonist with low systemic exposure in development for Ulcerative Colitis (UC). In three mouse models of IBD, NX-13 effectively activated NLRX1 to reduce inflammatory responses and disease severity.

In two phase 1 studies (56 healthy subjects; 38 UC patients) NX-13 was well tolerated. Low systemic drug exposure relative to stool levels suggested a gut-selective drug distribution. Phase 1B topline results were reported previously[1].

We now present data demonstrating target engagement and downstream effects consistent with the preclinical mechanism of action (MOA).

Aims & Methods: In this double-blind phase 1B trial, 36 patients with active UC (Total Mayo Score 4-10; Mayo endoscopic subscore 2-3) were randomly assigned to NX-13 250mg Immediate Release (IR), 500mg IR, 500mg Delayed Release (DR) or Placebo to be taken QD for 4 weeks. We report pharmacodynamic results based on expression of NLRX1 and downstream immunometabolic markers in colonic tissue samples collected at screening and week 4 of treatment. NLRX1 protein levels were measured by immunohistochemistry scored by a blinded pathologist, and immunometabolic markers were measured by qRT-PCR.

Results: All NX-13 treated groups showed target engagement through mean positive increases in NLRX1 expression versus placebo at week 4, with more pronounced upregulation observed in responding patients (Table 1A). Gene expression profiles after 4 weeks of treatment showed upregulation of the mitochondrial metabolism gene *MT-ND3,* with downstream reductions in *HIF1α* and *NLRP3* in the NX-13 IR groups but not in the placebo group (Table 1B).

NX-13 250mg IR dosed patients also displayed downstream decreases in *IL-17α* and *IL-1β* gene expression, and the 500mg IR group showed reduction in IL-1β. Changes in NLRX1 expression and immunometabolic markers correlated with clinical response to NX-13 and were numerically greater in responding IR-dosed patients compared to non-responding patients (Table 1).

A. Immunohisto-chemistry	Definition	Subgroup	Placebo (n=2)		NX-13 250mg IR (n=8)		NX-13 500mg IR (n=8)		NX-13 500mg DR (n=8)	
NLRX1 Composite Score Change from Baseline	Mean (Standard Error) of 4-point score accounting for NLRX1 intensity and number of positive cells in the epithelium and lamina propria	Responder	n/a	n/a	0.54	(0.36)	2.58	(0.46)	1.42	(0.68)
		Non-responder	-0.38	(0.38)	0.25	(0.25)	1.35	(0.84)	0.7	(0.76)
B. Gene Expression	Definition		Placebo (n=1)		NX-13 250mg IR (n=7)		NX-13 500mg IR (n=6)		NX-13 500mg DR (n=5)	
MT-ND3	Median (Interquartile Range) fold change over baseline expression	Responder	(n/a)	(n/a)	1.37	(1.2-1.54)	1.52	(1.14-1.90)	n/a	n/a
		Non-responder	0.71	(n/a)	0.86	(0.45-1.28)	1.04	(0.96-1.14)	0.76	(0.34-1.68)
HIF1α		Responder	(n/a)	(n/a)	0.74	(0.53-0.81)	0.83	(0.80-0.86)	n/a	n/a
		Non-responder	1.06	(n/a)	2.18	(1.07-3.29)	0.95	(0.55-1.5)	1.11	(0.69-2.50)
NLRP3		Responder	(n/a)	(n/a)	0.65	(0.58-0.88)	0.59	(0.56-0.62)	n/a	n/a
		Non-responder	1.26	(n/a)	1.89	(1.28-2.50)	0.92	(0.30-2.04)	1.35	(0.64-2.34)

PP0785 Table.

Conclusion: Treatment with NX-13 induced upregulation of its target, NLRX1, as well as downstream immunometabolic signaling consistent with preclinical MOA studies. Most importantly, target engagement parallels clinical benefit. This novel mechanism of action warrants further study and is currently being evaluated in a phase 2 proof of concept study (NCT05785715).

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PP0786

THE CLINICAL EFFICACY OF THE DOUBLE INTRAVENOUS INDUCTION TREATMENT OF USTEKINUMAB IN CHINESE PATIENTS WITH COMPLEX PERIANAL FISTULIZING CROHN'S DISEASE : A RETROSPECTIVE ANALYSIS

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Introduction: Our study aimed to retrospectively analyze the clinical efficacy of the double intravenous induction treatment of Ustekinumab (UST) in patients with complex perianal fistulizing Crohn's disease (PFCD).

Aims & Methods: From January 2022 to March 2023, a total of 60 complex PFCD patients were included by retrieving the clinical database of the Second Affiliated Hospital of Wenzhou Medical University. They received sufficient intravenous infusion of UST (6mg/kg) at weeks 0, 8 and subcutaneous injection of 90mg UST very 8 weeks for maintenance treatment. Perianal Disease Activity Index (PDAI) and Van Assche Index (VAI) were used to evaluate anal fistula outcome events, while Harvey Bradshaw Index (HBI) and Simplified Endoscopic Score of Crohn's disease (SES-CD) were employed to assess intestinal outcome events. We also evaluated the normalization rates of C-reactive protein (CRP≤5.0mg/L) and erythrocyte sedimentation rate (male ESR≤15mm/h, female ESR≤20mm/h), as well as the improvement of several nutritional indicators, including serum albumin (Alb), and hemoglobin (Hb).

Results: Compared with weeks 0, 8, and 16, respectively, the average PDAI score was significantly decreased at week 24 (all P<0.001). The clinical response rates of anal fistula at weeks 8, 16, and 24 were 41.67%, 55.00%, and 63.33%, respectively; the clinical remission rates of anal fistula were 21.67%, 31.67%, and 43.33%, respectively. Compared to week 0, the median VAI score was significantly reduced at week 24 (P<0.001). At week 24, the partial response rate and fistula healing rate of anal fistula imaging were 45.00% and 38.33%, respectively. Compared with weeks 0, 8, and 16, respectively, the median HBI score was significantly decreased at week 24 (all P<0.001). The intestinal clinical response rates at weeks 8, 16, and 24 were 53.33%, 70.00%, and 83.33%, respectively, while the intestinal

clinical remission rates were 41.67%, 61.67%, and 75.00%, respectively. Compared to week 0, the median SES-CD score was significantly reduced at week 24 (P<0.001). At week 24, the endoscopic response rate and endoscopic remission rate were 73.73% and 45.00%, respectively. Compared with weeks 0, 8, and 16, respectively, the median levels of CRP and ESR were significantly decreased at week 24 (all P<0.001). At weeks 8, 16, and 24, the normalization rates of CRP were 51.67%, 73.33%, and 78.33%, respectively, while the normalization rates of ESR were 43.33%, 58.33%, and 75.00%, respectively. Compared to week 0, the average levels of serum Alb (P=0.002) and Hb (P=0.048) were increased at week 24. At week 24, the endoscopic response rate was higher in the patients receiving first-line UST treatment than in those patients receiving non first-line UST treatment (P=0.013).

Conclusion: The double intravenous induction treatment of UST could effectively improve the clinical efficacy in complex PFCD patients. In addition, the efficacy of first-line UST in treating complex PFCD patients was better than that of non first-line UST treatment.

Disclosure: Nothing to disclose.

PP0787

THIOPURINES EXPOSURE IN-UTERO IS NOT ASSOCIATED WITH ABNORMAL HAEMATOLOGIC AND BIOCHEMICAL PARAMETERS IN INFANTS: A PICCOLO-X STUDY

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Introduction: Infant outcomes are favourable post in-utero exposure to thiopurines (TP), with no increase in infant infections or adverse growth and developmental outcomes[1-2]. However, infant thrombocytosis, anaemia, lymphopenia and liver function derangement have been observed in small studies[1,3,4]. We aimed to identify the frequency of and associations with these abnormalities in TP exposed infants and determine the clinical impact.

Aims & Methods: Infants born to participants in the multi-centre prospective PICCOLO-X study receiving TP were compared to infants exposed to biologic monotherapy (BM) in-utero. TP metabolites (6-thiogaunine (TGN) and 6-methylmercaptopurine (MMP)), liver function tests (LFT) and full blood examination (FBE) were taken from cord blood at delivery, and repeated at 6 weeks (6W). Abnormal parameters were repeated thereafter until normalization and infants reviewed by a paediatric gastroenterologist. Infants are followed for 2 years. TGN and MMP levels were assessed using high performance liquid chromatography. The lower limit for detection was 15 for TGN and 100pmol/8 x 10^8 RBCs for MMP. Age specific biochemical and haematological reference ranges were used.

Results: 78 TP and 52 BM infants (IFX 5, ADA 9, 23 UST and 15 VDZ) were included. Delivery outcomes were equivalent between the groups. TGN and MMP were undetectable at delivery in 6/55 and 47/55 respectively, and all tested cleared both at 6W (n=44). The median delivery infant:maternal TGN and MMP ratios were 0.38 (IQR 0.24-0.50, n=49) and 0.18 (0.05-0.45, n=8). Thrombocytosis was seen in 80% (62/77) of all infants at 6W and 77% (49/64) at 3 months (3M). Elevated ALT was seen in >50% of infants at 3M and 6 months (6M), and anaemia in 12% (8/67) at delivery. There was no increased risk of thrombocytosis or transaminitis in TP exposed infants vs controls (Table). Maternal TP shunting (RR 2.06, 95% CI 1.33-3.18, p<0.01) and MMP (coef. 0.03, 0.02) at delivery and preceding infection (RR 1.65, 1.01-2.70, 0.05) were associated with increasing ALT at 6W, as were preceding infection and elevated ALT (1.25, 1.14-1.37, <0.01) and ALP (1.89, 1.49-2.40, <0.01) at 3M. Vaccination prior to bloods increased the risk of elevated ALP at 6W (1.87, 1.11-3.13, 0.02). Neutropenia risk was increased in those with preceding infection (1.94, 1.05-3.59, 0.04) and vaccination (6.33, 1.09-36.83, <0.04) at 3M. Neutropenia at 6W was associated with an increased risk of infection at 3M (4.89, 1.64-14.57, <0.01). Maternal CRP in trimester 2 was associated with increasing ALT at 6W (coef. 0.7, 95% CI 0.4-1.0, p<0.01), 3M (1.6, 1.2-2.1, <0.01) and 6M (1.6, 1.2-2.0, <0.01), as was maternal calprotectin in trimester 3 and infant 6W platelets (0.08, 0.02-1.5, <0.01). There was no increased risk of infection, chronic disease, allergy or growth <10^{th} percentile in TP vs BM exposed infants at 6W, 3M and 6M.

Infant outcome	Time-point	Thiopurines (%, n)	Biologic monotherapy (%,n)	Relative risk (95%) p, univariate binary regression	Adjusted coefficient (95%CI) p, Ordinary multivariate linear regression
Thrombocytosis/ Platelet count	6 weeks	80.7 (42/52)	80 (20/25)	1.01 (0.80 – 1.28) 0.93	38.3 (-330.2-406.7) 0.76
	6 months	59.5 (22/37)	62.5 (10/16)	0.95 (0.60-1.51) 0.83	360.8 (-370.8-1092.4) 0.24
Neutropaenia/ neutrophil count	3 months	2.94 (1/33)	26.3 (5/19)	0.11 (0.01-0.89) 0.04	1.82 (-4.02-7.67) 0.39
Elevated ALT/ ALT level	6 weeks	51.9 (28/54)	50 (13/26)	1.04 (0.65-1.65) 0.88	14.3 (-66.2-94.8) 0.67
	6 months	18.2 (6/33)	7.14 (1/14)	2.55 (0.37-19.24) 0.37	22.7 (-599.1-644.5) 0.89
Elevated ALP/ALP count	3 months	12.5 (5/40)	40 (8/20)	0.3 (0.11-0.83) 0.02	-71.9 (-317.1-173.3) 0.46
Anaemia/ Haemaglobin	Delivery	11.7 (6/51)	12.5 (2/16)	0.94 (0.21-4.21) 0.94	-36.5 (-91.7-18.3 0.2

Conclusion: Abnormal biochemical and haematologic outcomes were seen in infants born to women with IBD, but not more commonly in those exposed to TP in-utero, and with favourable clinical outcomes. Abnormalities were associated antenatal maternal inflammation, altered maternal thiopurine metabolism and preceding infant infection and vaccination.

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PP0788

EFFICACY AND SAFETY OF ETRASIMOD IN PATIENTS WITH AND WITHOUT CONCOMITANT CORTICOSTEROID TREATMENT IN THE PHASE 3 ELEVATE UC 52 AND ELEVATE UC 12 TRIALS

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Introduction: Etrasimod is an investigational, oral, once-daily, selective sphingosine 1-phosphate $(S1P)_{1,4,5}$ receptor modulator in development for the treatment of moderately to severely active ulcerative colitis (UC).

Aims & Methods: We report efficacy and safety of etrasimod in patients (pts) with/without concomitant corticosteroid (CS) use at baseline (BL) of the ELEVATE UC phase 3 trials. In ELEVATE UC 52 (NCT03945188) and ELEVATE UC 12 (NCT03996369), pts with moderately to severely active UC were randomised 2:1 to once-daily etrasimod 2 mg or placebo (PBO). ELEVATE UC 52 used a treat-through design with a 12-week (wk) induction period followed by a 40-wk maintenance period. ELEVATE UC 12 had a 12-wk induction period. At entry, pts were permitted to receive oral concomitant CS (prednisone [≤ 20 mg/day], budesonide [≤ 9 mg/day], or equivalent]) if on a stable dose for ≥ 4 wks prior to screening endoscopy; from Wk 12 CS tapering was recommended. Primary and secondary efficacy endpoints (defined in Table) and safety were assessed by BL concomitant CS status.

Results: In ELEVATE UC 52, 32.2% (93/289) and 29.2% (42/144) of etrasimod- and PBO-treated pts, respectively, were receiving CS at BL. In ELEVATE UC 12, 27.3% (65/238) and 29.3% (34/116) of etrasimod- and PBO-treated pts were receiving CS at BL.

Among pts receiving CS at BL in ELEVATE UC 52, a higher proportion of etrasimod- vs PBO-treated pts achieved the endpoint of clinical remission (CR) at Wk 12 ($p<0.05$) and Wk 52 ($p<0.001$); this was also observed in pts not receiving CS at BL ($p<0.001$ at Wks 12 and 52; Table). In ELEVATE UC 12, a higher observed proportion of etrasimod- vs PBO-treated pts receiving CS at BL achieved CR at Wk 12 ($p>0.05$); a significant difference was observed in pts not receiving CS at BL ($p<0.01$).

In both studies, similar results were observed across all secondary endpoints, with greater differences between etrasimod and PBO seen in pts not receiving CS at BL (Table). Across both ELEVATE trials, there were fewer

	ELEVATE UC 52 Week 12		ELEVATE UC 52 Week 52		ELEVATE UC 12 Week 12	
	CS at BL	no-CS at BL	CS at BL	no-CS at BL	CS at BL	no-CS at BL
Clinical remission,[a] n/N (%)[b]						
PBO	7/42 (16.7)	5/102 (4.9)	4/42 (9.5)	7/102 (6.9)	7/34 (20.6)	10/82 (12.2)
Etrasimod	30/93 (32.3)	51/196 (26.0)	29/93 (31.2)	65/196 (33.2)	19/65 (29.2)	43/173 (24.9)
Diff. % (95% CI)[c]	16.03 (1.08, 30.98)	22.70 (15.27, 30.13)	21.72 (8.82, 34.62)	26.72 (18.53, 34.92)	8.53 (-8.64, 25.71)	13.19 (3.78, 22.60)
p[c]	0.036	<0.001	<0.001	<0.001	0.330	0.006
Endoscopic improvement,[d] n/N (%)[b]						
PBO	12/42 (28.6)	12/102 (11.8)	9/42 (21.4)	10/102 (9.8)	11/34 (32.4)	11/82 (13.4)
Etrasimod	38/93 (40.9)	70/196 (35.7)	36/93 (38.7)	77/196 (39.3)	22/65 (33.8)	56/173 (32.4)
Diff. % (95% CI)[c]	12.25 (-4.73, 29.23)	25.52 (16.25, 34.80)	17.15 (1.55, 32.74)	29.96 (21.04, 38.88)	1.40 (-17.69, 20.49)	19.43 (9.41, 29.46)
p[c]	0.157	<0.001	0.031	<0.001	0.886	<0.001
Symptomatic remission,[e] n/N (%)[b]						
PBO	13/42 (31.0)	19/102 (18.6)	9/42 (21.4)	19/102 (18.6)	14/34 (41.2)	20/82 (24.4)
Etrasimod	42/93 (45.2)	92/196 (46.9)	37/93 (39.8)	90/196 (45.9)	29/65 (44.6)	85/173 (49.1)
Diff. % (95% CI)[c]	14.47 (-2.68, 31.62)	28.68 (18.22, 39.14)	18.01 (2.28, 33.74)	28.15 (17.92, 38.38)	3.23 (-16.61, 23.08)	25.58 (13.73, 37.42)
p[c]	0.098	<0.001	0.025	<0.001	0.750	<0.001
Endoscopic improvement, histological remission,[f] n/N (%)[b]						
PBO	5/42 (11.9)	4/102 (3.9)	7/42 (16.7)	8/102 (7.8)	5/34 (14.7)	5/82 (6.1)
Etrasimod	20/93 (21.5)	46/196 (23.5)	24/93 (25.8)	55/196 (28.1)	10/65 (15.4)	31/173 (17.9)
Diff. % (95% CI)[c]	10.28 (-2.99, 23.55)	20.11 (12.77, 27.45)	8.15 (-6.32, 22.61)	21.10 (12.97, 29.23)	0.68 (-13.53, 14.89)	12.17 (4.48, 19.86)
p[c]	0.129	<0.001	0.270	<0.001	0.926	0.002
Clinical response,[g] n/N (%)[b]						
PBO	19/42 (45.2)	33/102 (32.4)	13/42 (31.0)	22/102 (21.6)	18/34 (52.9)	30/82 (36.6)
Etrasimod	63/93 (67.7)	119/196 (60.7)	43/93 (46.2)	100/196 (51.0)	38/65 (58.5)	113/173 (65.3)
Diff. % (95% CI)[c]	22.86 (5.21, 40.51)	28.56 (17.03, 40.10)	15.25 (-1.74, 32.23)	30.17 (19.62, 40.71)	5.32 (-15.06, 25.70)	29.85 (17.40, 42.29)
p[c]	0.011	<0.001	0.079	<0.001	0.609	<0.001

Data in bold indicate significant *p* values. All data shown refer to the full analysis set (MMS 4–9) with CS at baseline (CS at BL) or no CS at baseline (no-CS at BL)

[a]Clinical remission, the primary efficacy endpoint, was defined as SFS=0 (or =1 with a ≥ 1-point decrease from baseline), RBS=0, and ES ≤ 1 (excluding friability)

[b]Percentages are based on N, the number of patients in the subgroup in the analysis set by treatment, patients missing an assessment at the specified analysis visit are considered non-responders

[c]Difference is for etrasimod minus placebo and is based on estimated common risk difference using the Mantel-Haenszel weights; *p*-value is 2-sided to test the hypothesis of the risk difference being 0

[d]Endoscopic improvement (key secondary efficacy endpoint) was defined as an ES ≤ 1 (excluding friability)

[e]Symptomatic remission (key secondary efficacy endpoint) was defined as SFS=0 (or =1 with a ≥ 1-point decrease from baseline) and RBS=0

[f]Endoscopic improvement , histological remission (key secondary efficacy endpoint) was defined as ES ≤ 1 (excluding friability) with histologic remission measured by a Geboes Index score < 2.0

[g]Clinical response (other secondary efficacy endpoint) was defined as a ≥ 2-point and ≥ 30% decrease from baseline in MMS, and a ≥ 1-point decrease from baseline in RBS or an absolute RBS ≤ 1

BL, baseline; CI, confidence interval; CS, corticosteroid; ES, endoscopic subscore; Etra, etrasimod; MMS, modified Mayo score; N, the number of patients in the subgroup in the analysis set by treatment; n, number of responding patients; PBO, placebo; RBS, rectal-bleeding subscore; SFS, stool-frequency subscore; UC ulcerative colitis

PP0788 Table. Efficacy at Wk 12 and Wk 52 in patients with and without CS use at baseline in the ELEVATE UC 52 and UC 12 phase 3 trials.

serious adverse events and serious infections in the etrasimod arm in pts with CS at BL, than in those without CS at BL. In the PBO arms, the opposite was true.

Conclusion: Regardless of concomitant CS use at BL, etrasimod generally demonstrated efficacy at Wks 12 and 52, with greater treatment effect seen in pts without CS use at BL. No additional safety signal was apparent when etrasimod was initiated in combination with CS compared to without CS.

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PP0789

ETRASIMOD INDUCTION THERAPY IN MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE: RESULTS FROM A PHASE 2, RANDOMISED, DOUBLE-BLIND SUBSTUDY

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Introduction: Etrasimod is an investigational, once-daily (QD), oral, selective sphingosine 1-phosphate $(S1P)_{1,4,5}$ receptor modulator in development to treat immune-mediated inflammatory disorders. CULTIVATE (NCT04173273) is a seamless phase 2/3 trial comprising 5 substudies designed to evaluate the efficacy, safety and tolerability of etrasimod in patients with moderately to severely active Crohn's disease (CD).

Aims & Methods: Here, we report the induction data from the first substudy (Substudy A). Substudy A was a phase 2, randomised, double-blind study using a 14-week induction period followed by a 52-week extension period. Adults (18–80 years) with moderately to severely active CD and an inadequate response, loss of response or intolerance to ≥1 conventional or advanced treatments for CD were randomised 1:1 to etrasimod 2 or 3 mg QD. Patients were stratified by baseline biologic failure status and oral corticosteroid use. The primary efficacy endpoint was achievement of endoscopic response (defined as endoscopic remission [SES-CD ≤4 and ≥2-point reduction from baseline with no subscore >1] or ≥50% decrease in SES-CD score) at Week 14. Secondary/exploratory endpoints included achievement of endoscopic remission, clinical remission (CDAI <150) and IBDQ remission (IBDQ ≥170), at Week 14. Outcomes were analysed in the full analysis set (all randomised patients treated with ≥1 dose of etrasimod) using non-responder imputation or observed data.

Results: Of 83 patients randomised to either etrasimod 2 or 3 mg QD, 32/42 (76.2%) and 36/41 (87.8%) completed Week 14, respectively. Overall, 21.4% and 9.8% of patients receiving etrasimod 2 and 3 mg QD, respectively, achieved the primary endpoint of endoscopic response, 14.3% and

7.3% achieved endoscopic remission, 31.0% and 43.9% achieved clinical remission, and 33.3% and 40.0% achieved IBDQ remission at Week 14. Most TEAEs were mild or moderate. The incidence of serious TEAEs (4.8% and 2.4%) and TEAEs leading to discontinuation (4.8% and 7.3%) was low with etrasimod 2 and 3 mg QD, respectively (Table). Two patients randomized to etrasimod 3 mg QD experienced second-degree atrioventricular block type I TEAEs (one patient during 2-mg titration).

Baseline demographics and clinical characteristics	Etrasimod 2 mg QD (N=42)	Etrasimod 3 mg QD (N=41)
Age, mean (SD), years	38.3 (12.6)	40.8 (14.0)
Female, n (%)	22 (52.4)	19 (46.3)
Extent of CD, n (%)		
Ileal disease	7 (16.7)	12 (29.3)
Colon	13 (31.0)	10 (24.4)
Both	22 (52.4)	19 (46.3)
CDAI, mean (SD)	330.6 (80.7)	303.5 (60.2)
SES-CD, mean (SD)	13.4 (7.7)	11.2 (7.4)
Prior oral or intravenous corticosteroids, n (%)	36 (85.7)	32 (78.0)
No. of prior biologic therapies, n (%)		
0	18 (42.9)	16 (39.0)
1	12 (28.6)	8 (19.5)
2	4 (9.5)	6 (14.6)
>3	8 (19.0)	11 (26.8)
% achieving response	Etrasimod 2 mg QD (N=42)	Etrasimod 3 mg QD (N=41)
Endoscopic response[a]	21.4	9.8
Endoscopic remission[b]	14.3	7.3
Clinical remission[c]	31.0	43.9
IBDQ remission[d]	33.3	40.0
Safety events, n (%)[e]	Etrasimod 2 mg QD (N=42)	Etrasimod 3 mg QD (N=41)
Any TEAE	29 (69.0)	35 (85.4)
Any serious TEAE	2 (4.8)	1 (2.4)
TEAEs leading to study discontinuation	2 (4.8)	3 (7.3)
TEAEs leading to study interruption	5 (11.9)	2 (4.9)
Deaths	0	0
Infections and infestations	7 (16.7)	13 (31.7)
Most frequently reported TEAEs		
Headache	5 (11.9)	8 (19.5)
Arthralgia	4 (9.5)	8 (19.5)
Fatigue	4 (9.5)	4 (9.8)
TEAEs of special interest		
Severe infections (≥ CTCAE Grade 3)	0	0
Opportunistic infections[f]	0	0
Herpes zoster	0	0
Macular oedema	0	0
Cardiovascular events		
Bradycardia	0	0
First-degree AV block	1 (2.4)[g]	1 (2.4)[h]
Second-degree AV block, Mobitz type I	0	2 (4.9)[h,i]
Hypertension	1 (2.4)	0

[a]Endoscopic response is defined as endoscopic remission or ≥50% decrease in SES-CD score (non-responder imputation)
[b]Endoscopic remission is defined as SES-CD ≤4 and ≥2-point reduction from baseline with no subscore >1 (non-responder imputation)
[c]Clinical remission is defined as CDAI <150 (non-responder imputation)
[d]IBDQ remission is defined as IBDQ ≥170 (as observed)
[e]Subjects assigned to the 3 mg QD group received etrasimod 2 mg QD during the first week
[f]MedDRA version 24.1 System Organ Class and Preferred Terms. Opportunistic infections were identified using SMQ Opportunistic infection (narrow scope)
[g]One patient randomised to the 2 mg group had an asymptomatic first-degree AV block on Day 1
[h]One patient in the 3 mg group had both an asymptomatic second-degree AV block type I (on day 7 following 3-mg dose escalation) and an asymptomatic first-degree AV block (second week)
[i]One patient in the 3 mg group had a symptomatic second-degree AV block type I (during 2-mg titration)
AV, atrioventricular; CD, Crohn's disease; CDAI, Crohn's Disease Activity Index; CTCAE, Common Terminology Criteria for Adverse Events version 5; IBDQ, Inflammatory Bowel Disease Questionnaire; MedDRA, Medical Dictionary for Regulatory Activities; N, total number of patients; n, number of patients with evaluable data within each category; QD, once daily; SD, standard deviation; SES-CD, Simple Endoscopic Score for Crohn's Disease; SMQ, Standardised MedDRA Queries; TEAE, treatment-emergent adverse event

Table. Baseline demographics and clinical characteristics, proportions of patients achieving endoscopic remission, endoscopic response, and clinical remission at Week 14 (full analysis set), and overall summary of safety data (safety set).

Conclusion: Data from this substudy of patients with moderately to severely active CD suggest endoscopic and clinical improvement with both etrasimod 2 and 3 mg QD. However, the small sample size and lack of a placebo arm limit the ability to draw conclusions about efficacy, including comparison between the etrasimod 2 and 3 mg groups. Both doses were well tolerated, and safety was consistent with other etrasimod clinical programmes. Data from the extension phase of Substudy A and the placebo-controlled, dose-ranging phase 2b Substudy 1 are forthcoming.

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PP0790

THE EFFECTIVENESS AND SAFENESS OF ALLOGENEIC MESENCHYMAL STROMAL CELLS OF BONE MARROW IN PATIENTS WITH REFRACTORY CROHN'S DISEASE - 10 YEARS OF OBSERVATION

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Introduction: Crohn's disease (CD) is a chronic inflammatory disease of the gastrointestinal tract with recurrent nature of the flow. The frequency of exacerbations is approximately 20-25% at 1 year and 75% for 3 years. If the remission lasted less than 12 months, there is a 65% chance that the aggravation comes in the next 18 months. For the duration of remission for 12 months or more the likelihood of an explosion in the next 18 months is reduced to 20%.

Aims & Methods: To evaluate the influence of culture of allogeneic mesenchymal stromal cells (MSCs) of bone marrow for the duration of remission in patients with refractory CD.

Materials and Methods. The first group of patients with CD (n=30) received MSCs, the dose of prednisone was not more than 20 mg/day. The second group of patients (n=30) received standard anti-inflammatory drug therapy of 5-aminosalicylic acid (5-ASA) and glucocorticosteroids (GCS). Age of patients ranged from 19 to 49 years (Me-36 years). The disease was of moderate and high activity, length of damage - ileokolit, ileitis and colitis, the observation time ranged from 68 to 118 months. Clinical activity was assessed by the Crohn's disease activity index (CDAI). The culture of allogeneic MSCs injected drip at 2.5 million per 1 kg of body weight (0-1-26-52 weeks and twice a year).

Results: CDAI in the 1-st group was 242,6±11,7 points, in the 2-nd 240,9±12,9 points (p=0,83), CRP levels in 1-st group was 29,3±6.4 mg/l, the 2-nd - 27,8±4,8 (p=0,47). After 1 year of follow-CDAI in 1-st group was 70,0±11,0 points, in the 2-nd - 133,8±22,2 points (p<0,001), CRP levels in 1-st group was 6,36±1,5 mg/l, in the 2-nd - 12,2±2,9 (p<0,001). After 5 years - the CDAI in 1-st group - 120,0±22,3 points, in the 2-nd - 208,7±17,6 points (p<0,001), CRP levels in 1-st group - 11,3±2,6 mg/l, in the 2-nd - 15,5±2,4 (p<0,001). After 10 years - the CDAI in 1-st group - 126,0±23,8 points, in the 2-nd - 248,7±14,6 points (p<0,001), CRP levels in 1-st group was 12, 3±2,8 mg/l, in the 2-nd - 19,5±3,1 (p <0,001). In the first group of patients in remission after 1, 5 and 10 years was kept at 70%, 46.7% and 43.3%, respectively. In the second group of patients at 1, 5 and 10 year remission was maintained at 36.6%, 6.67% and 6.67%, respectively.

Conclusion: Transplantation of MSCs contributes to longer-term clinical and endoscopic remission in patients with refractory Crohn's disease compared with therapy with corticosteroids.

Disclosure: Nothing to disclose.

PP0791

TREATMENT OF BONE MARROW MESENCHYMAL STROMAL CELLS REDUCES THE ACTIVITY ANKYLOSING SPONDYLITIS ASSOCIATED WITH CROHN'S DISEASE

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Introduction: To compare the efficacy of therapy mesenchymal stromal cells (MSCs), bone marrow, and the standard anti-inflammatory therapy in the extra-intestinal manifestations (sacroiliitis and ankylosing spondylitis) in patients with Crohn's disease (CD).

Aims & Methods: 34 CD patients with extraintestinal manifestations (ankylosing spondylitis and sacroiliitis, are not related to the activity of Crohn's disease) were divided into two groups. The first group of patients aged 18 to 58 years (Me-34) (n=16) received MSCs culture scheme (0-1-2-3, then every 26 weeks). The second group of patients with CD (n=18) aged 20 to 60 years old (Me-28) received standard anti-inflammatory therapy with glucocorticosteroids (GCS) and immunosuppressive (IS). Evaluation of efficacy was conducted on the level of activity of inflammation (CRP, thrombocytosis) and ankylosing spondylitis activity index (BASDAI) were performed at 12, 25 and 52 weeks of therapy.

Results: Among the patients in Group 1 reduction in the activity of the AS after 12 weeks of observation occurred in 4/16 patients (25.9%). In group 2, a decrease in activity of the AS occurred in 5/18 (27.7%) (p=0.83).

After 26 weeks in patients (group 1) receiving MSCs, reducing the activity of the AS occurred in 10/16 (62.5%). In group 2, a decrease in activity of the AS occurred in 5/18 (27.7%) (p=0.044).

After 52 weeks in group 1 patients the minimal activity of the AS persisted in 10/16 (62.5%) patients with CD. In group 2, there was increased activity of the AS in one patient 4/18 (22.2%) (p=0.042).

Conclusion: MSCs transplantation can reduce the activity of the AS associated with Crohn's disease compared to standard anti-inflammatory GCS/IS therapy.

Disclosure: Nothing to disclose.

PP0792

SUSTAINABILITY OF BIOLOGIC TREATMENT IN PAEDIATRIC PATIENTS WITH CROHN'S DISEASE: ANALYSIS BASED ON THE CZECH NATIONAL REGISTRY

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Introduction: The predictors of sustainability of biologic drugs in paediatric patients with Crohn's disease (CD) remain unknown.

Aims & Methods: We aimed to evaluate the predictors of sustainability of biologic drugs for paediatric patients with Crohn's disease (CD). The Czech National Prospective Registry of Biologic and Targeted Therapy of Inflammatory Bowel Disease (CREdIT) was used to identify the biologic treatment courses in paediatric patients with CD. Mixed-effects Cox models and propensity score analyses were used to identify associations between predefined predictors and treatment sustainability.

Results: Among the 558 observations of 473 paediatric CD patients, 264 were treated with adalimumab (47%), 240 with infliximab (43%), 41 with ustekinumab (7%), and 13 with vedolizumab (2%). On multivariable analysis, patients treated with infliximab had a higher risk of discontinuation than those treated with adalimumab (HR=0.640, 95%CI 0.412-0.993) in the whole group, as well as among patients who received first-line treatment (HR=0.575, 95%CI 0.360-0.919). Propensity-score analysis also showed lower sustainability (HR=0.563, 95%CI 1.159-2.725) and a shorter time to escalation (HR=0.095, 95%CI 0.044-0.202) with infliximab as compared to adalimumab. The time since diagnosis (HR=0.828, 95%CI 0.762-0.901) and baseline haemoglobin level (HR=1.019, 95%CI 1.006-1.033) were also predictors of sustainability. In patients receiving infliximab, baseline immunosuppressive therapy prolonged sustainability (HR=2.976, 95%CI 1.342-6.579).

Conclusion: Given the results suggesting shorter sustainability, the need for earlier intensification and thus higher drug exposure, and the greater need for immunosuppression with infliximab than with adalimumab, the choice of these drugs cannot be considered completely equitable. Furthermore, it should be emphasised that the initiation of biological therapy should not be delayed.

References: Given the results suggesting shorter sustainability, the need for earlier intensification and thus higher drug exposure, and the greater need for immunosuppression with infliximab than with adalimumab, the choice of these drugs cannot be considered completely equitable. Furthermore, it should be emphasised that the initiation of biological therapy should not be delayed.

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PP0793

SERIAL FECAL MICROBIOTA INFUSIONS BY COLONOSCOPY FOR ACTIVE ULCERATIVE COLITIS: A FEASIBILITY, SAFETY AND TRANSLATIONAL MONOCENTRIC ITALIAN STUDY

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Introduction: The effectiveness of fecal microbiota transplantation (FMT) in Ulcerative colitis (UC) remains unclear, with significant differences in protocols and procedures among clinical trials (1).

Aims & Methods: This study aimed to investigate the feasibility and effectiveness of a FMT protocol with close infusions in patients with active UC, also exploring the microbial modulation underlying its therapeutic efficacy.

In this prospective cohort study, subjects with mild-to-moderately active UC received three consecutive fecal infusions by colonoscopy, at baseline, T1 (2 weeks) and T2 (6 weeks) respectively. Faeces were collected by the donor on the day of the infusion and processed within 6 hours. A control population with the same baseline features undergoing Infliximab treatment was enrolled.

Primary outcomes were the number of adverse events and the compliance rate. Secondary outcomes were: clinical remission; clinical response; endoscopic remission; microbial differences.

Results: Nineteen patients with mild-to-moderately active UC were enrolled.

During the protocol, 2 patients dropped out because of disease worsening and 1 patients dropped out because of hospitalization due to nephrolithiasis.

Clinical response was obtained in 6 of 16 patients at week-2 (PP=37%; ITT=31%), in 8 of 16 at week-6 (PP=50%; ITT=42%), and in 9 at week-12 (PP=56%; ITT=47%). Clinical response was maintained in 8 patients at week 24 (PP=50%; ITT=42%). Clinical remission was achieved in 4 subjects at week-2, in 5 at week-6 (PP=31%; ITT=26%), and in 5 at week-12 (PP=31%; ITT=26%). Endoscopic remission at week 12 was reached in 6 patients (PP=37%; ITT=31%). In the control population, 13 of 19 patients achieved clinical response at week 6 and 10 of 19 patients maintained clinical response after 6 months.

During the time course, the microbiota richness was higher in responders compared with the non-responders. *Peptostreptococcus*, *Lactobacillus* and *Veillonella* were higher in non-responders while *Parabacteroides*, *Bacteroides*, *Faecalibacterium* and *Akkermansia* were higher in responders in all time points.

Conclusion: Serial FMT infusions appear to be feasible, safe, and able to provide a considerable clinical and microbial response in UC patients. In particular, the comparison with patients under biologic therapy suggests a potential role in maintaining clinical response or enhancing maintenance. Gut microbiota profiling highlighted the role of specific intestinal bacteria in predicting both negative and positive response to FMT.

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PP0794

COST AND CONVENIENCE: MAJOR DRIVERS OF PATIENT PREFERENCE ON ROUTE OF BIOLOGIC ADMINISTRATION

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Introduction: Subcutaneous (SC) Infliximab (IFX) is non-inferior to intravenous (IV) IFX, for maintenance of remission in inflammatory bowel disease (IBD) (1). There are limited data on factors affecting the decisions of patients who choose SC administration of biologics (2, 3). Our centre offered suitable patients SC IFX from November 2022.

Aims & Methods: (1) Determine disease-related, economic, social and personal factors that affect the decision of a patient with IBD to transition from IV to SC administration of IFX.

(2) Assess effects of SC administration on pharmacokinetics and disease control. Participants completed a questionnaire on their IBD history, personal and financial circumstances, and reasons for electing or declining to transition. Clinical and biochemical data were retrieved from the electronic patient record (EPR). A bivariable logistic regression model was used to determine factors associated with electing to transition.

Results: 144 patients were offered the opportunity to transition during the study period. 80 (55.5%) agreed to transition, 64 (44.5%) declined. 101 patients (70.1%) agreed to participate in the study. 59.4% were male, 67.3% had Crohn's disease. Age ranged was 18-82 (median 41) years. Infusion frequency was every 4 (9.8%), 6 (22.8%), 7 (2.0%), or 8 weeks (65.4%). 76% were employed/self-employed, 41.6% had a medical card and 44.6% had private health insurance. Median (IQR) travel time was 90 mins (40, 130). 48 patients (47.5%) reported that they missed school/work for their infusions. At baseline, median (IQR) laboratory results were CRP 1.2mg/L (0.6, 2.7), IFX trough 7.4mg/mL (4.9, 11.8), faecal calprotectin 39 mg/g (10, 98), IBD-Control 14 (13, 16). 8 weeks after first SC dose, median (IQR) results (n=36) were CRP 1.1mg/L (0.8, 2.0) IFX trough 17.8mg/mL (12.5, 21.4), IBD-Control 16 (14, 16). The strongest reasons to transition (% agree/ strongly agree on five-point Likert) were, "I want to transition because it will…"

(1) reduce my travel time (94.5%),

(2) fit my work/life balance better (87.3%) and

(3) reduce my time away from work/school (74.5%). The strongest reasons against transition were,

(1)I would miss having my bloods checked regularly (84.8%),

(2) I feel safer attending the infusion unit (80.4%),

(3) I would not be able to voice concerns about my treatment as easily (80.4%) and

(4) I would miss regular contact with a healthcare professional (69.6%). Table 1 shows results of binary logistic regression used to determine factors associated with the likelihood of electing to transition.

Variable	OR	p
Age (years)	1.01	0.06
Sex (male = 1)	0.82	0.70
IBD Type (CD = 1)	0.65	0.46
Medical Card	2.88	0.13
Health Insurance	0.33	0.05
Drug Payment Scheme	4.99	0.03
Travel Time	1.01	0.22
IBD Control	1.01	0.85
Missing School/Work for Infusion	3.78	0.04

Conclusion: SC IFX is safe, effective and well-tolerated by those who choose to transition. It is attractive to many patients, because attending for IV infusions can interrupt their employment, education and family life, but cost is a significant barrier for some patients. IBD teams must be adequately resourced to assure patients who transition that they will continue to have ready access to high-quality medical care and disease monitoring. Discrepancies in healthcare markets may provide a perverse incentive to continue receiving IV biologic, for those who would prefer SC.

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PP0795

ASSOCIATION BETWEEN EFFICACY AND LONG-TERM OUTCOMES: FOUR YEAR RESULTS FROM THE UNIFI STUDY OF USTEKINUMAB IN ULCERATIVE COLITIS

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Introduction: In the UNIFI study of ustekinumab (UST) for ulcerative colitis (UC), patients (pts) who achieved both histologic and endoscopic improvement of the mucosa (histo-endoscopic mucosal improvement [HEMI]) after induction with UST followed by maintenance had higher rates of clinical remission at 1 year and symptomatic remission at 3 years than those with histologic or endoscopic improvement alone.[1,2]

Here we present long-term outcomes for pts who achieved symptomatic remission after induction with intravenous (IV) UST with or without HEMI.

Aims & Methods: In UNIFI, pts were randomised to IV UST (130 mg or ~6 mg/kg/body weight) or placebo (PBO). Patients who were in clinical response 8 weeks (w) following IV induction with UST were randomized to subcutaneous (SC) UST 90 mg q12w or q8w or SC PBO maintenance. At the discretion of the investigator, enrolment in this long-term extension study was optional for pts who completed 44w on maintenance. HEMI was defined as having both histologic improvement (<5% neutrophils in the epithelium, no crypt destruction, and no erosions, ulcerations, or granulations) and endoscopic improvement (Mayo endoscopic subscore of 0 or 1). Symptomatic remission was defined as a stool frequency subscore of 0 or 1 and a rectal bleeding subscore of 0. Efficacy 8w after IV induction was categorized as 1) disease clearance (achieving both HEMI and symptomatic remission), 2) symptomatic remission without HEMI, or 3) neither symptomatic remission nor HEMI. Time to treatment failure (UC-related surgery or hospitalization, adverse event of UC, or discontinuation of study agent due to an adverse event of worsening UC or lack of efficacy) was compared between cohorts by using a log-rank test.

Results: Eight weeks after IV induction, 79 pts achieved disease clearance, 142 pts achieved symptomatic remission but not HEMI, and 82 pts did not achieve symptomatic remission nor HEMI. Proportions of pts in symptomatic remission were highest for those who were in disease clearance after induction through 200 weeks (~4 years) of UST treatment (Table). The time to treatment failure was longer in pts with disease clearance than pts in symptomatic remission without HEMI (p=0.004), and in pts in symptomatic remission without HEMI than pts with neither symptomatic remission nor HEMI (p=0.043).

Conclusion: Patients with disease clearance 8w after IV induction had greater long-term symptomatic remission outcomes and longer time to treatment failure than those with symptomatic remission without HEMI or those with neither symptomatic remission nor HEMI after induction.

	Disease clearance	Symptomatic remission without HEMI	Neither symptomatic remission nor HEMI
Number of pts	79	142	82
Week 44			
Symptomatic remission	63 (79.7%)	98 (69.0%)	35 (42.7%)
CS-free symptomatic remission	60 (75.9%)	97 (68.3%)	34 (41.5%)
Week 92			
Symptomatic remission	63 (79.7%)	100 (70.4%)	41 (50.0%)
CS-free Symptomatic remission	60 (75.9%)	98 (69.0%)	39 (47.6%)
Week 152			
Symptomatic remission	60 (75.9%)	78 (54.9%)	32 (39.0%)
CS-free Symptomatic remission	57 (72.2%)	76 (53.5%)	31 (37.8%)
Week 200			
Symptomatic remission	58 (73.4%)	76 (53.5%)	37 (45.1%)
CS-free Symptomatic remission	56 (70.9%)	74 (52.1%)	35 (42.7%)

CS=corticosteroid; HEMI=histo-endoscopic mucosal improvement; IV=intravenous; SC=subcutaneous.

Table: Symptomatic remission through 4 years in pts receiving SC maintenance ustekinumab among those with disease clearance, symptomatic remission without HEMI, or neither symptomatic remission nor HEMI 8 weeks after IV ustekinumab induction.

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PP0796

DFL23806, A SELECTIVE AGONIST OF GPR120, DISPLAYS UNIQUE PHARMACOLOGICAL POTENTIAL AND INHIBITS ACUTE AND CHRONIC COLITIS IN MURINE MODELS

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Introduction: No single pharmacological approach is currently available for the treatment of inflammatory bowel disease (IBD) in active and maintenance stages. As evidence is growing on the immuno-modulatory activities of the G-protein coupled receptor GPR120 and on its role in modulating the pathophysiology of IBD, its potential as a therapeutic target for this disease is worthy of exploration.

Aims & Methods: Herein, we have developed DFL23806, a new GPR120 selective small molecule agonist, and propose it as a potential therapeutic approach for IBD. We employed our in-house proprietary Exscalate platform for molecular docking simulations to define the site and mode of binding of the compound with the receptor and used *in vitro* studies and *in vivo* models (murine dextran sodium sulfate (DSS)-induced acute and chronic colitis and 2,4,6-trinitrobenzene sulfonic acid (TNBS)-induced chronic colitis models) to characterize the mechanism of action of our molecule and evaluate its therapeutic effects.

Results: DFL23806 is a selective agonist of human and mouse GPR120 that can activate both the G-protein dependent and independent signaling (β-arrestin pathway) of the receptor. DFL23806 has been designed to have high metabolic stability and reach the ileum and colon at optimal concentrations that allow for the activation of GPR120 while, notably, delaying its internalization.

This can lead to prolonged periods of signal transduction compared to other commercially available GPR120 agonists and amplification of signaling effects. *In vivo*, intrarectal treatment with DFL23806 exerted consistent immunomodulatory action in DSS-induced acute colitis in mice.

Moreover, oral treatment with DFL23806 significantly inhibited both DSS- and TNBS-induced chronic colonic inflammation and fibrosis by improving the disease activity index, endoscopic score, and reducing body weight loss and colonic tissue damage. Interestingly, DFL23806 treatment also modulated the composition of microbiota, inhibiting the concentration of pathogenic bacteria, and rescued intestinal dysbiosis induced by TNBS.

Conclusion: These results suggest that the stimulation of GPR120 could be an effective strategy for managing colitis, and that DFL23806 has great potential as a therapeutic for the treatment of IBD.

Disclosure: The authors are employees of Dompé farmaceutici s.p.a., Italy. The company has interests in the development of GPR120 selective agonist for the treatment of IBD and metabolic diseases.

PP0797

TWELVE-MONTH OUTCOMES OF TREATMENT WITH USTEKINUMAB IN PATIENTS WITH CROHN'S DISEASE, IN A REAL-LIFE SETTING IN GREECE: INTERIM ANALYSIS OF THE 'REASSURE' STUDY

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Introduction: Due to lack of published data on ustekinumab (UST) use in Greece, we aimed to generate local real-world evidence (RWE) on UST treatment persistence and clinical outcomes [including patient-reported outcomes (PROs)] in patients with Crohn's Disease (CD).

Aims & Methods: REASSURE is an ongoing, non-interventional, 24-month prospective study of adult (18-80 years old) patients with CD, who commenced therapy with UST as 1st, 2nd or 3rd biologic therapy as per approved label in Greece. Harvey-Bradshaw Index (HBI) and PROs are collected by routine assessments at baseline (start of UST) and every 6 months thereafter. PROs include the Inflammatory Bowel Disease Questionnaire (IBDQ), the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) Scale, and the Work Productivity and Activity Impairment Questionnaire in CD (WPAI:CD). Interim analysis was performed when all enrolled patients completed 1 year of follow-up.

Results: Between April 2019 and March 2022, 169 eligible patients [median (Interquartile range, IQR) age at baseline: 45 (35.0-54.0) years; bio-naïve: 35.5%; employed: 43.8%] were enrolled in 19 gastroenterology clinics and completed 1-year of follow-up. The median time from CD diagnosis to UST initiation was 7.0 (1.8-13.0) years.

The 12-month persistence rate was 84.0% (95% Confidence Interval: 78.5-89.5%). Over a median treatment duration of 12.3 months, a median of 7.0 (6.0 - 8.0) intravenous (IV) and subcutaneous (SC) injections were received. At 12 months, 14.2% (24/169) of patients discontinued UST (mean duration of 6.3 months) due to lack/loss of efficacy (10/24), safety issues (8/24), loss to follow-up (3/24), patient's decision (2/24) and death (1/24; unrelated to UST).

The baseline median values for total HBI (8.0), IBDQ (166.0), FACIT-F (33.0), WPAI:CD work productivity loss (30.0), and activity impairment scores (35.0) significantly improved (p<0.01) at 12 months, with median changes of -4.0, 17.1, 4.0, -10.0, and 10.0, respectively, among paired observations.

Similar improvements were noted in the subgroups per treatment line. The UST-related adverse events (AE) and serious AE rates were 18.3% (31/169) and 4.7% (8/169) respectively. Baseline data and 12-month outcomes are shown in Table 1.

Conclusion: These data provide evidence for high persistence rate of UST in patients with CD in a real-world setting in Greece and demonstrate favorable effects on disease activity and PROs, accompanied by a predictable safety profile.

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	Overall (N=169)		Bio-naïve (1L) (N=60)		Bio-experienced (N=109)		UST as 2L (N=60)		UST as 3L (N=49)	
Time from CD diagnosis to UST initiation, median (IQR), years	7.0 (1.8-13.0)		1.3 (0.3-6.2)		10.1 (5.9-15.9)		8.2 (3.8-11.7)		12.9 (9.0-22.1)	
	N	n_{pt} (%)	N	n_{pt} (%)	N	n_{pt} (%)	N	n_{pt} (%)	N	n_{pt} (%)
Baseline characteristics										
Age ≤50 years	169	106 (62.7)	60	31 (51.7)	109	75 (68.8)	60	45 (75.0)	49	30 (61.2)
Females	169	86 (50.9)	60	25 (41.7)	109	61 (56.0)	60	30 (50.0)	49	31 (63.3)
At least 1 comorbidity	169	93 (55.0)	60	33 (55.0)	109	60 (55.0)	60	35 (58.3)	49	25 (51.0)
Prior CD-related surgery	169	54 (32.0)	60	3 (5.0)	109	51 (46.8)	60	24 (40.0)	49	27 (55.1)
Prior systemic treatment for CD [a]	169	158 (93.5)	60	49 (81.7)	109	109 (100.0)	60	60 (100.0)	49	49 (100.0)
Stricturing and/or penetrating disease	162	70 (43.2)	57	19 (33.3)	105	51 (48.6)	57	27 (47.4)	48	24 (50.0)
Extraintestinal manifestations	167	61 (36.5)	60	19 (31.7)	107	42 (39.3)	59	23 (39.0)	48	19 (39.6)
Steroid-dependent/refractory disease	149	24 (16.1)	55	10 (18.2)	94	14 (14.9)	52	5 (9.6)	42	9 (21.4)
Maintenance UST dosage: 90 mg SC Q8W	169	152 (89.9)	60	50 (83.3)	109	102 (93.6)	60	56 (93.3)	49	46 (93.9)
UST initiated as monotherapy	169	99 (58.6)	60	37 (61.7)	109	62 (56.9)	60	32 (53.3)	49	30 (61.2)
Overall persistence to UST treatment (At Month 12[b])	169	142 (84.0)	60	52 (86.7)	109	90 (82.6)	60	53 (88.3)	49	37 (75.5)
No disease activity based on HBI [c] (At Month 12)	131	102 (77.9)	49	42 (85.7)	82	60 (73.2)	49	37 (75.5)	33	23 (69.7)
IBDQ response [d]										
At Month 12 (as observed)	126	65 (51.6)	49	25 (51.0)	77	40 (51.9)	47	24 (51.1)	30	16 (53.3)
At Month 12 (imputed)[g]	165	72 (43.6)	59	28 (47.5)	106	44 (41.5)	58	25 (43.1)	48	19 (39.6)
FACIT-F significant improvement [e]										
At Month 12 (as observed)	130	66 (50.8)	51	26 (51.0)	79	40 (50.6)	49	23 (46.9)	30	17 (56.7)
At Month 12 (imputed)[g]	167	71 (42.5)	60	27 (45.0)	107	44 (41.1)	60	24 (40.0)	47	20 (42.6)
CMI in work productivity loss [f]										
At Month 12 (as observed)	41	23 (56.1)	18	10 (55.6)	23	13 (56.5)	17	10 (58.8)	6	3 (50.0)
At Month 12 (imputed)[g]	51	25 (49.0)	20	10 (50.0)	31	15 (48.4)	22	11 (50.0)	9	4 (44.4)

[a] Including: biologic agents, corticosteroids, immunosuppressants, salicylates, antibiotics

[b] For three patients (of whom one patient was bio-naïve and the other two patients initiated UST as 3LT) persistence to treatment with UST at 12 months post-baseline was unknown.

[c] No disease activity was defined as an HBI score of 0-4 points, for patients remaining on UST.

[d] IBDQ response was defined as an IBDQ score change of ≥16 points from baseline.

[e] FACIT-F significant improvement was defined as a FACIT-F score change of ≥4 points from baseline.

[f] CMI in work productivity loss is defined as a decrease in WPAI:CD work productivity loss score of ≥7% from baseline.

[g] Data imputation was performed using last observation carried forward analysis.

Abbreviations: CD: Crohn's Disease, CMI: Clinically Meaningful Improvement; FACIT-F: Functional Assessment of Chronic Illness Therapy-Fatigue; HBI: Harvey-Bradshaw Index; IBDQ: Inflammatory Bowel Disease Questionnaire, IQR: Interquartile Range; IV: intravenous, N: number of patients with available data, Q8W: every 8 weeks, SC: subcutaneous, UST: ustekinumab; WPAI:CD: Work Productivity and Activity Impairment Questionnaire in Crohn's Disease; 1/2/3L: First/Second/Third Line

PP0797 Table 1: Baseline characteristics and 12-month study outcomes.

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PP0798

SUBCUTANEOUS INFLIXIMAB – A REAL WORLD EXPERIENCE

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Introduction: Infliximab is an important treatment option in the management of inflammatory bowel disease (IBD). It has traditionally been administered as an intravenous(IV) infusion but is now available as a subcutaneous (SC) injection. There is limited real world data around SC infliximab use and drug levels. In Ireland, IV medications are paid for from the hospital budget and SC medications are paid for from the community health budget.
Aims & Methods: This study aims to assess the trough levels of infliximab when given in SC formulation compared to IV formulation, to assess faecal calprotectin pre and post switching drug route, to assess patient's attitudes to SC therapy and to examine the cost savings associated with switching to SC infliximab. Proactive therapeutic drug levels are routinely performed in our clinic and we routinely offer SC switch to patients on IV infliximab. Patients currently receiving infliximab were identified using the departmental IBD database. Inclusion and exclusion criteria were applied. Infliximab trough levels from when the patient was receiving IV infliximab were compared to the most recent trough level while using SC infliximab. Response to SC infliximab was assessed using faecal calprotectin. Health related quality of life was also measured using the IBD Disk Questionnaire. A subset of patients completed a questionnaire about attitudes to SC therapy. The financial cost of providing IV infliximab to each patient was assessed.
Results: In total 103 patients receiving SC infliximab for >3 months were identified. 0 were excluded. 55 (53%) were female and 48 (47%) were male. The median age was 39 (19-79). 57 (55%) had Crohn's disease (CD), 46 (45%) had ulcerative colitis (UC). Infliximab trough levels improved by an average of 14.98ug/mL (188.6%) after switching to SC (P<0.05). Faecal calprotectin fell by an average of 74.45ug/g (-18.8%) after switching from IV to SC formulation (P<0.05). Average IBD disk score while on SC infliximab was 36.96/100 reflecting that the included patients have ongoing disease activity. The IBD disk score correlated with faecal calprotectin r 0.22 (P<0.05). In a subset of patients surveyed, 90% (n=10) preferred SC to IV infliximab. Switching from IV to SC infliximab for the 103 patients included in this study has saved our department 523,137 euro per annum. There are also significant savings in terms of infusion suite capacity. In total our unit saves 670 infusion suite appointments per year due to these patients switching to SC therapy.
Conclusion: Switching from IV to SC Infliximab is not associated with a deterioration in infliximab drug levels or faecal calprotectin levels. Switching from IV to SC infliximab saved significant amounts of money for our hospital budget and has improved our infusion suite capacity. Patients expressed a preference for SC administration over IV. In summary switching from IV to SC infliximab may be considered for patients with Crohn's disease and ulcerative colitis.
Disclosure: Nothing to disclose.

PP0799

PRELIMINARY DATA ON THE EFFICACY OF USTEKINUMAB IN PATIENTS WITH ULCERATIVE COLITIS IN A ‚REAL-WORLD' CLINICAL SETTING

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Introduction: Ustekinumab (UST) is a monoclonal antibody against the p40 subunit, common to IL-12 and IL-23 and was approved recently for the treatment of moderate to severe ulcerative colitis (UC).
Aims & Methods: The aim of this ongoing study is to report and analyze data from a large cohort of Greek patients with UC, who receive treatment with UST. We collected data from patients with UC from 14 Greek hospitals who commenced treatment with UST and evaluated their clinical response at week 16. Clinical response was defined as 50% reduction in the UC PRO2 values at week 16 compared to the values before treatment (baseline).
Results: Herein, we report the clinical outcomes at week 16, following the completion of induction regimen (i.v. loading 6mg/kg plus 1st 90mg sc injection at week 8). The demographics and disease characteristics of the first 101 enrolled patients are shown in Table 1. The majority of patients (70, 70%) commenced treatment with UST due to active disease despite previous treatments. Seventy-six patients (76%) had been exposed to at least one biologic agent, most commonly anti-TNFs (54%). Thirty-eight (38%) and 29 (29%) patients were exposed to one and two biologics, respectively. Sixteen patients (16%) had previously received both infliximab (IFX) and vedolizumab (VDZ). Corticosteroids (50%) and mesalazine

(5-ASA, 68%) were the most common concomitant treatments. UST was discontinued in 4 patients due to no response. A total of 79 patients have reached the 16th week time-point, out of whom 61 have enough data to be analyzed. Analysis of the patients who had active disease at induction (total number with adequate data: 50) showed that clinical response was achieved in 36 (72%) and clinical steroid-free remission in 23 (46%) patients. In multiple logistic analysis concomitant use of 5-ASA was associated with a higher probability of clinical response at week 16 (*P*=0.009), while hemoglobin >13.1g/dL (*P*=0.047), and age >60 years (*P*=0.059) were associated with a lower probability of response. Seven patients were receiving concomitant corticosteroids at week 16.

Sex (n, %)		Male 67 (66)	
Age (mean, SD)		51 (17.5) years	
Disease duration (mean, range)		10.5 (0.5-39) years	
Montreal classification [N=93(%)]	E1	E2	E3
	3 (3)	41 (44)	49 (53)
Family history [n,(%)]		9 (9)	
Extraintestinal manifestation [n,(%)]		33 (33)	
Full MAYO score [n=93, mean (SD)]		7.1 (2.9)	
UCEIS [n=80, mean (SD)]		4.9 (2.0)	

Table 1. Patients' characteristics with moderate-severe UC who received UST [N=101].

Conclusion: In a real world clinical setting, UST was mostly used as a 2nd or 3rd line treatment for moderate to severe UC. At the end of induction treatment, the majority of patients showed clinical response and almost half were in steroid-free remission. Positive predictive factors of response to UST included the concomitant use of 5-ASA, while Hb >13.1 g/dl and age >60 years were associated with lack of response.

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PP0800

TRANSITION FROM INTRAVENOUS TO SUBCUTANEOUS INFLIXIMAB AND VEDOLIZUMAB: ADHERENCE, SATISFACTION AND SAFETY PROFILE IN A COHORT OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Inflammatory bowel disease (IBD), ulcerative colitis (UC) and Crohn's disease (CD), is a group of chronic inflammatory disorders. Biologics are indicated for patients failing conventional maintenance therapy with moderate to severe activity. Different routes of administration, intravenous (IV), subcutaneous (SC) or oral have been approved. For chronic diseases such as IBD, some patients may prefer self-administered SC dosing to IV dosing as a less time-intensive and more convenient treatment option. This study aims to assess acceptance, safety and satisfaction of transition from IV to SC administration of Infliximab (IFX) and Vedolizumab (VDZ) in cohort of patients with IBD.

Aims & Methods: The transition from IV to SC administration was proposed to 91 patients. All patients were given two questionnaire: (a) before the switch, surveyed on the impact of the IV administration on their life and (b) 8 weeks after the switch focused on the level of satisfaction and onset of adverse event (AE). Data on medical history and treatment was collected from electronic health records.

Results: Overall, 91 patients were enrolled for switching from IV to SC therapy. All patients filled the first questionnaire. The IV therapy did not or minimally burden on patients' life in 71% and 15 patients (16%) refused the transition. The main reasons why patients preferred to stay on IV administration were the fear of reducing follow-up visits with IBD staff and the fear of doing the therapy outside the hospital. On the other hand, 76 patients accepted and 8 weeks after the transition they completed the second questionnaire. of these 76, 39 CD and 51 male, 41 (53%) were treated with VDZ and the majority of patients (53%) were at the first line of treatment. Most of patients (67%) did not experience any difficulties in handling the device but "only" the 65% respected the correct time-table of administration. 20% of patients report at least one AE, the most common were erythema, swelling and pain in the injection site. Only the 5% should switch back to IV treament. 8 patients (10%) were switched back to IV administration due to AEs and 1 swaped to Ustekinumab.

Conclusion: In this cohort of IBD patients, we found a good acceptance rate (83.5%). The vast majority of patients (95%) was satisfied of transition from IV to SC. Moreover, we reported a good safety profile of SC therapy, AEs were mostly self-limited and local.

Disclosure: Nothing to disclose.

PP0801

EFFECTIVENESS AND SAFETY OUTCOMES AFTER LONG-TERM (54 WEEKS) VEDOLIZUMAB THERAPY FOR CROHN'S DISEASE: A PROSPECTIVE, REAL-WORLD OBSERVATIONAL STUDY INCLUDING PATIENT-REPORTED OUTCOMES (POLONEZ II)

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Introduction: Vedolizumab (VDZ) is a gut-selective anti–lymphocyte trafficking drug used to treat ulcerative colitis and Crohn's disease (CD), lifelong conditions with unknown aetiology. In the POLONEZ II study, we evaluated the real-world effectiveness, including patient-reported outcomes (PROs), and safety of VDZ therapy in patients with CD treated in the National Drug Programme in Poland. Previously, we reported interim results at week (wk) 14.[1]

Aims & Methods: We describe long-term outcomes after 54 wks of VDZ treatment. POLONEZ II was a multicentre, observational, prospective study in patients with moderately to severely active CD eligible for reimbursed treatment with VDZ in 10 centres in Poland between April 2020 and November 2021. The primary endpoints at wk 54 were clinical response (≥70-point reduction in the Crohn's Disease Activity Index [CDAI] and >25% versus wk 14), remission rate (CDAI ≤150) and steroid-free remission (CDAI ≤150 in patients with steroid use at baseline but not at the time of assessment). Secondary endpoints at wk 54 included changes from baseline in PROs: quality of life (QoL; Inflammatory Bowel Disease Questionnaire [IBDQ]) and fatigue (Inflammatory Bowel Disease-Fatigue Self-assessment Scale [IBD-F]). Safety outcomes included adverse events (AEs) coded from Medical Dictionary for Regulatory Activities (v25.0).

Results: A total of 98 patients (55 men; mean [standard deviation] age: 35.1 [12.2] years) with CD were enrolled in the study. At wk 54, 63 (64.3%) patients had continued VDZ treatment. Primary reason for discontinuation was lack or loss of response (n=23/35, 65.7%). The most common disease location was ileocolonic (n=71/98, 72.4%), and 67.3% (n=66/98) of patients had received previous biologic therapy. At wk 54, clinical response was observed in 63.3% (n=62/98), clinical remission in 48% (n=47/98) and steroid-free remission in 36% (n=18/50) of patients (Table 1). The median CDAI score significantly decreased from 336.5 at baseline to 110.0 (P<0.001) at wk 54. Of the responders with corticosteroid dose reduction, 73.3% (n=22/30) of patients had a 100% reduction in dose at wk 54 (corticosteroid-free). At wk 54, median changes from baseline scores on the IBDQ (total and all subscales) were statistically significant (P<0.001) and maintained from wk 14. Significant improvements were maintained from wk 14 in IBD-F fatigue severity and frequency (P<0.05) and fatigue impact on daily activities (P<0.001).

Overall, 11 (11.2%) patients experienced 15 non-serious AEs (none VDZ-related) and 6 (6.1%) patients experienced 9 serious AEs (one VDZ-related). One (1.0%) patient experienced rash as a VDZ-related serious AE (1.3 per 100 patient-years).

Crohn's Disease Activity Index (CDAI) outcome	Week 14	Week 54	Durability [Response/remission/ steroid-free remission that was maintained from week 14–54]	95% Confidence interval for durability
Clinical response, N (%) Overall, N=98	90 (91.8)	62 (63.3)	62 (68.9)	58.1, 78.0
Bionaive, n=32	29 (90.6)	21 (65.6)	21 (72.4)	52.5, 86.6
Bioexposed, n=66	61 (92.4)	41 (62.1)	41 (67.2)	53.9, 78.4
Biofailure, n=35	33 (94.3)	21 (60.0)	21 (63.6)	45.1, 79.0
Clinical remission, N (%) Overall, N=98	62 (63.3)	47 (48.0)	39 (62.9)	49.7, 74.6
Bionaive, n=32	21 (65.6)	17 (53.1)	14 (66.7)	43.1, 84.5
Bioexposed, n=66	41 (62.1)	30 (45.5)	25 (61.0)	44.5, 75.4
Biofailure, n=35	21 (60.0)	17 (48.6)	14 (66.7)	43.1, 84.5
Steroid-free remission, N (%) Overall, N=50	15 (30.0)	18 (36.0)	8 (53.3)	27.4, 77.7

Table 1. Clinical response and remission at week 54 (full analysis set)

Conclusion: The results elucidate the real-world use of VDZ in patients with moderately to severely active CD treated for 54 wks in the Polish National Drug Programme. VDZ was effective in maintaining clinical remission in approximately half of the patients, with benefits on disease activity and PROs (QoL and fatigue) and was generally well tolerated.

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PP0802

HIGH PROPORTION OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE SHOW SIGNS OF RELEVANT DISEASE ACTIVITY – RESULTS FROM THE GERMAN COHORT OF THE IBD PODCAST STUDY

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Introduction: Inflammatory bowel diseases (IBD) may impact the daily life in affected patients in various dimensions including quality of life and work productivity. Suboptimal disease management and limited efficacy of available treatment options can cause inadequate disease control (IDC) resulting in disease progression and negative long-term outcomes. Here, we aim to assess the rates of IDC in daily clinical practice and the related economic burden.

Aims & Methods: IBD-PODCAST is a global cross-sectional, multicenter, non-interventional study assessing signs of residual disease activity according to STRIDE II-criteria[1] in patients with ulcerative colitis (UC) or Crohn's disease (CD). Analysis included patient- and physician-reported measures as well as retrospectively assessed components of the medical record of the last 12 months. In accordance with the recent STRIDE-II recommendations[1], pre-defined indicators ('red flags') of IDC were assessed incl. clinical parameters, biomarkers, endoscopy and imaging studies and patient questionnaires such as the Short Inflammatory Bowel Disease Questionnaire (SIBDQ) and the Work Productivity and Activity Impairment Questionnaire (WPAI)). In addition, reported Health care resource utilization (HCRU) was assessed.

Results: From 04/2022 to 11/2022, 438 patients with IBD (UC: n=228; CD: n=210) were included at 21 German IBD centers. Parameters of IDC were identified in 43.8% (92/210) CD patients and in 39.9% (91/228) UC patients. More specifically, impaired quality of life (SIBDQ <50) was identified as the most common indicator of IDC, followed by steroid overuse and failure to achieve clinically meaningful improvement (>50% reduction of symptoms since therapy initiation) across both indications. Patients with IDC showed substantial impairments in WPAI such as work time missed (CD: 13.4% IDC vs. 2.6% ADC (adequate disease control) and UC: 10.5% IDC vs. 3.0% ADC). HCRU was substantially increased in the IDC group reflected by increased ER visits, hospitalization and surgery rates.

HCRU	Crohn's Disease (N=210)		Ulcerative Colitis (N=228)	
	IDC (N=92)	ADC (N=118)	IDC (N=91)	ADC (N=137)
Number of patients with ≥1 ER visits, n (%)	6 (6.5%)	2 (1.7%)	2 (2.2%)	1 (0.7%)
Number of patients with ≥1 hospitalization, n (%)	9 (9.8%)	5 (4.2%)	3 (3.3%)	2 (1.5%)
Number of patients with ≥1 surgery, n (%)	7 (7.6%)	4 (3.4%)	2 (2.2%)	1 (0.7%)

Table 1. HCRU in patients with IBD according to disease control status

Conclusion: In a substantial proportion of patients with IBD, inadequate disease control was associated with impaired quality of life, lower work productivity and more frequent health care utilization. Our data underlines the continued need for improved disease management and more treatment options in IBD patients.

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PP0803

IN PATIENTS WITH CROHN'S DISEASE MONITORING OF USTEKINUMAB LEVELS DURING INDUCTION CAN IDENTIFY EARLY INADEQUATE RESPONSE

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Introduction: Ustekinumab (UST), an inhibitor of the p40 subunit of interleukins 12 and 23, is approved for the treatment of moderate and severe Crohn disease (CD) but a significant number of patients either partially respond or do not benefit at all. Therapeutic drug monitoring can be used to optimize the efficacy of biological drugs by ensuring adequate exposure to these drugs.

Aims & Methods: The aim of our research was to identify the relationship between serum concentrations of UST during the induction and biochemical remission at week 16 in patients with CD.

All CD patients treated with UST included in a local database were identified. Only patients with a fecal calprotectin (FCP) > 250 mg/g were selected. All patients were treated with an initial intravenous induction therapy of UST, followed by subcutaneous maintenance therapy. Disease activity was assessed retrospectively by clinical (Harvey–Bradshaw Index [HBI]) and biochemical parameters (FCP; C-reactive protein (CRP) and Albumin) at Week 0, Week 4, week 8 and week 16. UST trough levels were measured at 4, 8 and 16 weeks using a commercially available validated enzyme-linked immunosorbent assay (ELISA).

Main outcome was biochemical remission, defined by a decreased of calprotectin levels more than 80% or an absolute value less than 200 mg/g at week 16.

Results: Seventy-six patients were included. Patients' Characteristics at baseline are listed in table 1. Median [IQR] HBI was 5,5 [3-8] at the beginning of treatment. Evolution of biochemical parameters throughout induction is showed in table 2.

At the end of the induction phase (week 16), HBI, CRP and FCP decreased significantly from baseline. At this moment HBI was less than 2 in 51% of patients. FCP was available in 63 patients. Biochemical remission was observed in 26/63 (41,3%) patients. Median [IQR] UST serum concentrations were 20,9 µg/mL [13,7–26,3] at w4, 10,1 µg/mL [3,5–7,4] at w8 and 4,1 µg/mL [1,4–3,9] at w16. Quartile analysis demonstrated that 100% and 66% with an UST serum concentration in the highest quartile [Q4], at w4 and w8, achieved a biochemical remission by w16 [$p = 0.05$ and $p < 0,02$ respectively]. The area under the receiving operating characteristic curve (AUROC) of UST levels to predict biochemical remission at week 4 and week 8 were 0,84 $CI_{95\%}$ (0,62-1) and 0,74 $CI_{95\%}$ (0,57-0,91) respectively.

Conclusion: Serum concentrations of UST at week 4 and 8 after intravenous infusion could be used to stratify patients according to the probability of achieving remission. This measurements during induction could be used to optimize treatment of CD.

Disclosure: Nothing to disclose.

PP0804

THE EFFECT OF COGNITIVE BEHAVIORAL THERAPY IN ADULTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Patients with IBD often have related anxiety and depression which may negatively impact disease activity and have been consistently highlighted as an unmet need by patient groups. Timely access to psychiatric and psychological support can be difficult and costly.

We investigated the effectiveness of a novel cognitive behavioural therapy (CBT) program delivered by a trained mental health nurse in place of a formal psychologist.

Aims & Methods: A retrospective review of all CBT referrals made for adult patents between Sep 2019 – Dec 2022 in a tertiary IBD Centre. Referrals were from IBD Consultants, senior medical Trainees, IBD Nurses and a liaison psychiatrist. Patients are offered high-intensity CBT for up to 8 consecutive weeks as per local protocol of a minimum 4 sessions. The CBT took place virtually; over the phone or video call via MS Teams. Patients who completed at least 4 sessions of CBT were included in this review.

Our primary measure was to assess if there was an improvement in mental health using CORE-10, a brief validated psychometric questionnaire, completed at the start and end of therapy. A score of greater than 11 was an indicator of psychological distress, and a reduction of 6 points is clinically meaningful[i].

Results: 96 patients were referred to the inflammatory bowel disease CBT service. Of those 47 patients went on to complete at least 4 sessions of CBT, with an average age of 33. 91% of referrals were for either anxiety or depression. With other cited indications including; anger management, PTSD and functional pain.

15 patients (32%) had UC, 31 patients (66%) had Crohn's disease and 1 patient had indeterminate colitis. The majority of patients had 8 sessions of CBT of which all were completed virtually. The average disease duration was least 8 years at the time of referral.

26 (55%) of patients were on biologics at the time of initiating CBT, with 23% patient of patients referred having undergone at least one surgery prior to referral. Physician global assessment at the initiation of CBT showed 25 (56%) patients were in clinical remission. 21 (45%) patients were in clinical remission following their course of CBT.

Following the completed CBT sessions 37 patients had some improvement in their CORE-10 score with a mean reduction for all patients of 7.6. 20 patients had a CORE-10 reduction of at least 6. 33 patients (70%) had a CORE10 score of >11 at baseline, indicating significant psychological distress. Of the 33 patients with an initial score >11, 20 patients 61% showed reliable clinical improvement.

10 patients (21%) referred for CBT showed, either an increase (8 patients) or no change (2 patients) in their CORE10 score following at least 4 sessions of CBT.

Conclusion: Studies have consistently demonstrated a high burden of anxiety amongst patients with IBD which can have a detrimental effect on quality of life and disease outcomes. CBT delivered by a trained mental health nurse is an effective and relatively low-cost intervention for patients with IBD, delivering beneficial treatment outcomes, and maintaining good levels of engagement; including those with a severe phenotype of disease.

CBT did not significantly influence disease activity as measured by physician global assessment.

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the psychological therapies. *Counselling and Psychotherapy Research*, 13(1), pp.3–13. doi:https://doi.org/10.1080/14733145.2012.729069.
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PP0805

LONG-TERM EXPERIENCE WITH USTEKINUMAB IN ULCERATIVE COLITIS PATIENTS: A REAL LIFE MULTICENTRE SPANISH COHORT

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Introduction: Ustekinumab has been recently approved for the treatment of moderately to severe ulcerative colitis (UC). Data from the UNIFI clinical trial are encouraging; nevertheless, real-world assessment is needed.
Aims & Methods: We assess the effectiveness, safety and pharmacokinetics of ustekinumab in a cohort of refractory UC patients.
Multicentre and observational study of UC patients who received ustekinumab for active disease. Values for Partial Mayo Score (PMS), endoscopic activity, C reactive protein (CRP) and faecal calprotectin (FC) were recorded at baseline and at weeks 8, 24 and 52 weeks and at 18 and 24 months when was possible. Demographic and clinical data, previous treatments, adverse events (AEs), surgeries and hospitalizations were documented. Possible predictors of response were examined.
Results: Two patients only received the first IV dose. During follow-up, 58 patients (54%) required interval reduction (every 4 weeks (76%) and every 6 weeks (24%)) after a median of 22.3 weeks [11.6, 41.2]. Intravenous reinduction doses were administered to 20 (18.5%) after 27.7 weeks [6.64, 56.3]. Three patients required a maintenance therapy with IV administration. The clinical remission (PMS≤ 2) rates were 39.6%, 41%, 51% at 8, 24 and 52 weeks, respectively, and 61%, and 57.7% at 18 and 24 months, respectively. FC levels returned to normal (<250 µg/g) in the 39.6%, 41%, 51%, 61%, 58% of the patients at weeks 8, 24 and 52 and at 18 and 24 months respectively. CRP returned to normal (<3 mg/L) in the 79%, 75%, 76.5%, 71% and 70% of the patients at weeks 8, 24 and 52 and at 18 and 24 months respectively.
Fewer previous anti-TNF agents and the loss of response to anti-TNF were associated with clinical response and with normalization of FC respectively. No variables at baseline (body mass index, serum albumin, and lymphocytes count) were associated with ustekinumab through levels. Of the 17 patients with endoscopy before and after treatment, 6 were in remission and 3 with mild activity. The AEs were recorded in 5 (4.6%) patients, 12 (11%) were hospitalized and 9 (8.3%) had surgery. A total of 23 patients (21%) discontinued ustekinumab over time, the persistence rates were 98%, 91%, 83% and 81% at 8, 24, 48 and 96 weeks respectively.
Conclusion: This is the first study to show the real-world long-term effectiveness, persistence, endoscopic improvement and safety of ustekinumab in a cohort of highly refractory UC patients. The clinical remission preceded the FC normalization. Ustekinumab through levels and their pharmacokinetic require further investigations.
Disclosure: Nothing to disclose.

PP0806

PREGNANCY OUTCOMES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: RETROSPECTIVE DATA FROM A GREEK NATIONAL REGISTRY

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Introduction: Inflammatory bowel disease (IBD) commonly affects female patients of reproductive age, making the interaction between fertility, pregnancy and IBD an important issue in disease management. The effect of disease activity on the outcome of pregnancy and its impact on neonatal growth is a field of intense research. Close follow-up of pregnant IBD patients by a multidisciplinary team improves maternal and neonatal outcomes.

Aims & Methods: A national retrospective study of pregnancies in women with IBD between 2010-2020 was carried out in 22 IBD reference centers in Greece. Patient characteristics such as disease profile, type of treatment, and disease activity during gestation were analyzed in correlation to the method of delivery, pregnancy outcomes, as well as breastfeeding and offspring health.

Results: Two-hundred and twenty-three pregnancies in 175 IBD patients were registered in the study. 122 with Crohn's disease (CD). Median age during diagnosis was 25.6 years (12-44) with median disease duration of 7.4 years (0-23). One-hundred and twenty-nine patients (58%) were recorded during their first pregnancy. Early pregnancy termination was reported by 48 patients (22%). Pregnancy as a result of *in vitro* fertilization (IVF) occurred in 15 cases (6.7%). At the beginning of gestation 165 patients (74%) were under treatment: 48 with anti-TNF agents (29%), 43 with azathioprine (26%), 101 with 5-aminosalicylic acid formulations (61%) and 12 with steroids (7%). We recorded 49 cases of IBD flares (22%) during pregnancy. Two-thirds of them (n=30) were in remission at the onset of the pregnancy. Almost half of them (n=22) required corticosteroid treatment. Patients with ulcerative colitis (UC) were in greater risk of disease flare during pregnancy (p<0.001). All but 3 pregnancies (99.1%) resulted in uncomplicated delivery. In 147 cases (67.1%) *cesarean* delivery was performed. Two late fetal deaths (0.9%) were reported, both in patients with continuously active disease since the beginning of pregnancy. After delivery, 75 patients (34%) presented with a disease flare, which was associated with active disease at the beginning of pregnancy (p <0.001).

Mean age of diagnosis (years)	**25.6 (12-44)**
Crohn's Disease n (%)	122 (54.7)
L1	41
L2	10
L3	70
B1	76
B2	31
B3	15
P	24
Ulcerative colitis n (%)	101 (45.3)
E1	15
E2	44
E3	41
Smokers n (%)	104 (46.6)
Smoking during pregnancy n (%)	*31 (14)*
Median disease duration (years)	7.4 (0-23)
History of surgery n (%)	41 (18.3)
Right hemicolectomy n (%)	19 (9.4)
Enterectomy n (%)	6 (3)
IPAA n (%)	2 (1)
Perianal surgery n (%)	14 (7)
Extraintestinal manifestations n (%)	85 (38.1)
Arthritis n (%)	58 (26)
Psoriasis n (%)	19 (9)
Uveitis n (%)	7 (3)
Median age at conception (years)	33
In vitro fertilization n (%)	15 (6.7)
Use of contraceptives n (%)	39 (17.5)

Table 1. Demographics and characteristics of the cohort

Conclusion: The majority of female, Greek IBD patients, had a favorable pregnancy outcome. Active inflammation during gestation and UC diagnosis were associated with a negative impact on pregnancy outcomes. The results of this study are in favor of the continuation of IBD treatment during pregnancy.

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PP0807

A HIGHER RED BLOOD CELL METHOTREXATE POLYGLUTAMATE 3 CONCENTRATION IS ASSOCIATED WITH METHOTREXATE DRUG-SURVIVAL IN PATIENTS WITH CROHN'S DISEASE

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Introduction: Predicting and monitoring methotrexate (MTX) responses in patients with Crohn's disease (CD) is presently not possible. Measurement of MTX-polyglutamates (MTX-PGs) in red blood cells (RBC) might enable therapeutic drug monitoring (TDM) as shown in other immune-mediated inflammatory diseases. Our aims were to assess the relation between MTX-PGs and treatment response, and to identify predictors of response in CD patients treated with MTX.

Aims & Methods: In a multicenter prospective cohort study, CD patients starting subcutaneously (s.c.) MTX without biologics were included and followed for one year. At baseline, clinical and biochemical parameters were recorded. 8,12, 24, and 52 weeks after start of therapy or when dropping out, blood samples were collected and individual MTX-PG levels ($MTX\text{-}PG_1$ - $MTX\text{-}PG_5$) were assessed in RBCs using mass spectometry. Primary outcome was either s.c. MTX discontinuation or initiation of step-up therapy due to disease activity or toxicity. MTX-PGs were analysed in an extended Cox model, and corrected for prednisone (at start) and budesonide. Secondary outcomes included biochemical disease activity, measured with fecal calprotectin (FCP).

Results: Eighty CD patients enrolled (mean age 55±13y, 35% male) with a median FCP of 268 µg/g (IQR 73-480). After one year 21 patients were still on MTX sc monotherapy. Twenty-one patients stopped MTX because of disease activity, 29 because of toxicity, and four because of a combination of both reasons (5 patients censored: ended study participation or stopped MTX because of undefined reasons).

$MTX\text{-}PG_3$ was the most abundant MTX-PG species with a median concentration of 51 nmol/L RBC (IQR 37-62) at week 12. A higher $MTX\text{-}PG_3$ concentration was associated with a higher rate of MTX drug survival (HR 0.86:for every 10 nmol/L increase in $MTX\text{-}PG_3$ the rate of MTX discontinuation decreased with 14%, 95%CI 0.75-0.99), lower FCP (β -3.7, SE 1.3) as well as biochemical response (FCP < 250, OR 1.1, 95% CI 1.0-1.3).

A higher HBI at baseline was associated with an increased rate of s.c. MTX monotherapy discontinuation (HR 1.08, 95% CI 1.02-1.16). Predictors of discontinuation due to disease activity (cause specific hazards) were male sex (3.83, 1.62-9.05), baseline eGFR (1.06, 1.02-1.09), baseline HBI (1.12, 1.02-1.23) and baseline plasma folate (0.94, 0.88-0.99). Sex and plasma folate were not correlated with HBI. No toxicity-specific predictors for stopping MTX could be identified.

Conclusion: RBC $MTX\text{-}PG_3$ concentrations are related to better MTX drug-survival and decreased biochemical disease activity. Therefore, the measurement of RBC $MTX\text{-}PG_3$ holds potential as a tool for TDM. Lower plasma folate at baseline and male sex are predictors for MTX-specific failure in the first year.

Disclosure: Nothing to disclose.

PP0808

IMPLICATIONS OF TIOGUANINE DOSING IN IBD PATIENTS WITH A TPMT DEFICIENCY

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Introduction: Tioguanine is metabolised by less enzymatic steps compared to azathioprine and mercaptopurine, without generating 6-methylmercaptopurine ribonucleotides. However, thiopurine S-methyl transferase (TPMT) plays a role in early toxicity in all thiopurines. We aimed to describe the hazards and opportunities of tioguanine use in inflammatory bowel disease (IBD) patients with aberrant TPMT metabolism and propose preventative measures to safely prescribe tioguanine in these patients.

Aims & Methods: In this retrospective cohort study, all determined *TPMT* genotypes (2016 – 2021) were evaluated for aberrant metabolism (*i.e.* intermediate and poor TPMT metabolisers). Subsequently, all IBD patients on tioguanine with aberrant *TPMT* genotypes were evaluated for tioguanine dosages, adverse drug events, lab abnormalities, treatment duration and effectiveness.

Results: *TPMT* genotypes were determined in 485 patients of whom 50 (10.3%) and 4 patients (0.8%) were intermediate and poor metabolisers, respectively. Of these patients, 12 intermediate and 4 poor TPMT metabolisers had been prescribed tioguanine in varying doses. In one poor TPMT metaboliser, tioguanine 10 mg/day induced delayed pancytopenia. In general, reduced tioguanine dosages of 5 mg/day for intermediate TPMT metabolisers, and 10 mg two-weekly for poor TPMT metabolisers, resulted in a safe, long-term treatment strategy.

Conclusion: Diminished or absent TPMT enzyme activity was related with a pharmacokinetic shift of tioguanine metabolism which is associated with relatively late occurring myelotoxicity in patients on standard tioguanine dose. However, in strongly reduced dose regimens with strict therapeutic drug and safety monitoring, tioguanine treatment remained a safe and effective option in IBD patients with dysfunctional TPMT.

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DD, LD, BB, RC, AN and DW have nothing to declare, AvB has served as speaker, adviser and/or principal investigator for AbbVie, Arandal, Arena, Celgene, Ferring, Galapagos, Janssen, Pfizer, Roche, TEVA, and received research grants from TEVA, Eurostars funding, ZonMW, and Pfizer.

PP0809

ECONOMIC BURDEN OF SUBOPTIMAL TREATMENT WITH CORTICOSTEROID OVERUSE FOR ULCERATIVE COLITIS

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Introduction: Conventional therapy is recommended for the treatment of mild-to-moderate ulcerative colitis (UC); however, patients (pts) are often unable to maintain durable responses and may be suboptimally treated with the overuse of corticosteroids (CS). Some studies on advanced therapies have reported pts achieving CS-free remission, which may benefit pts with UC. This study characterizes CS overuse and the associated economic burden.

Aims & Methods: Data were extracted from the IBM MarketScan Commercial and Medicare Supplemental Databases (January 1, 2014–March 31, 2021) for pts (age ≥18 years) with ≥2 UC diagnoses (≥90 days apart) who received first-line (1L) conventional therapy and had continuous enrollment for 6 months before and 4 years after treatment initiation, respectively. Conventional therapy included aminosalicylates (5-ASA), immunomodulators (IM), CS monotherapy, and CS combination therapy. CS overuse was identified if pts had an episode of receiving CS for a continuous period of >90 days or ≥2 episodes within 1 year. For pts with CS overuse, the index date was defined as the earlier of the 91st day of a CS episode or the initiation date of the second CS episode within 1 year. For pts without CS overuse, the index date was defined as 12 months after the initiation of 1L conventional therapy. All-cause healthcare resource use (HCRU) and costs incurred in terms of per pt per year (PPPY) were evaluated for pts with and without CS overuse at baseline (6 months before the index date) and during the follow-up period (from the index date to the end of 4 years after initiation of 1L).

Results: Overall, 4004 pts were included. Of these, 1820 (45.5%) pts had CS overuse. Median time from 1L treatment initiation to CS overuse was 9.4 (interquartile range, 4.5–23.0) months. Pts with CS overuse were less likely to receive mesalamine monotherapy in 1L (28.1% vs 56.7%) (Table). For pts with and without CS overuse, the baseline mean PPPY medical costs were $15,942 and $5964 ($P$<0.001), and total mean drug costs were $6051 and $6970, respectively ($P$<0.001). During the follow-up period, pts with CS overuse had higher inpatient (24.6% vs 14.2%; P<0.001) and emergency room visits (59.0% vs 50.5%; P<0.001) than those without; for pts with and without CS overuse, total mean medical costs were $10,418 and $4922 ($P$<0.001), and total mean drug costs were $9951 and $5923 ($P$<0.001), respectively.

	Pts with CS overuse (N=1820)	Pts without CS overuse (N=2184)
Age, mean ± standard deviation, years	47.7 ± 13.1	46.4 ± 12.5
Female, n (%)	1040 (57.1)	1171 (53.6)
Conventional therapies received in 1L, n (%)		
Mesalamine	511 (28.1)	1239 (56.7)
CS	780 (42.9)	393 (18.0)
CS + mesalamine	359 (19.7)	244 (11.2)
IM	10 (0.5)	36 (1.6)
IM + mesalamine	4 (0.2)	22 (1.0)
Other regimens[a]	156 (8.6)	250 (11.4)

[a]Balsalazide monotherapy, olsalazine monotherapy, and combinations of CS, IM, and 5-ASA.

Table. Pt characteristics and treatment use.

Conclusion: Approximately half of pts with UC had overused CS while being treated with conventional therapies. In these pts, all-cause HCRU during follow-up, and costs at baseline (except for drug costs) and during follow-up were significantly higher compared with those without CS overuse, suggesting a need for other more effective therapies to be considered for the treatment of these pts. Pts with UC currently treated with prolonged CS courses may benefit from early use of advanced therapies, which are associated with the induction of CS-free remission.

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PP0810

COMPARATIVE EFFICACY AND SAFETY OF UPADACITINIB, VEDOLIZUMAB, USTEKINUMAB AND TOFACITINIB AFTER ONE-YEAR MAINTENANCE THERAPY FOR MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS: 3 MATCHING-ADJUSTED INDIRECT COMPARISONS

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Introduction:

Upadacitinib, an oral, selective, and reversible Janus kinase inhibitor (JAKi), vedolizumab (VEDO), an α4β7 integrin monoclonal antibody, ustekinumab (UST), an IL-12/23 inhibitor, and tofacitinib (TOFA), a pan JAKi, are all approved therapies for patients with moderately to severely active ulcerative colitis (UC). Evidence on their comparative efficacy and safety during maintenance are lacking.

Aims & Methods: Separate placebo (PBO)-anchored matching-adjusted indirect comparisons (MAIC) of the efficacy and safety of UPA vs VEDO, UST, and TOFA during maintenance were conducted. Induction responders were rerandomized in the phase 3 maintenance studies to oral UPA 15 or 30 mg once daily or PBO in U-ACHIEVE, VEDO 300 mg intravenous or PBO in GEMINI-1, UST 90 mg subcutaneous or PBO in UNIFI, and oral TOFA 5 mg twice daily or PBO in OCTAVE Sustain. Efficacy outcomes at maintenance weeks 44(UST)/46(VEDO)/52(UPA/ TOFA) were adjusted by the likelihood of induction clinical response to assess treat-through efficacy in the intent-to-treat population. Outcomes included clinical response (decrease in Full Mayo score [FMS] ≥3 points and ≥30% and decrease in rectal bleeding score [RBS] of ≥1 or an absolute RBS of 0 or 1), clinical remission (FMS ≤2 with no subscore >1, plus RBS of 0 for UPA vs TOFA [remission]), and endoscopic improvement (EI, endoscopic subscore 0 or 1). Safety outcomes included adverse events (AEs), serious AEs (SAEs), and AEs leading to discontinuation (except for UPA vs VEDO). Select baseline characteristics from the UPA trial were weighted to match the VEDO, UST, or TOFA trials, separately. Numbers needed to treat or harm (NNT or NNH) were calculated as the inverse of the difference in proportions of patients demonstrating each outcome between UPA and VEDO, UST, or TOFA to assess benefit-risk.

Results: Greater proportions of patients receiving UPA 15 mg vs VEDO demonstrated clinical response, clinical remission, and EI (difference in proportions>0; $p<0.05$) and achieved clinical response and EI with UPA vs TOFA ($p<0.05$). Significantly greater proportions of patients receiving UPA 30 mg vs VEDO, UST, or TOFA demonstrated all efficacy outcomes (difference in proportions>0; $p<0.05$), with NNTs <8.7. Difference in proportions of AEs, SAEs, and AEs leading to discontinuation were small and not statistically different between both doses of UPA and the studied comparator therapies.

Conclusion: After 1 year of maintenance, greater clinical efficacy and similar safety was observed with UPA vs VEDO, UST, or TOFA in patients with active UC, suggesting a favourable benefit-risk profile of UPA vs other advanced therapies. Differences in trial design, such as variable timing of rerandomization and dosages and assessment times, and endpoint definitions may persist and impact responder profiles.

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Efficacy[a] Outcome	Treatment comparisons (UPA15 vs comparator)	Proportion[b]	Difference in proportions[c]	NNT[d]	Treatment comparisons (UPA30 vs comparator)	Proportion[b]	Difference in proportions[c]	NNT[d]
Clinical response	UPA15/ PBO	54.3%/ 5.6%	0.488	2.1	UPA30/ PBO	57.6%/ 5.6%	0.520	2.0
	VEDO300/ PBO	26.6%/ 6.1%	0.206	4.9	VEDO300/ PBO	26.6%/ 6.1%	0.206	4.9
	UPA15 vs VEDO300	—	0.282***	3.6	UPA30 vs VEDO300	—	0.314***	3.2
	UPA15/ PBO	44.6%/ 4.6%	0.400	2.6	UPA30/ PBO	52.4%/ 4.6%	0.478	2.1
	UST90/ PBO	43.9%/ 14.0%	0.299	3.4	UST90/ PBO	43.9%/ 14.0%	0.299	3.4
	UPA15 vs UST90	—	0.101	10.0	UPA30 vs UST90	—	0.178***	5.7
	UPA15/ PBO	39.9%/ 3.8%	0.361	2.8	UPA30/ PBO	52.8%/ 3.8%	0.490	2.1
	TOFA5/ PBO	29.7%/ 6.2%	0.234	4.3	TOFA5/ PBO	29.7%/ 6.2%	0.234	4.3
	UPA15 vs TOFA5	—	0.127**	7.9	UPA30 vs TOFA5	—	0.255***	4.0
Clinical remission (or remission for UPA vs TOFA)	UPA15/ PBO	37.5%/ 4.3%	0.332	3.1	UPA30/ PBO	43.3%/ 4.3%	0.390	2.6
	VEDO300/ PBO	19.7%/ 4.1%	0.156	6.4	VEDO300/ PBO	19.7%/ 4.1%	0.156	6.4
	UPA15 vs VEDO300	—	0.176*	5.7	UPA30 vs VEDO300	—	0.233**	4.3
	UPA15/ PBO	31.2%/ 2.9%	0.284	3.6	UPA30/ PBO	34.0%/ 2.9%	0.311	3.3
	UST90/ PBO	27.0%/ 7.5%	0.195	5.2	UST90/ PBO	27.0%/ 7 .5%	0.195	5.2
	UPA15 vs UST90	—	0.088	11.4	UPA30 vs UST90	—	0.116*	8.7
	UPA15/ PBO	25.3%/ 2.2%	0.231	4.4	UPA30/ PBO	32.5%/ 2.2%	0.302	3.4
	TOFA5/ PBO	19.8%/ 3.4%	0.163	6.2	TOFA5/ PBO	19.8%/ 3.4%	0.163	6.2
	UPA15 vs TOFA5	—	0.067	14.9	UPA30 vs TOFA5	—	0.139***	7.3
EI	UPA15/ PBO	48.9%/ 4.5%	0.444	2.3	UPA30/ PBO	51.6%/ 4.5%	0.471	2.2
	VEDO300/ PBO	24.3%/ 5.0%	0.193	5.2	VEDO300/ PBO	24.3%/ 5.0%	0.193	5.2
	UPA15 vs VEDO300	—	0.252***	4.0	UPA30 vs VEDO300	—	0.278***	3.6
	UPA15/ PBO	35.8%/ 3.2%	0.326	3.1	UPA30/ PBO	41.7%/ 3.2%	0.385	2.6
	UST90/ PBO	31.6%/ 9.0%	0.226	4.5	UST90/ PBO	31.6%/ 9.0%	0.226	4.5
	UPA15 vs UST90	—	0.100	10.1	UPA30 vs UST90	—	0.159**	6.3
	UPA15/ PBO	31.1%/ 2.6%	0.285	3.6	UPA30/ PBO	42.0%/ 2.6%	0.394	2.6
	TOFA5/ PBO	21.5%/ 4.0%	0.175	5.8	TOFA5/ PBO	21.5%/ 4.0%	0.175	5.8
	UPA15 vs TOFA5	—	0.110*	9.1	UPA30 vs TOFA5	—	0.219***	4.6
Safety[e] Outcome	**Treatment comparisons (UPA15 vs comparator)**	**Proportion[b]**	**Difference in proportions[c]**	**NNH[d]**	**Treatment comparisons (UPA30 vs comparator)**	**Proportion[b]**	**Difference in proportions[c]**	**NNH[d]**
AEs	UPA15/ PBO	79.7%/ 72.1%	0.076	13.1	UPA30/ PBO	72.6%/ 72.1%	0.005	204.0
	VEDO300/ PBO	82.0%/ 84.0%	–0.020	–50.0	VEDO300/ PBO	82.0%/ 84.0%	–0.020	–50.0
	UPA15 vs VEDO300	—	0.096	10.3	UPA30 vs VEDO300	—	0.025	40.1
	UPA15/ PBO	78.4%/ 77.2%	0.013	80.0	UPA30/ PBO	71.1%/ 77.2%	–0.061	–16.3
	UST90/ PBO	77.3%/ 78.9%	–0.016	–62.4	UST90/ PBO	77.3%/ 78.9%	–0.016	–62.4
	UPA15 vs UST90	—	0.029	35.0	UPA30 vs UST90	—	–0.045	–22.0
	UPA15/ PBO	78.6%/ 80.3%	–0.017	–59.1	UPA30/ PBO	77.0%/ 80.3%	–0.033	–30.3
	TOFA5/ PBO	72.2%/ 75.3%	–0.031	–32.2	TOFA5/ PBO	72.2%/ 75.3%	–0.031	–32.2
	UPA15 vs TOFA5	—	0.014	70.9	UPA30 vs TOFA5	—	–0.002	–500.0
SAEs	UPA15/ PBO	11.1%/ 11.6%	–0.006	–181.8	UPA30/ PBO	1.0%/ 11.6%	–0.106	–9.4
	VEDO300/ PBO	8.0%/ 16.0%	–0.080	–12.5	VEDO300/ PBO	8.0%/ 16.0%	–0.080	–12.5
	UPA15 vs VEDO300	—	0.075	13.4	UPA30 vs VEDO300	—	–0.026	–38.1
	UPA15/ PBO	7.1%/ 13.8%	–0.067	–14.9	UPA30/ PBO	4.3%/ 13.8%	–0.094	–10.5
	UST90/ PBO	8.5%/ 9.7%	–0.012	–83.3	UST90/ PBO	8.5%/ 9.7%	–0.012	–83.3
	UPA15 vs UST90	—	–0.055	–18.1	UPA30 vs UST90	—	–0.082	–12.1
	UPA 15/ PBO	7.8%/ 10.6%	–0.028	–35.5	UPA30/ PBO	4.2%/ 10.6%	–0.064	–15.7
	TOFA 5/ PBO	5.1%/ 6.6%	–0.015	–66.6	TOFA5/ PBO	5.1%/ 6.6%	–0.015	–66.6
	UPA15 vs TOFA5	—	–0.013	–76.3	UPA30 vs TOFA5	—	–0.049	–20.6
AEs leading to discontinuation[f]	UPA15/ PBO	N/A	N/A	N/A	UPA30/ PBO	N/A	N/A	N/A
	VEDO300/ PBO	N/A	N/A	N/A	VEDO300/ PBO	N/A	N/A	N/A
	UPA15 vs VEDO300	N/A	N/A	N/A	UPA30 vs VEDO300	N/A	N/A	N/A
	UPA15/ PBO	2.8%/ 12.3%	–0.095	-10.5	UPA30/ PBO	3.9%/ 12.3%	–0.084	-11.9
	UST90/ PBO	2.8%/ 11.4%	–0.086	-11.6	UST90/ PBO	2.8%/ 11.4%	–0.086	-11.6
	UPA15 vs UST90	—	–0.009	–116.2	UPA30 vs UST90	—	0.002	416.6
	UPA15/ PBO	4.2%/ 9.8%	–0.055	–18.0	UPA30/ PBO	4.9%/ 9.8%	–0.049	–20.5
	TOFA5/ PBO	9.1%/ 18.7%	–0.096	–10.4	TOFA5/ PBO	9.1%/ 18.7%	–0.096	–10.4
	UPA15 vs TOFA5	—	0.041	24.6	UPA30 vs TOFA5	—	0.047	21.0

[a]For efficacy outcomes, treat-through results are calculated as: (induction MAIC response rate) x (maintenance MAIC efficacy rate). Standard errors were calculated as square root of the variance for product of two independent variables (i.e., induction MAIC response rate and maintenance MAIC efficacy rate). [b]UPA data are individual patient-level results while VEDO, UST, or TOFA data are aggregated published results. Core baseline characteristics used in the weighting included age, gender, extent and duration of disease, total Mayo score, and prior UC medication/biologic usage. [c]Difference in proportions between advanced therapies (UPA arms vs comparators) are shown in bold; otherwise, differences are shown vs placebo. [d]Positive (negative) NNTs denote greater (lower) efficacy of UPA vs comparator, and positive (negative) NNHs denote greater (lower) safety risk of UPA vs comparator. [e]Broad safety outcomes are included because they were collected consistently across clinical trials. [f]Data were not available in the VEDO GEMINI-1 maintenance phase 3 trial. *P*-value equals *<0.05, **≤0.01, ***<0.001. AEs, adverse events; EI, endoscopic improvement; N/A, not applicable; NNH, number needed to harm; NNT, number needed to treat; PBO, placebo; SAEs, serious adverse events; UPA15, upadacitinib 15 mg; UPA30, upadacitinib 30 mg; UST90, ustekinumab 90 mg; TOFA5, tofacitinib 5 mg; VEDO300, vedolizumab 300 mg.

PP0810 Table.

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PP0811

MAINTENANCE THERAPY AFTER AN EPISODE OF STEROID-RESPONSIVE ACUTE SEVERE ULCERATIVE COLITIS: WHAT IS THE BEST STRATEGY?

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Introduction: Althouth the advances in treatment of inflammatory bowel disease, the best maintenance therapy after steroid-responsive acute severe ulcerative colitis (ASUC) is still controversial.

Aims & Methods: Our goal was to compare the outcomes of starting different treatment regimens in patients with steroid-responsive ASUC. We did a retrospective single-centre cohort study including all patients hospitalized with ASUC, between 2014-2022, who responded to steroids according to Oxford Criteria. Patients were divided in two groups according to the maintenance treatment after ASUC episode - 5-ASA/immunomodulator (IMM) or biological therapy. Short (<1 year) and long-term (>1 year) outcomes after ASUC hospitalization were assessed. The primary outcome was a composite outcome defined by proximal disease extension, therapy escalation (including steroids), new hospitalization or colectomy.

Results: 32 steroid-responsive patients were included, 31% were male. Baseline characteristics are shown in Table 1.

Overall, 28% of patients were discharged with 5-ASA/IMM and 72% with biologics (infliximab, vedolizumab, golimumab). During a median follow up of 3 years (IQR 1.7-4.9), 50% of patients needed a new course of steroids, 3% presented proximal disease extension, 53% needed therapy escalation, 31% required a new hospitalization and 16% underwent colectomy. Regarding the composite outcomes, no differences were found between the two groups in short-term outcomes.

In long-term-outcomes, patients treated with biologics had a lower rate of events, comparing with patients treated with 5ASA/IMM (67% vs 17%, p=0,013), and a trend towards to a longer time without events (log-rank p=0,093).

Baseline characteristics	5-ASA/IMM (n=9)	Biologic (n=23)	p-value
Clinical and demographic characterization			
Age at diagnosis, y (mean ± SD)	38±19	41±19	0.660
Disease extension at diagnosis, n (%) E1 | E2 | E3	1 (11) | 3 (33) | 5 (56)	2 (9) | 7 (30) | 14 (61)	0.957
Need of steroids before this hospitalization, n (%)	1 (11)	13 (57)	0.044
Previous medication, n (%)			
Aminosalicylates	4 (44)	19 (83)	0.075
IMMs	0 (0)	5 (22)	0.288
Biologic	0 (0)	6 (26)	0.150
ASUC hospitalization characterization			
Endoscopic severity, n (%) Mayo 2 | Mayo 3	6 (67) | 3 (33)	7 (30) | 16 (70)	0.109
Hospitalization duration, days (median, IQR)	7 (6-9)	10 (8-14)	0.022
Steroids response, n (%)			
Complete	7 (78)	7 (30)	0.022
Incomplete	2 (22)	16 (70)	

IMMs – Immunomodulators; IQR – Interquartile range; SD – Standard deviation; UC – Ulcerative colitis; y – Years.

Table 1. Baseline and hospitalization characterization, accordingly to maintenance therapeutic regimen after steroid-responsive ASUC episode.

Conclusion: In our cohort, no differences were found in short-term outcomes. However, in long-term outcomes, patients treated with biologic had a lower rate of events and a trend towards to a longer time without events, suggesting this may be a better strategy. Our sample size and the low number of patients on 5-ASA/IMM limit our conclusions, further studies with larger sample size and longer follow-up are needed.

Disclosure: Nothing to disclose.

PP0812

EFFICACY OF UPADACITINIB FOR MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE BY DISEASE DURATION: A POST HOC ANALYSIS OF PHASE 3 INDUCTION AND MAINTENANCE STUDIES

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Introduction: The efficacy and safety of upadacitinib (UPA), an oral, reversible Janus kinase (JAK) inhibitor approved for the treatment of moderately to severely active Crohn's disease (CD),[1,2] has been demonstrated in two phase 3 induction studies (U-EXCEL, NCT03345849[3]; U-EXCEED, NCT03345836[4]) and a phase 3 maintenance study (U-ENDURE, NCT03345823[5]). An association between shorter disease duration and improved outcomes has been shown in post hoc analyses of clinical trial data with other advanced CD therapies.[6,7]

We therefore conducted a post hoc analysis of data from these phase 3 UPA studies to assess the potential impact of CD duration on UPA efficacy.

Aims & Methods: Patients in the induction studies were randomized 2:1 to receive UPA 45 mg (UPA45) or placebo (PBO) once daily for 12 weeks.[2,3] Patients achieving clinical response per stool frequency and/or abdominal pain score (SF/APS) criteria were re-randomized 1:1:1 in the maintenance study to UPA 30 mg (UPA30), UPA 15 mg (UPA15), or PBO once-daily for 52 weeks.[4] Efficacy was evaluated in patient subgroups stratified by CD duration at baseline (< 2 years, 2–5 years, >5–10 years, and >10 years). Endpoints evaluated at week 12 (induction) and week 52 (maintenance) included achievement of clinical remission (per average daily very soft/liquid SF/APS and per Crohn's Disease Activity Index [CDAI]), normalization of fecal calprotectin and high-sensitivity C-reactive protein levels for patients with elevated baseline levels, endoscopic response, endoscopic remission, and mucosal healing.

Results: Baseline patient and disease characteristics were generally similar across CD duration subgroups during induction (N = 1021). UPA45 demonstrated nominally greater improvement vs PBO in efficacy endpoints across most CD duration subgroups at week 12 (Table). UPA45-treated patients with a shorter disease duration had numerically greater endoscopic improvement vs patients with longer disease duration, and nominally greater endoscopic improvement vs patients receiving PBO at week 12 (Table).

Endpoint by CD duration at baseline, % (n/N)	Induction, Week 12 (U-EXCEL and U-EXCEED, pooled)		Maintenance, Week 52 (U-ENDURE)		
	UPA 45 mg QD n = 674	PBO n = 347	UPA 30 mg QD n = 168	UPA 15 mg QD n = 169	PBO n = 165
Clinical remission per SF/APS[a]					
< 2 y	51.0 (52/102)**	25.5 (14/55)	50.0 (10/20)	51.9 (14/27)	31.6 (6/19)
2–5 y	58.4 (78/133)***	23.6 (17/72)	58.5 (24/41)***	39.3 (11/28)**	10.5 (4/38)
> 5–10 y	50.6 (85/168)***	19.5 (16/82)	49.0 (25/51)**	28.6 (12/42)	15.8 (6/38)
> 10 y	34.0 (92/271)***	11.6 (16/138)	33.9 (19/56)**	31.9 (23/72)**	11.1 (8/70)
Clinical remission per CDAI[b]	46.1 (47/102)				
< 2 y	49.6 (66/133)**	36.4 (20/55)	50.0 (10/20)*	55.6 (15/27)**	15.8 (3/19)
2–5 y	48.0 (81/168)**	27.8 (20/72)	61.0 (25/41)***	35.7 (10/28)	15.8 (6/38)
> 5–10 y	38.8	29.3 (24/82)	49.0 (25/51)***	28.6 (12/42)	13.2 (5/38)
> 10 y	(105/271)***	16.8 (23/138)	35.7 (20/56)**	36.1 (26/72)**	15.6 (11/70)
FCP normalization[c]					
< 2 y	40.8 (31/76)***	7.3 (3/41)	33.3 (5/15)*	36.4 (8/22)*	0 (0/13)
2–5 y	38.1 (40/105)***	7.3 (4/55)	37.8 (14/37)***	20.8 (5/24)*	0 (0/28)
> 5–10 y	28.5 (35/123)**	9.7 (6/62)	31.4 (11/35)***	20.6 (7/34)**	0 (0/32)
> 10 y	34.9 (66/189)***	8.1 (8/99)	34.3 (12/35)***	22.2 (12/54)**	2.0 (1/50)
hs-CRP normalization[d]					
< 2 y	53.6 (37/69)***	9.1 (3/33)	38.9 (7/18)	70.0 (14/20)**	12.5 (1/8)
2–5 y	57.6 (53/92)***	4.3 (2/47)	59.4 (19/32)***	23.8 (5/21)**	0 (0/27)
> 5–10 y	49.6 (60/121)***	11.3 (6/53)	20.6 (7/34)**	21.2 (7/33)**	0 (0/31)
> 10 y	46.1 (70/152)***	7.7 (6/78)	46.7 (14/30)***	26.1 (12/46)*	5.3 (2/38)
Endoscopic response[e]					
< 2 y	61.8 (63/102)***	14.5 (8/55)	45.0 (9/20)	53.1 (14/27)*	21.1 (4/19)
2–5 y	48.1 (64/133)***	11.1 (8/72)	53.7 (22/41)***	17.9 (5/28)	10.5 (4/38)
> 5–10 y	36.4 (61/168)***	7.3 (6/82)	41.2 (21/51)***	21.4 (9/42)*	2.6 (1/38)
> 10 y	30.7 (83/271)***	5.1 (7/138)	27.5 (15/56)***	25.4 (18/72)***	4.3 (3/70)
Endoscopic remission[f]					
< 2 y	40.2 (41/102)***	10.9 (6/55)	40.0 (8/20)	30.1 (8/27)	21.1 (4/19)
2–5 y	26.3 (35/133)***	5.6 (4/72)	39.0 (16/41)***	10.7 (3/28)	2.6 (1/38)
> 5–10 y	26.8 (45/168)***	4.9 (4/82)	21.6 (11/51)**	19.0 (8/42)**	0 (0/38)
> 10 y	15.5 (42/271)***	2.2 (3/138)	23.3 (13/56)**	18.1 (13/72)*	5.8 (4/70)
Mucosal healing[g]					
< 2 y	37.3 (38/102)***	7.3 (4/55)	35.0 (7/20)	22.3 (6/27)	10.5 (2/19)
2–5 y	23.4 (31/133)***	2.8 (2/71)	34.1 (14/41)***	14.3 (4/28)*	0 (0/38)
> 5–10 y	19.2 (32/167)***	3.7 (3/82)	17.6 (9/51)*	14.6 (6/41)	2.6 (1/38)
> 10 y	15.0 (40/269)***	0 (0/137)	18.2 (10/56)*	8.7 (6/71)	4.4 (3/69)

APS, abdominal pain score; CD, Crohn's disease; CDAI, Crohn's disease activity index; FCP, fecal calprotectin; hs-CRP, high-sensitivity C-reactive protein; PBO, placebo; QD, once daily; SES-CD, Simple Endoscopic Score for Crohn's Disease; SF, stool frequency; UPA, upadacitinib; y, years.
[a]Average daily SF ≤ 2.8 and average daily APS ≤ 1.0, and both not greater than baseline.
[b]CDAI < 150.
[c]FCP normalization to ≤ 250 mg/kg among patients with elevated baseline levels.
[d]hs-CRP normalization to ≤ 5 mg/L, among patients with elevated baseline levels.
[e]Decrease in SES-CD > 50% from baseline (or for patient with a baseline SES-CD of 4, ³ 2-point reduction from baseline) .
[f]SES-CD ≤ 4 and ³ 2-point reduction from baseline and no subscore > 1 in any individual variable.
[g]SES-CD ulcerated surface subscore of 0.
*$P \leq .05$; **$P \leq .01$; ***$P \leq .001$ vs PBO. All P-values are nominal and not multiplicity adjusted.

Table. Efficacy Outcomes by Baseline CD Duration During Induction and Maintenance Studies.

Further, the clinical remission rate per CDAI at week 12 was numerically higher with UPA45 vs PBO in patients with CD duration < 2 years, and was nominally higher vs PBO in other CD duration subgroups (Table). Consistent with induction outcomes, UPA30 and UPA15 demonstrated nominally or numerically greater improvement in efficacy endpoints vs PBO regardless of disease duration at week 52 (Table); there was also a general trend towards greater improvements in efficacy outcomes in patients with a shorter disease duration.

Conclusion: Regardless of disease duration, UPA demonstrated positive clinical and endoscopic outcomes in patients with moderately to severely active CD. Achievement of endoscopic endpoints was numerically higher in patients with shorter vs longer duration of CD, suggesting initiation of UPA earlier in the disease course may lead to better outcomes for patients.

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PP0813

THE ROLE OF REGULATION OF ENDOCANNABINOID SYSTEM ACTIVITY IN INHIBITION OF INTESTINAL FIBROSIS IN IBD

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Introduction: Intestinal fibrosis is a common complication of inflammatory bowel diseases (IBD) characterized by increased production of extracellular matrix and crosslinking enzymes by intestinal mesenchymal cells. The advanced process of fibrosis leads to strictures often requiring surgical treatment. Therefore new methods of treatment of intestinal fibrosis are sought with endocannabinoid system (ES) as a potential therapeutic target. Cannabinoid receptors 1 and 2 (CB1 and CB2, respectively) are classic receptors of the ES involved in the regulation of the intestinal mucosa inflammation and permeability. Studies show that the regulation of ES activity can affect the process of fibrosis in various preclinical models of fibrosis.

Aims & Methods: The primary purpose of the study was to evaluate the effect of selective CB1 agonist, WIN 55, 212-2 (WIN) on expression of fibrosis regulatory proteins: alpha smooth muscle Actin 2 (Acta2), Collagen I (Coll), Fibronectin 2 (Fn2) and SMAD family member 3 (Smad3) in a mice model of Dextran sulfate sodium (DSS)-induced intestinal fibrosis. Moreover, the expression of the named proteins in colonic samples of patients with ulcerative colitis (UC) and healthy controls (HC) was compared.

Chronic colitis and fibrosis in mice model were induced by oral administration of 1.5% DSS in rotation with tap water for 3 weeks in three cycles. WIN was administrated starting from day 10th and continued every other day until day 77th, control mice were administered with saline. The mice were sacrificed on day 78th, their colon was excised and samples were taken for molecular analysis. Colonic samples from patients with UC and HC were collected and frozen for further exploration. The expression of genes encoding Acta2, Smad3, Col1, Fn2 in mouse and human material was assessed by Real Time RT-PCR. Statistical analysis was conducted using Student's t-test to compare means of expressed molecules.

Results: We found lower relative expression of genes encoding assessed fibrosis regulatory proteins in mice treated with WIN than in inflamed mice: 4698±2323 vs. 9656±6032 for ACTA2, 4774±1073 vs 8510±2906 for COL1, 20993±7280 vs. 52148±17877 for FN1 and 373±31 vs. 478±77 for SMAD3. In human samples we noticed higher relative mean expression level of COL1 and SMAD3 in patients with UC compared to 7 HC 37422±6554 vs. 23816±2681 and 2134±261 vs. 1593±255, respectively.

Conclusion: We observed a decrease in relative expression of FN1, ACTA2, COL1, SMAD3 in samples from mice treated with CB1 agonist compared to inflamed mice. Also, a difference in expression of these proteins were found in intestinal samples from UC patients compared to HC, indicating a contribution of these molecules to intestinal fibrosis. Our results show that regulation of ECS activity play role in the inhibition of the intestinal fibrosis in IBD and appears as a potential therapeutic target in patients at high risk of developing strictures.

Disclosure: Nothing to disclose.

PP0814

EFFECTS OF THE MONASH POUCH DIET ON VOLATILE ORGANIC COMPOUNDS (VOC) IN THE POUCH LUMEN IN PATIENTS WITH AN ILEOANAL POUCH

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Introduction: The Monash Pouch diet is a multi-prong diet strategy that theoretically targets 'correction' of the microbial metabolic activities, namely excessive sulphide reduction and protein fermentation in the pouch. The diet has previously been shown to be a feasible, highly tolerated and acceptable diet to patients with an ileoanal pouch with signals for clinical improvements[1].

Aims & Methods: The study aimed to assess the effects of the 5-week dietary intervention on the pouch microenvironment via volatile organic metabolites in patients with an ileoanal pouch. In a pilot, open-label study, patients with an ileoanal pouch for ulcerative colitis received dietary advice on a Monash Pouch diet for 5 weeks. They were instructed to restrict osmotically active carbohydrates, total and animal protein, sulphate/sulphite preservatives and carrageenan while increasing oligosaccharide intake. Faecal samples were collected at baseline and at the end of the 5-week intervention and analysed for VOCs using gas-chromatography-mass spectrometry. Changes in VOC were compared particularly for bacterial fermentative metabolites. Results were analysed using Metaboanalyst (version 5.0) and metabolites of interest were defined by paired fold-change analysis.

Results: Eleven patients (6 men, mean age 55 years) completed the dietary intervention and provided faecal samples. Average number of VOCs detected between baseline and post-diet intervention (53 (9) vs 55 (7); p=0.59; paired t-test) were not significantly different. At baseline, percentage occurrence of protein fermentation metabolite was the highest for phenols (9/11, 81%) whereas the branched-chain fatty acids, 2- and 3-methylbutanoic acid (isovalerate) (45% and 64% respectively) and 2-methylpropanoic acid (isobutyrate) (54%), were detected. No volatile sulphur compounds

were detected. The dietary intervention saw no significant changes in ethanoate (acetate) (p=0.88), propanoate (propionate) (p=0.44), butanoic (butyrate) (p=0.57) or any of protein fermentation metabolites (p>0.15). Fold-change analysis identified six important features that were altered from pre- to post-intervention. Ethyl-2-methylbutanoate (fold change: 4.07; Log_2 2.03), 3-isothiocyanatoprop-1-ene (2.01; Log_2 1.01) increased whilst pentane-2,3-dione (0.48; Log_2 -1.07), propanal (0.49; Log_2 -1.02) and 7-methyl-3-methylideneocta-1,6-diene (0.49; Log_2-1.02) decreased. Of the known bacterial fermentation metabolites, there was a trend for changes in intake of animal protein to correlate with changes in 3-methylbutanoic acid(r=0.57; p=0.07) and a significant correlation between fibre intake and propanoic acid (r=-0.66; p=0.03).

Conclusion: VOC analysis of ileal effluent has provided signals that protein fermentation may not be prominent (low concentrations of metabolites associated with protein fermentation) and that the Monash Pouch diet paradoxically shifted pouch microbial fermentation towards increased proteolytic activities (increased ethyl-2-methylbutanoate), suggesting the dietary strategy may require modification. However, given the small sample size of this cohort, these results should be interpreted with caution and the fold-change data be regarded as clues to VOCs that may be significant in a larger cohort of ileoanal UC pouch patients.

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CP: None to declare

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PP0815

IS USTEKINUMAB EFFECTIVE IN CROHN'S DISEASE PATIENTS WITH PARADOXICAL SKIN REACTIONS CAUSED BY TUMOR NECROSIS FACTOR-ALPHA INHIBITORS?

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Introduction: Ustekinumab (UST) is becoming widely used as a therapeutic option for Crohn's disease (CD) as a biologic agent with a novel mechanism of interleukin (IL)-12/23 inhibition, which is expected to have therapeutic effects on pathology involving factors other than tumor necrosis factor (TNF)-α.

In this study, we investigated the effect of UST on skin lesions and the rate of subsequent continuous maintenance treatment of CD with skin lesions that appeared as a paradoxical reaction to TNF-α inhibitor (TNFi).

Aims & Methods: Fifty-four patients with CD who were introduced UST as 2nd or 3rd Bio at our hospital from June 2017 to September 2020 were retrospectively enrolled in the study. We defined treatment discontinuation as hospitalization, surgery, or treatment change due to CD exacerbation. The cumulative continuous maintenance dose rate was calculated by the Kaplan-Meier method.

Results: Of the 54 patients, 10 had skin lesions as a paradoxical reaction to the previous TNFi. Eight patients were males, and 2 were females. The median (interquartile range) values for each were: age, 35.4 (32.9–39.2) year-old; disease duration, 13.4 (6.4–18.1) years; Harvey-Bradshaw Index (HBI), 3 (1–5.5); CRP, 0.22 (0.04–0.38) mg/dL, Alb 3.95 (3.6–4.4) g/dL. Infliximab in 4 patients and adalimumab in 6 patients were used as the last TNFi. Of the 10 patients in the group with the paradoxical reaction, 4 (50%; 2 psoriasiform eruptions, 2 folliculitis, and 1 palmoplantar pustulosis) achieved complete response of skin lesions, 5 (50%; 2 psoriasiform eruptions and 2 exacerbations of atopic dermatitis) achieved partial response. After 1 year of UST induction, the cumulative continuous treatment rate was 56.3% in the group with no paradoxical reaction and 70% in the group with paradoxical reaction, and there was no statistical difference between the two groups (Log-rank; P = 0.349). A univariate Cox regression analysis also showed that the clinical history of skin paradoxical response was not associated with UST sustained efficacy (Table).

Risk factors	Reference	HR(95%CI)	P value
Gender, Female	Male	0.97 (0.39-2.42)	0.95
Disease duration(yr)		0.99 (0.95-1.03)	0.53
Disease behavior, B2	B1	0.23 (0.07-0.73)	0.013
Disease behavior, B3	B1	0.14 (0.04-0.50)	0.0025
Perianal disease, Yes	No	0.51 (0.24-1.09)	0.082
Harvey–Bradshaw index at induction		1.05 (0.97-1.13)	0.27
Bio exposure, Double	Single	1.29 (0.6-2.76)	0.51
Concomitant IM, Yes	No	1.36 (0.62-2.98)	0.44
Skin paradoxical reaction, Yes	No	0.60 (0.21-1.76)	0.35

Conclusion: UST was highly effective in treating skin lesions as a paradoxical reaction to TNFi (90% partial or complete response). The cumulative continuous treatment rate after induction of UST was comparable to that of the group without paradoxical skin reaction, indicating that UST is useful for treating CD with paradoxical skin reaction to TNFi.

Disclosure: The authors declare no conflicts of interest associated with this manuscript.

PP0816

INFLUENCE OF VITAMIN D SUPPLEMENTATION ON THE CLINICAL EFFICACY OF USTEKINUMAB IN PATIENTS WITH CROHN'S DISEASE: A RETROSPECTIVE ANALYSIS

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Introduction: It is uncertain whether vitamin D supplementation contributes to improving the outcomes of patients with Crohn's disease (CD). Our study aimed to retrospectively analyze the influence of vitamin D supplementation on the clinical efficacy of Ustekinumab (UST) in Chinese CD patients.

Aims & Methods: A total of 71 patients with moderately to severely active CD were included, who received UST as first-line treatment from May 2021 to February 2023. Harvey Bradshaw Index (HBI) was applied to evaluate disease activity of CD patients. Simplified Endoscopic Score for Crohn's Disease (SES-CD) was employed to assess intestinal inflammation in CD patients. According to whether or not take vitamin D supplementation

(400IU/day) simultaneously in the course of UST treatment, the patients were divided into supplementary group (n=40) and non-supplementary group (n=31). The main end points were the differences of clinical remission rate (HBI≤4 scores) and mucosal healing rate (SES-CD≤2 scores) between supplementary group and non-supplementary group at week 24. The secondary end points were the differences of clinical response rate (the decrease of HBI score was more than 3 scores than week 0) and biochemical remission rate (CRP≤5mg/L) between supplementary group and non-supplementary group at week 8.

Results: At week 8, the average level of serum 25-hydroxyvitamin D [25(OH)D] was elevated in supplementary group compared with its baseline level [(17.18±5.46)μg/L *vs* (13.71±7.73)μg/L, *P*<0.001]. Compared with non-supplementary group, the average HBI score [(5.71±1.88) *vs* (8.34±2.27), *P*<0.001] and median CRP level [10.83(21.07, 3.95)mg/L *vs* 16.17(35.48, 6.91)mg/L, *P*=0.001] were significantly decreased in supplementary group. Both of the clinical response rate and biochemical remission rate were higher in supplementary group than in non-supplementary group (63.41% *vs* 46.67%, *P*=0.036; 43.90% *vs* 13.33%, *P*=0.001, respectively). At week 24, the average level of serum 25(OH)D continued to be increased in supplementary group compared with its baseline level [(24.73±8.34)μg/L *vs* (13.71±7.73)μg/L, *P*<0.001]. The declines of average HBI score [(4.90±1.45) *vs* (2.33±0.59), *P*<0.001] and SES-CD score [(2.97±1.41) *vs* (4.33±3.20), *P*=0.037] were more significant in supplementary group than in non-supplementary group. Both of the clinical remission rate and endoscopic mucosal healing rate were significantly higher in supplementary group than in non-supplementary group (58.53% *vs* 36.67%, *P*=0.001; 60.97% *vs* 30.00%, *P*=0.003, respectively). According to the baseline level of serum 25(OH)D, 71 CD patients were divided into vitamin D deficiency group[25(OH)D<20μg/L, n=42] and non-deficiency group[25(OH)D≥20μg/L, n=29]. The further analysis for vitamin D deficiency group showed that the clinical remission rate and mucosal healing rate were higher the patients receiving vitamin D supplementation treatment than those not receiving vitamin D supplementation treatment (58.62% *vs* 38.46%, *P*<0.001; 51.72% *vs* 30.77%, *P*<0.001, respectively).

Conclusion: Vitamin D supplementation may contribute to improving the clinical efficacy in CD patients receiving UST as first-line treatment, especially suitable for those patients with vitamin D deficiency.

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PP0817

EFFICACY OF ANTI-TUMOR NECROSIS FACTOR ALPHA THERAPY IN INTESTINAL BEHÇET'S DISEASE

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Introduction: Intestinal Behçet's disease (BD) is a rare chronic intestinal vasculitic disorder and it is often refractory to conventional therapies such as corticosteroids and immunomodulators. We aimed to assess the efficacy and tolerability of anti-tumor necrosis factor alpha (TNF α) in intestinal BD.

Aims & Methods: We retrospectively reviewed 667 patients with intestinal BD registered at the Inflammatory Bowel Disease Clinic of Severance Hospital, Seoul, Korea. Response rates of anti-TNF α treatment, predictive factors of sustained response and relapse were analyzed.

Results: A total of 46 patients with refractory moderate to severe intestinal BD were selected for the anti-TNF α therapy. According to the intention-to-treat (ITT) principle, clinical remission rates were 8.7%, 21.7%, 6.5%, and 8.7%, clinical response rates were 76.1%, 71.7%, 39.1%, and 26.1%, and biological response rates were 60.9%, 60.9%, 39.1%, and 26.1%, respectively. According to the per-protocol (PP) principle, clinical remission rates were 8.7%, 25.6%, 13.0%, and 28.6%, clinical response rates were 76.1%, 84.6%, 78.3%, and 85.7%, and biological response rates were 60.9%, 71.8%, 78.2%, and 85.7%, respectively. Previous corticosteroid use more than 20 mg per day (HR: 4.781) and multiple number of ulcers (HR: 8.599) were more likely to have relapse of intestinal BD, and clinical response at 1 month (HR: 0.189) was associated with lowering the relapse. One patient had severe sepsis, 1 patient was diagnosed pneumonia and herpes zoster, and 1 patient experienced otitis externa.

Conclusion: Anti-TNF α therapy could be a useful therapeutic option for refractory intestinal BD with an acceptable efficacy and tolerability profiles.

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PP0818

RISK FACTORS OF MALIGNANCIES IN INFLAMMATORY BOWEL DISEASE: A SINGLE CENTER EXPERIENCE

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Introduction: Inflammatory Bowel Diseases (IBD) patients are associated to a higher risk of developing colonic dysplasia and colorectal cancer due to long-standing colonic inflammation and immunosuppressant therapies. They seem to have also a higher risk of developing extra-intestinal

	Colon	Lymphoma	Melanoma	Non-melanoma	Breast	Urinary	Prostate
N	23 cases	9 cases	24 cases	15 cases	27 cases	12 cases	11 cases
Age at the time of cancer	52.7±16.4	59±11.6	49.4±12.9	54.1±11.0	55.9±12.4	56.1±15.4	65.3±8.5
Gender (Males,%)							
Cases	14 (60.9)	5 (55.6)	12 (50)	7 (46.7)	0***	11 (91.6)**	11 (100)**
Controls	26 (52)	26 (52)	26 (52)	26 (52)	26 (52)	26 (52)	26 (52)
Age at cancer diagnosis (mean ± SD)							
Cases	31.0±15.8***	41.2±14.1	38.2±15.6	38.1±13.3	40.9±13.9	44.9±15.7**	49.6±13.7***
Controls	38.9±0.8	38.9±0.8	38.9±0.8	38.9±0.8	38.9±0.8	38.9±0.8	38.9±0.8
Type of Disease (UC%)							
Cases	12 (52.2)	5 (55.5)	12 (50)	8 (53.3)	11 (40.7)	7 (58.3)	7 (58.3)
Controls	30 (60)	30 (60)	30 (60)	30 (60)	30 (60)	30 (60)	30 (60)
Biologic before							
Cases	6 (26.1)		9 (37.5)	8 (53.3)	8 (29.6)	3 (25)	1 (9.1)
Controls	17 (34)	17 (34)	17 (34)	17 (34)	17 (34)	17 (34)	17 (34)
AZA before							
Cases	6 (26.1)	6 (66.7)	10 (41.7)	6 (40)	9 (33.3)	2 (16.7)	2 (18.2)
Controls	13 (26)	13 (26)	13 (26)	13 (26)	13 (26)	13 (26)	13 (26)
Biologic ongoing							
Cases	3 (13.0)**	7 (87.5)	7 (29.2)	5 (33.3)	4 (14.8)**	2 (16.7)	1 (9.1)**
Controls	22 (44)	22 (44)	22 (44)	22 (44)	22 (44)	22 (44)	22 (44)
AZA ongoing							
Cases	0	0	3 (12.5)**	1 (6.7)	4 (14.8)**	0	0
Controls	0	0	0	0	0	0	0

Other cancers: *Cholangiocarcinoma (1), thyroid (8), lung (5), uterus&ovary (5); other (13) *** p<0.001, ** p<0.01, and * p<0.05.*

PP0818 Table 1: Type and frequency of Malignancies and characteristics of the patients.

malignancies, such as cholangiocarcinoma, skin cancer, and others. Different studies have been conducted to assess whether a correlation exists between IBD, medical treatments and cancers, but the results are controversial.

Aims & Methods: Our study aimed to evaluate the risk factors of malignancies in our IBD patients, particularly considering the medication history.

In this single-center retrospective study, IBD patients with a history of at least one malignancy post-IBD diagnosis followed at the Gastroenterology Unit of Azienda Ospedale Università Padova were enrolled (***cases***). Demographics and clinical data, including medication information, were collected before and at the time of malignancy diagnosis. A group of IBD patients, matched by sex and age, without a malignancy history were also included (***controls***), considering the medications taken before and at the time of the last visit for comparison.

Results: Among 2213 IBD patients followed at our center (1212 males, 1040 CD, and 1173 UC), 153 cases (80 UC and 73 CD, 46.4% males, mean age at diagnosis: 38.4±14.7) and 50 sex and matched controls were included (30 UC and 20 CD, 52% males, mean age at diagnosis: 38.9±0.8). Twelve patients had two malignancies, and 2 had three. For the scope of our study, we considered only the first tumor. Results are shown in the Table 1.

The mean time from IBD diagnosis to the first tumor was 15 years (SD 10.5). Considering malignancies, the most frequent in our population were breast cancer (27/1001 females, 2.7%), colorectal cancer (23/2213, 1%), melanoma (24/2213, 1.1%), and non-melanoma skin cancer (15/2213, 0.7%). Patients with colon cancer were younger at the time of IBD diagnosis (31.0±15.8 vs. 38.9±0.8), while patients with prostate and urinary cancer (11/2213, 0.5%) were older compared to controls (49.6±13.7 vs. 38.9±0.8). A lower percentage of patients with colon (13%), breast (4%), and prostate cancers (9.1%) had taken biological therapy before cancer occurrence, as compared to controls (44%, p<0.01).

Finally, we observed a significantly higher number of melanoma and breast cancer patients taking azathioprine (AZA) at the time of cancer diagnosis for more than 4 years. No difference in terms of duration of AZA and biological therapies before cancer diagnosis was observed.

Conclusion: Our study found that biological therapy was not associated to malignancies, while azathioprine use was associated with breast and melanoma cancers. A younger age at diagnosis was associated with colon cancer, while an older age with prostate and urinary cancers.

Disclosure: Nothing to disclose.

PP0819

SYSTEMATIC REVIEW AND META-ANALYSIS: PSYCHOLOGICAL THERAPIES ARE ASSOCIATED WITH SHORT-TERM IMPROVEMENTS IN PSYCHOLOGICAL HEALTH IN INFLAMMATORY BOWEL DISEASE

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Introduction: Psychological co-morbidity, including anxiety and depression, is highly prevalent in inflammatory bowel disease (IBD), and associated with worse disease outcomes and increased healthcare utilization. This complex relationship likely arises due to gut-brain axis communication. Treatments targeting this pathway, including psychological therapies, may provide a means of improving psychological health in IBD. However, randomised control trials (RCTs) examining effect of psychological therapies in IBD are conflicting, and a previous meta-analysis demonstrated only short-term improvements in quality of life.

Aims & Methods: To assess whether psychological therapies positively impact psychological health of patients with IBD, we updated our previous systematic review and meta-analysis. RCTs examining the effects of psychological therapies vs. control in adults with IBD were identified by searching MEDLINE, EMBASE, EMBASE Classic, PsychINFO, and the Cochrane central register of controlled trials. Two investigators assessed eligibility of potential studies and extracted data from eligible studies

independently. Continuous outcomes assessed included the effect of psychological therapies on measures of psychological health, including depression, anxiety, stress, and quality of life scores. Where data were available, outcomes were assessed both upon completion of therapy, and again at the final point of follow-up. The effect of psychological therapies was summarised using a standardised mean difference (SMD) with 95% confidence intervals (CIs).

Results: In total 25 RCTs were included, reporting data from 2,227 patients with IBD. Nine studies examined effects of psychological therapies in specific populations, including patients with reduced quality of life, elevated stress scores, fatigue, or presence of depressive symptoms. The remaining studies were conducted in unselected patients. In four RCTs, for patients with clinically active IBD, upon completion of treatment, quality of life scores were significantly higher in patients assigned to psychological therapies (SMD = 0.68; 95% CI 0.09 to 1.26, *p*=0.02), but there was no improvement in anxiety scores (SMD = -1.04; 95% CI -2.46 to 0.39). The effects of psychological therapies for patients with quiescent disease in 21 RCTs are summarized in table 1; psychological therapies led to significantly lower anxiety, depression, and stress scores, and significantly higher quality of life scores at treatment completion. This benefit persisted to final follow-up in trials for depression scores. Effect was strongest with third wave therapies, and in RCTs recruiting selected patients.

	Number of patients	Summary Statistic for Effect of Psychological Therapies (95% confidence interval)	p value for the difference
Anxiety scores (SMD)			
At completion of therapy	1088	-0.23 (-0.36 to -0.09)	<0.001
At final point of follow-up	700	-0.17 (-0.34 to 0.01)	0.06
Depression scores (SMD)			
At completion of therapy	1189	-0.26 (-0.38 to -0.15)	<0.001
At final point of follow-up	856	-0.16 (-0.30 to -0.03)	0.02
Stress scores (SMD)			
At completion of therapy	813	-0.22 (-0.42 to -0.03)	0.03
At final point of follow-up	551	-0.18 (-0.40 to 0.04)	0.11
Quality of life scores (SMD)			
At completion of therapy	1080	0.31 (0.16 to 0.46)	<0.001
At final point of follow-up	773	0.13 (-0.02 to 0.29)	0.08

Table 1- Effect of Psychological Therapy on measures of psychological health in patients with quiescent IBD.

Conclusion: Psychological therapies exert short-term benefits on all aspects of psychological health for patients with quiescent IBD and improve quality of life in patients with clinically active disease. Future RCTs should examine the effects of these therapies in selected groups of patients with evidence of psychological distress, where benefit is likely to be greatest.

Disclosure: Nothing to disclose.

PP0820

LONG TERM PERSISTENCE OF USTEKINUMAB IN CROHN'S DISEASE: CLINICAL OUTCOMES AND PROGNOSTIC FACTORS

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Introduction: Ustekinumab is a monoclonal antibody that targets the p-40 subunit of the interleukins IL-12 and IL-23 and is used to treat moderate to severe Crohn's disease.

Aims & Methods: The present study aims to capture the experience of a tertiary center regarding the use of ustekinumab in patients with Crohn's disease in clinical practice [real-world] settings. This is a retrospective cohort study. Demographic and disease-related data on the day of ustekinumab initiation were collected. Study primary endpoint of the study was the persistence of treatment at the end of the first year without the administration of corticosteroids (cs-free). Secondary endpoints were the persistence of treatment at the end of the first, second and fourth year with and without the need for corticosteroids. The statistical program SPSS-23 was used for the analysis.

Results: In total, 99 patients have been registered until this point [women, 52.5%; mean age 42 years, SD=16; median disease duration=6 years IQR=1.5-11;A1/A2/A3, 6.1/65.7/28.3%; L1/L2/L3/L4, 58.6/7.1/34.3/12.1%; B1/B2/B3, 51.5/30.3/18.2%; perianal disease 26%]. Among study participants, 68.7% reported history of exposure to at least one biologic agent and 35.4% had undergone a CD-related surgery. At ustekinumab initiation 6.1% were receiving concomitant azathioprine, 4% methotrexate and 32.3%corticosteroids. 75.8% (75/99) continue ustekinumab with a median duration of administration of 14.5 months (range=0.5-66). Cs-free persistence in one-year was observed in 70.1% (54/77), cs-free persistence in two-years in 59.2% (29/49), and cs-free persistence in four-years in 45% (9/20). Simple persistence in one-, two- and four-years was observed in 84.4% (65/77), 61.2% (30/49) and 55% (11/20) respectively. Seven patients (9.3%) required intensification (90mg subcutaneously every 4 weeks) and one (1.3%) required reinduction (one-time weight-adjusted intravenous administration) due to loss of response. Patients that achieved cs-free persistence in one year were associated with higher persistence in two- and four-years compared with those who received corticosteroids during the first year of ustekinumab administration (*P*<0.001). Patients with a history of CD-related surgery achieved higher percentages of persistence (*P*<0.05). In univariate logistic regression, cs-free persistence in one-year was found to be associated with Harvey-Bradshaw Index [HBI] (OR=0.81, *P*=0.025), CRP [mg/L] (OR=0.96, *P*=0.059), history of CD-related surgery (OR=3.52, *P*=0.041), and neutrophils>5820/μL (OR=0.19, *P*=0.021). In multivariate logistic regression, cs-free persistence in one-year was found only to be negatively associated with HBI (OR=0.44, 95%CI: 0.24-0.81, *P*=0.008). No serious infection or malignancy has been observed.

Conclusion: Our analysis showed that patients with Crohn's disease achieved high rates of persistence on ustekinumab without the need of corticosteroids administration up to 4 years after the initiation of treatment. Patients with more severe diasease at drug initiation experienced lower persistence. Long-term administration of ustekinumab is not associated with any new safety concerns.

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PP0821

EFFICACY OF INTRAVENOUS FERRIC CARBOXYMALTOSE TREATMENT IS INDEPENDENT FROM DISEASE ACTIVITY AND DOES NOT REQUIRE THERAPY OPTIMISATION IN CASE OF SILENT IBD WITH IDA – A PROSPECTIVE STUDY

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Introduction: Anaemia and iron deficiency (IDA) in inflammatory bowel disease (IBD) usually suggests an underlying inflammatory activity at some degree. In case of inflammation, oral iron supplementation is mostly ineffective, or even it could worse symptoms. In contrast, ferric-carboxymaltose appears to be effective and safe independently from underlying disease activity so far.

Aims & Methods: Our aim was to prospectively investigate the short- and long term efficacy of ferric carboxymaltose regarding to disease activity and whether dose optimisation of IBD treatment (as a T2T approach) is necessary with iv iron supplementation in case of IDA observed in patients with remission. We included patients in our prospective study based on the IDA criteria defined by the ECCO guideline. Patients were divided into two groups according to the disease status (active/remission). Active disease was defined by CRP ≥10 mg/l or by clinical activity scores CDAI ≥150 in Crohn's disease and pMayo ≥2 in ulcerative colitis. Patients in the active group (A) received iv. iron with therapy modification. Patients in the remission group were further divided into two subgroups: patients in group R1 received iron supplementation alone, while patients in the R2 group had therapy optimisation in addition to iron supplementation. Ferric-carboxymaltose was administered at the first visit according the body weight and haemoglobin level. From that time, laboratory parameters and clinical activities were measured in every two month throughout the 6 months' follow-up period. Primary outcome was defined as the normalisation of haemoglobin levels or an increase of at least 20 g/l.

Results: In total, 73 patients were involved (mean age 40.4 years; male/female ratio 51/19; CD/UC 46/16), 27 patients in group A, and 23-23 in groups R1 and R2, respectively. Primary outcomes achieved at week 8, 16 and 24 did not differ between groups. Haemoglobin level increased significantly in all groups ($p<0.001$), in addition, no difference was observed between patients in the active and remission groups. Increase in haemoglobin levels did not differed in R1 and R2 subgroups. Ferritin and serum iron levels and transferrin saturation increased in all groups ($p<0.05$), without any difference observed between the groups. No adverse event was observed.

Conclusion: Based on our results, ferric-carboximaltose is an effective and safe therapeutic method in the treatment of IDA. Our results suggest, that iv. ferric-carboxymaltose is equally effective in active and inactive IBD. Based on our results, iv. iron supplementation is efficient in remission without treatment modification, however, due to the pathomechanism of IDA, treatment modification should be considered in every case.

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PP0822

REAL-WORLD DATA IN INFLAMMATORY BOWEL DISEASES ON VEDOLIZUMAB THERAPY: INTERIM ANALYSIS OF THE NON-INTERVENTIONAL LISTEN II STUDY

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Introduction: Vedolizumab (VDZ) is a gut-selective anti-lymphocyte trafficking agent and is approved for treating patients with moderate to severe active UC (ulcerative colitis) and CD (Crohn's disease) intravenously (IV) or subcutaneously (SC).

The LISTEN II study determines patient characteristics and effectiveness in VDZ-treated patients in clinical routine with focus on patient reported outcomes (PROs).

Aims & Methods: LISTEN II is a multicentre, prospective, non-interventional study in Germany. Adult patients with UC or CD who either initiate VDZ IV or switch from IV to SC formulation, are enrolled. Data on patient characteristics, modalities of VDZ use and disease activity (pMayo and HBI) are followed up quarterly for up to one year per routine care.

Electronic assessments of PROs are recorded weekly via a study-specific app (ePRO). Here, interim data up to 6 months follow-up are presented.

Results: Data of 242 UC (52% female, mean age 41 years) and 149 CD patients (60% female, mean age 40 years) were included in this analysis. VDZ treatment was newly initiated IV (start) in 206 UC and 127 CD patients and switched from IV to SC application (switch) by 36 UC and 22 CD patients at baseline.

After 6-month's treatment, total mean pMayo score decreased in UC start-patients from 5.0±2.1 to 2.1±2.0 and remained at 1.0±1.3 in switch-patients. In CD-start patients HBI score decreased from 5.6±4.2 to 2.9±3.5 and from 3.0±3.5 to 2.5±2.9 in switch-patients.

The ePRO was initially used by 74% of UC and 73% of CD patients. The mean age was 39 years and the majority (84%) had newly started VDZ treatment. The initial high willingness to ePRO use declined to approx. 40% usage within the second quarter and to 30% during further follow-up. When looking at sustained usage per patient (percentage of patients who completed at least one question of ≥80% of all questionnaires available to them), 62% of UC and 55% of CD patients were sustained ePRO users. Most of UC patients (82%) and CD patients (88%) used a support program for the first time.

ePRO users with UC more frequently reported high burden of disease at study inclusion compared to those with CD (55% versus 25%; high burden of disease defined for UC as pMayo >4 and CD as HBI >7), with a mean pMayo score of 4.4±2.5 for UC and mean HBI score of 5.3±4.2 for CD patients.

Overall, mean scores for ePRO symptoms declined within the follow-up period from baseline to 6 months. The absolute decline was most pronounced for symptoms impact on work productivity (3.9 to 1.9 points) in UC patients and sick leave (1.2 to 0.6 points) for CD patients (Table).

UC patients Symptoms (Score range)	General wellbeing (0-4)	Impact on work productivity (0-10)	Sick leave (days per week) (0-7)	Rectal bleeding (0-3)
Baseline mean (SD)	N=180 1.7 (0.9)	N=171 3.9 (3.0)	N=177 1.1 (2.3)	N=175 1.3 (1.2)
3 Month mean (SD)	N=115 1.3 (0.8)	N=111 2.3 (2.6)	N=111 0.4 (1.5)	N=111 0.5 (0.9)
6 Month mean (SD)	N=78 1.2 (0.6)	N=76 1.9 (2.2)	N=76 0.2 (1.0)	N=76 0.3 (0.6)
CD patients Symptoms (Score range)	General wellbeing (0-4)	Impact on work productivity (0-4)	Sick leave (days per week) (0-7)	Abdominal pain (0-4)
Baseline mean (SD)	N=107 1.7 (0.9)	N=106 1.6 (1.1)	N=104 1.2 (2.5)	N=107 1.7 (1.1)
3 Month mean (SD)	N=70 1.5 (0.7)	N=70 1.1 (1.0)	N=69 1.0 (2.3)	N=70 1.2 (0.9)
6 Month mean (SD)	N=41 1.4 (0.7)	N=41 1.1 (1.0)	N=40 0.6 (1.9)	N=41 1.1 (0.7)

Table: ePRO progression of UC and CD patients

Conclusion: LISTEN II real-world data support the effectiveness of VDZ treatment in UC and CD patients. Patients, newly starting VDZ IV showed a decrease in disease activity under VDZ treatment, while for patients switching from existing VDZ IV to SC maintained therapeutic effectiveness was observed. UC and CD patients reported a steady improvement of relevant symptoms under VDZ treatment using the ePRO, however app adherence declined to 30% during follow-up.

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PP0823

HYDROGEN GAS INHALATION IMPROVED INTESTINAL MICROBIOTA IN ULCERATIVE COLITIS: A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL

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Introduction: Recently, the dysbiosis of intestinal microbiota has been identified as a cause of ulcerative colitis (UC). We have reported that controlling the intestinal microbiota influences the efficacy of antibiotic-fecal microbiota transplantation (A-FMT) for UC. Hydrogen (H_2) has a cytoprotective function by removing active oxygen from cells, and it was reported that H_2 water maintained the balance of the intestinal microbiota and suppressed the progression in UC model mice.

Aims & Methods: In this study, we investigated changes in the intestinal microbiota, therapeutic effects, and safety of H_2 gas inhalation in UC patients.

We included active UC patients who participated in the clinical study "A randomized, double-blind, parallel-group study of hydrogen gas inhalation for ulcerative colitis" (UMIN000042017) between October 2020 and August 2021. Eligible participants are at least 20 years old and have been diagnosed with active UC {Lichtiger's Clinical Activity Index (CAI) of 3 to 10 and Mayo endoscopic subscores (MES) ≥ of 1}. 10 participants with UC were registered and were assigned to either the H_2 inhalation group or the air inhalation group. The H_2-producing machine (Jobs-α) was developed to generate 5-6% H_2 gas in 4 L/min mixed air by electrolysis. The placebo air machine was also developed and uses an air pump to generate 4 L/min of air. All participants will inhale the gas 4 hours every day for 8 weeks, and they are checked the inhalation time of the machine.

Patients are assessed the changes in the partial Mayo Score and CAI scores from baseline to the 8th weeks while checking for adverse events, and defined "remission" when their Mayo score improved to less than 2 points at 8 weeks after inhalation. The intestinal microbiota was analyzed by 16S rRNA sequencing of stool samples before and after inhalation.

Results: 10 patients (4 males and 6 females, age 38.1±8.9 years, disease duration 9.4±9.6 years, Mayo score 4.8±1.4, MES 1.2±0.4) participated in the study, and the total inhalation time was 225.6±100.0 hours. In the H_2 group, the Mayo score decreased from 4.6±1.4 to 3.0±1.3, and the remission induction rate was 3 out of 5 patients. In the placebo group, the Mayo score decreased from 5.0±1.4 to 3.8±1.5 ($p = 0.59$), and the remission induction rate was 1 out of 5 cases ($p = 0.24$). There were no adverse events due to inhalation. Analysis of the intestinal microbiota showed that the Chao1 index, a measure of alpha diversity and species richness, tended to be more diverse after H_2 inhalation ($p = 0.12$). Principal coordinate analysis was performed to compare differences in bacterial composition between H_2 group and placebo group. β-diversity tended to differ after inhalation from before in the H_2 group (ANOSIM, $p = 0.35$). The proportion of intestinal microbiota was compared between before and after H_2 inhalation. In the placebo group, the change of intestinal microbiota was not observed, wearers, in the H_2 group, Gordonibacter increased ($p = 0.07$), Clostridium ramosum ($p = 0.07$) and Schalia odontolytica ($p = 0.09$) decreased, and Gordonibacter pamelaeae ($p = 0.07$) increased, resulting in improvement the diversity of intestinal microbiota.

Conclusion: There are some limitations the small number of cases and a single-center clinical trial. H_2 inhalation increase the diversity of the intestinal microbiota and may have a possibility to lead to a therapeutic option of UC.

Disclosure: Nothing to disclose.

PP0824

SWITCHING FROM INTRAVENOUS TO SUBCUTANEOUS INFLIXIMAB FORMULATION DETERMINES A REDUCTION OF ANTIDRUG ANTIBODY LEVELS

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Introduction: Higher infliximab (IFX) trough levels (TL) are associated with better disease control in patients with inflammatory bowel diseases (IBD) treated with this drug. [1,2,3] Still, reduced TL and anti drug antibodies (ADAs) can be found in a proportion of patients receiving IFX therapy despite being in clinical and endoscopic remission.

An increase in infliximab TL has recently been reported after switching from intravenous (IV) to subcutaneous (SC) formulation. [4] Whether the increase of IFX levels observed after switching to SC formulation is associated with the reduction of ADAs has not been investigated yet.

Aims & Methods: This is a preliminary report from a prospective multicentre cohort study on IBD patients in deep remission switching from IV to SC IFX. Clinical and biochemical remission rates, iInfliximab TL and ADAs were assessed over a period of 12 months at specific time points (T0-T3-T6-T12). Variations of IFX levels and ADAs as compared with baseline were assessed over time.

Results: Data from 36 IBD patients (61% Crohn's disease, 39% ulcerative colitis, mean disease duration 9.17 years +/- 6.87, mean infliximab therapy at switch 5.61 years +/- 3.5), switched to subcutaneous IFX from May 2022 to April 2023, are reported. Mean follow-up time was 212.13 days (+/- 122.87, range 28-357 days). All patients remained in clinical remission at the end of follow-up. Median baseline IFX levels were 10.77 ug/ml (range 0.2-41.8 ug/m). A statistically significant increase in IFX median drug levels was observed three and six months after switching (37.9 ug/ml, range 0.2-51 ug/ml; p value <0.00001 and 35.75 ug/ml, range 9.6-51 ug/ml p value <0.00001) respectively. Seven patients (30%) had presence of ADAs at baseline, associated with reduced median TL (0.2 ug/ml, range 0.2-0,97). In this group, median infliximab TL increased after the switch (13.24 ug/ml at six months), which was associated in 42% of them with a significant reduction of ADAs over time.

Conclusion: Our preliminary data confirm a statistically significant increase in IFX levels after switching from IV to SC formulation over time despite the presence of ADAs. In patients with presence of ADA at baseline, switching to subcutaneous infliximab could lead to a significant reduction of their levels.

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PP0825

ACCELERATED OR ESCALATED INDUCTION REGIMENS OF INFLIXIMAB FOR STEROID-REFRACTORY ACUTE SEVERE ULCERATIVE COLITIS IN CLINICAL PRACTICE: DATA FORM THE ENEIDA REGISTRY

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Introduction: Acute severe flares occur in 15% of patients with ulcerative colitis (UC). Intravenous corticosteroids induce clinical remission in up to 50-60% of cases. Infliximab (IFX) and cyclosporin (CsA) are the only evi-

dence-based alternatives to colectomy in steroid-refractory acute severe UC (SRASUC), with a similar efficacy. It has been suggested that a more aggressive induction regimen of IFX might decrease the rate of colectomy.
Aims & Methods: To evaluate the short and mid-term outcomes of patients with SRASUC treated with IFX regarding the used induction regimen.
Methods: Retrospective, observational study including adult patients included in the ENEIDA registry supported by GETECCU, treated with IFX (at least two doses) due to SRASUC and available follow-up of at least 3 months or until colectomy or death. Dates and dosing of the first three IFX infusions, dose-escalation or treatment discontinuation, colectomy and date were collected. Induction regimens were grouped as follows: CONVENTIONAL (IFX 5mg/kg at 0, 2 and 6 weeks), ESCALATED (any of the first three infusions >5mg/kg) and ACCELERATED (second infusion administered before 11 days of the first one, or third infusion administered before 21 days of the second one).
Results: A total of 339 patients were included, 59% with extensive UC and 34% previously exposed to thiopurines. At the time of the first IFX infusion, median partial Mayo score was 7 (IQR, 6-8), median Mayo endoscopic subscore 3 (IQR, 2-3) and median C-reactive protein 49 mg/L (IQR, 18-99). IFX was started after a median of 7 days (IQR, 6-8) on iv steroids, with concomitant thiopurines in 51% of the cases. The induction regimen was conventional in 207 patients (61%), escalated in 81 (24%), and accelerated in 99 (29%), although 48 (14%) used escalated and accelerated regimens together. Partial Mayo score, Mayo endoscopic subscore and C-reactive protein levels at the time of the first IFX infusion were not significantly different between those patients following conventional regimen and those who did not; baseline serum albumin levels (29.9±0.7 vs 32.3±0.9 g/L; P=0.002) and prior exposure to thiopurines (38.2% vs 25.9%; P=0.022) were significantly lower in patients who followed escalated or accelerated regimens. One hundred and thirty-three patients (39%) discontinued IFX within the first year due to failure (no response or partial response) in 72 (21%), adverse event in 45 (13%), complete remission in 9 (3%) and patient's willingness in 5 (2%).
The colectomy rate at 30 days, 90 days and 12 months in the whole series was 6%, 8% and 13%, respectively. Patients who followed a full conventional regimen had significantly lower rates of colectomy at 30 (1.5% vs 12.9%; p<0.0001), 90 days (3.9% vs 15.2%; p<0.0001) and 1 year (9.6% vs 20.9%; p=0.004). In the logistic regression analysis, following a conventional induction regimen was the only protective factor of colectomy at 30 (OR 0.08 95%CI 0.02-0.36) and 90 days (OR 0.19 95%CI 0.07-0.54).
No differences were observed among conventional and intensified induction regimens in terms of steroid reintroduction and IFX discontinuation within the first year.
Conclusion: In clinical practice, accelerated and/or escalated induction regimens of IFX are used in almost half of the patients with SRASUC. Accelerated and escalated induction regimens were associated with significantly higher rates of colectomy at one and three months. Therefore, no benefit of using these modified induction regimens was found on the basis of current clinical practice decision-making criteria.
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PP0826

MAINTENANCE OF CLINICAL BIOCHEMICAL AND TRANSMURAL REMISSION IN IBD PATIENTS SWITCHING FROM INTRAVENOUS TO SUBCUTANEOUS INFLIXIMAB

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Introduction: Subcutaneous (SC) infliximab (IFX) is effective in maintaining biochemical, clinical and endoscopic remission rates [1,2,3] in inflammatory bowel disease (IBD) patients. Moreover, it has an excellent safety profile, particularly for immunological issues. Intestinal ultrasound (IUS) is a non-invasive and reliable tool that is currently gaining popularity for IBD monitoring. [4]
Transmural healing is considered a desirable long-term treatment endpoint, especially in Crohn's disease (CD). [5]
Whether switching from intravenous (IV) to SC IFX is effective in maintaining transmural remission in IBD is still not known.
Aims & Methods: This is a preliminary report from a prospective multicentre cohort study on both ulcerative colitis (UC) and CD patients treated with IFX. Patients on IV-IFX treatment for at least one year, on clinical, endoscopic and transmural remission were judged to be eligible for switching to SC-IFX. Patients were prospectively followed-up with clinical and biochemical parameters (fecal calprotectin, FC; C-reactive protein, CRP) over a period of 12 months at specific time points (baseline, 3, 6 and 12 months). Therapeutic drug monitoring was evaluated with trough levels and anti-drug antibodies. IUS was performed at baseline and every six months, during which bowel wall thickness (BWT) at terminal ileum (cut-off 3 mm), and at each colonic segment (cut-off 4 mm) was assessed. Limberg score for vascularization, and presence of mesenteric activation, lymphadenopathy and abdominal effusion were assessed. Clinical, biochemical, transmural remission rates and safety profile were prospectively evaluated.
Results: Thirty-six IBD patients were enrolled: males 72%, age 41.7 (± 13.14), 61% with CD. Perianal disease was present in 66% of CD patients. Mean disease duration was 9.1 ± 6.7 years, and patients had been receiving IFX therapy for a mean time of 5.88 ± 3.77 years. All patients showed normal BWT and vascularization (Limberg score <= 1) at baseline.
Median bowel wall thickness was 2.2 (IQR 1.6-2.6) mm for ileum; 2.0 (IQR 1.7-2.5) mm for right colon; 2.2 (IQR 2.0-3.0) mm transverse; left colon 2.7 (IQR 2.0-3.0) mm. Lymphadenopathy was reported in 4 patients (11.1%) and a mild abdominal effusion in 1 patient (2.7%). Mean follow-up time was 212.13 ± SD 122.87 days (range 28-357 days). All patients maintained IUS transmural remission with a median bowel wall thickness of 2.8 (IQR 2.2-3.0) mm for ileum; 2.6 (IQR 2.2-2.8) mm for right colon; 2.5 (IQR 2.0-2.8) mm transverse; left colon 3.6 (IQR 3.2-4.0) mm and a Limberg score <=1; abdominal effusion documented in a patient at baseline resolved by week 24. No statistically significant increase in FC levels (median FC 43 ug/g at T0, IQR 34-108 ug/g; median FC 26 ug/g at T6, IQR 18-48 ug/g; p >0.05), nor in CRP were observed. In only 3 (8.3%) patients a transitory increase in FC (FC > 250 ug/g) was observed, unrelated to IUS or endoscopic activity. No patients discontinued therapy with SC-IFX, treatment was overall well tolerated: six mild infective events, two mild cutaneous injection reaction were observed, with no patient developing severe adverse events (SAEs) during the study period. To date all patients are still in clinical remission, including perianal disease, on treatment with SC-IFX.

Conclusion: Switching from IV to SC infliximab in a selected cohort of IBD patients is safe and effective in maintaining clinical, biochemical and transmural remission. IUS is a useful, non-invasive and low-cost tool for periodic disease assessment.

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PP0827

EFFICACY OF INDUCTION UPADACITINIB THERAPY IN EAST ASIAN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE

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Introduction: Upadacitinib (UPA) is an oral, reversible Janus kinase inhibitor that demonstrated efficacy compared with placebo (PBO) in 2 double-blind, multicenter induction studies, U-EXCEED (NCT03345836) and U-EXCEL (NCT03345849), and 1 maintenance study, U-ENDURE.[1-3] UPA is approved for patients with moderately to severely active Crohn's disease (CD).[4,5] This post hoc analysis evaluated the efficacy and safety of UPA in the induction treatment of East Asian patients in U-EXCEED and U-EXCEL.

Aims & Methods: In U-EXCEL and U-EXCEED, patients with CD were randomized 2:1 to receive UPA 45 mg or PBO once daily (QD) for 12 weeks. Clinical remission per average daily very soft or liquid stool frequency (SF) ≤ 2.8 and average daily abdominal pain score (APS) ≤ 1.0 and neither greater than baseline; clinical remission per CD Activity Index (CDAI) < 150; clinical response (CR-100, decrease of ≥ 100 in CDAI from baseline); endoscopic response (decrease in Simple Endoscopic Score for CD [SES-CD] > 50% from baseline); endoscopic remission (SES-CD ≤ 4 and at least 2-point reduction from baseline, and no subscore > 1 in any individual variable); and absence of draining fistulas through 12 weeks were evaluated. Nonresponder imputation incorporating multiple imputation to handle missing data due to COVID-19 was used.

Results: Of the 1021 patients enrolled in U-EXCEL and U-EXCEED, 204 were included in this analysis of East Asian patients; patient demographics and baseline disease characteristics were similar for the UPA 45 mg and PBO treatment groups (Table). A greater proportion of patients treated with UPA achieved clinical remission vs PBO (SF/APS: 62.5% vs 20.6%; nominal $P < .0001$; CDAI: 50.7% vs 20.6%; nominal $P < .0001$) at week 12. At week 2, CR-100 was achieved by 33.8% vs 7.6% of patients receiving UPA and PBO, respectively. Similarly, a greater proportion of patients treated with UPA achieved endoscopic outcomes vs PBO at week 12 (endoscopic response: 61.8% vs 10.3%; nominal $P < .0001$; endoscopic remission: 27.9% vs 5.9%; nominal $P < .0001$). In patients taking corticosteroids for CD at baseline, 57.1% receiving UPA discontinued corticosteroid use and achieved clinical remission per CDAI vs 20.0% of patients receiving PBO (nominal $P < .0001$). Among patients with draining fistulas at baseline, 28.6% of patients receiving UPA vs 0% of patients receiving PBO had no draining of their fistulas at week 12. The rate of adverse events (AEs) in the UPA group was comparable to that of patients receiving PBO (69.9% vs 70.6%). AEs leading to study discontinuation occurred in 5.9% and 4.4% of patients, and severe AEs in 10.3% and 13.2% of patients in the UPA and PBO groups, respectively. There were no treatment-emergent deaths in either group. AEs of special interest (including serious infections, opportunistic infections, and herpes zoster) occurred at similar rates regardless of treatment group; no malignancies, adjudicated major cardiovascular events, or venous thromboembolic events were reported.

Baseline Characteristics[a]	PBO (n = 68)	UPA 45 mg (n = 136)
Demographics		
Age (years), mean (SD)	33.1 (9.7)	32.7 (10.6)
Female, n (%)	24 (35.3)	50 (36.8)
Disease Characteristics		
Disease duration (years), mean (SD)	5.9 (3.8)	6.4 (6.1)
Corticosteroid use, n (%)	20 (29.4)	49 (36.0)
Prior biologic failures, n (%)		
0	16 (23.5)	30 (22.1)
1	35 (51.5)	71 (52.2)
2	14 (20.6)	28 (20.6)
≥3	3 (4.4)	7 (5.1)
CDAI, mean (SD)	280.8 (82.7)	284.8 (79.0)
SES-CD, mean (SD)	15.6 (6.5)	16.8 (7.8)
Average daily SF, mean (SD)	4.3 (2.4)	4.2 (2.0)
Average daily APS, mean (SD)	1.7 (0.7)	1.7 (0.8)
hs-CRP, median (range)	11.3 (0.2–94.1)	15.0 (0.2–144.0)
FCP, median (range)	1908 (30–18,191)	2361 (31–28,800)
Draining fistulas, n (%)	5 (7.4)	14 (10.3)

APS, abdominal pain score; CDAI, Crohn's Disease Activity Index; hs-CRP, high-sensitivity C-reactive protein; PBO, placebo; SES-CD, Simple Endoscopic Score for Crohn's Disease; SF, stool frequency, UPA, upadacitinib.

[a]The East Asian subpopulation consisted of patients in China, Japan, Korea, Malaysia, and Taiwan; patients from Hong Kong and Singapore would also be included in this analysis, but none enrolled.

Table. Baseline Disease Characteristics.

Conclusion: East Asian patients with moderately to severely active CD treated with UPA 45 mg achieved clinical and endoscopic outcomes at higher rates than did patients receiving PBO, with a tolerable safety profile.

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JHC has received lecture fees from AbbVie, Celltrion, Eisai, Ferring, Janssen, Pfizer, and Takeda.

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PP0828

ACHIEVEMENT OF STRINGENT EFFICACY ENDPOINTS IN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE TREATED WITH UPADACITINIB

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Introduction: The efficacy and safety of upadacitinib (UPA), an oral reversible Janus kinase inhibitor, were demonstrated for patients with Crohn's disease (CD) in three phase 3 randomized, controlled, double-blind clinical trials: U-EXCEL (NCT03345849), U-EXCEED (NCT03345836), and U-ENDURE (NCT03345823).[1–3] UPA is approved for the treatment of moderately to severely active CD.[4,5] The STRIDE-II CD treat-to-target guidelines recommend using composite clinical and endoscopic treatment targets to improve patient outcomes.[6] We assess the efficacy of UPA in patients with moderately to severely active CD using stringent, composite efficacy endpoints.

Aims & Methods: In two phase 3 induction studies, U-EXCEL and U-EXCEED, patients were randomized 2:1 to receive once-daily UPA 45 mg or placebo (PBO) for 12 weeks. Those who achieved a clinical response (≥30% decrease in average daily very soft or liquid stool frequency [SF] and/or ≥30% decrease in average daily abdominal pain score [APS] and both not worse than baseline) to UPA were re-randomized 1:1:1 to receive UPA 15 mg, UPA 30 mg, or PBO in the 52-week U-ENDURE maintenance study. Five composite clinical and endoscopic endpoints were assessed at weeks 12 of induction and 52 of maintenance therapy: (1) enhanced clinical response (per very soft/liquid SF and APS) and endoscopic response; (2) clinical response (CR-100) and endoscopic response; (3) clinical remission per CD Activity Index (CDAI) and endoscopic response; (4) SF/APS clinical remission and endoscopic remission; and (5) CDAI clinical remission and endoscopic remission. Treatment group differences were compared using the Cochran-Mantel-Haenszel test, adjusted for stratification factors. Analyses used nonresponder imputation while incorporating multiple imputation to handle missing data due to COVID-19.

Results: A greater proportion of patients receiving UPA 45 mg vs PBO achieved stringent clinical and endoscopic endpoints at week 12: enhanced clinical response and endoscopic response (33.7 vs 6.1%); CR-100 and endoscopic response (27.8 vs 5.2%); CDAI clinical remission and endoscopic response (24.7 vs 5.2%); SF/APS clinical remission and endoscopic remission (15.7 vs 3.5%); and CDAI clinical remission and endoscopic re-

mission (15.0 vs 3.7%; for all comparisons, nominal *P* values ≤ .001; Table). At week 52, a greater proportion of patients who received UPA 15 mg or UPA 30 mg achieved stringent clinical and endoscopic endpoints vs patients in the PBO group (Table). Composite endpoint achievement rates were numerically greater with UPA 30 mg than with UPA 15 mg (Table). The safety of UPA in CD was previously reported.[1–3]

	Induction Week 12		Maintenance Week 52		
Stringent Endpoint	UPA 45 mg n = 674	PBO n = 347	UPA 30 mg n = 168	UPA a mg n = 169	PBO n = 165
Enhanced clinical response[a] and endoscopic response,[b] n (%)	227 (33.7)***	21 (6.1)	61 (36.5)***	44 (25.8)***	11 (6.7)
Difference vs PBO,[c] % (95% CI)	27.8 (23.6, 32.0)	—	30.6 (23.0, 38.2)	19.8 (12.5, 27.0)	—
CR-100[d] and endoscopic response,[b] n (%)	187 (27.8)***	18 (5.2)	58 (34.5)***	40 (23.5)***	8 (4. 8)
Difference vs PBO,[c] % (95% CI)	22.8 (18.8, 26.8)	—	30.1 (22.6, 37.6)	19.1 (12.2, 26.0)	—
CDAI clinical remission[e] and endoscopic response,[b] n (%)	166 (24.7)***	18 (5.2)	55 (32.7)***	37 (22.1)***	8 (4.8)
Difference vs PBO,[c] % (95% CI)	19.7 (15.8, 23.5)	—	28.5 (21.2, 35.8)	18.2 (11.5, 24.9)	—
SF/APS clinical remission[f] and endoscopic remission[g], n (%)	106 (15.7)***	12 (3.5)	38 (22.6)***	23 (13.7)**	7 (4.3)
Difference vs PBO,[c] % (95% CI)	12.3 (9.0, 15.6)	—	18.2 (11.3, 25.0)	10.0 (4.0, 16.0)	—
CDAI clinical remission[e] and endoscopic remission[g], n (%)	101 (15.0)***	13 (3.7)	39 (23.2)***	25 (14.8)***	6 (3.7)
Difference vs PBO,[c] % (95% CI)	11.4 (8.1, 14.7)	—	19.8 (13.0, 26.6)	12.2 (6.3, 18.1)	—

APS, abdominal pain score; CDAI, Crohn's Disease Activity Index; CR-100, clinical response; NRI-C, nonresponder imputation incorporating multiple imputation for data missing due to COVID-19; PBO, placebo; SES-CD, Simplified Endoscopic Score for Crohn's Disease; SF, stool frequency; UPA, upadacitinib.

Data are reported using NRI-C.*P* values compare UPA treatment groups to the respective PBO group. *P* values were nominal and not multiplicity adjusted.

*$P \leq .05$; **$P \leq .01$; ***$P \leq .001$.

[a] ≥ 60% decrease in average daily very soft or liquid SF and/or ≥ 35% decrease in average daily APS from baseline and both not greater than baseline, or SF/APS clinical remission

[b] Decrease in SES-CD > 50% from induction baseline; for patients with an SES-CD of 4 at induction baseline, ≥ 2-point reduction from induction baseline.

[c] Adjusted risk difference is calculated based on the Cochran-Mantel-Haenszel test.

[d] Decrease of ≥ 100 points in CDAI from baseline.

[e] CDAI < 150.

[f] Average daily soft or liquid SF ≤ 2.8 AND average daily APS ≤ 1.0 and both not greater than baseline.

[g] SES-CD ≤ 4 and ≥ 2-point reduction from baseline and no subscore > 1 in any individual variable.

Table. Achievement of Stringent Efficacy Endpoints With Upadacitinib Induction and Maintenance Therapy.

Conclusion: In both induction and maintenance studies, patients receiving UPA had greater achievement of stringent efficacy endpoints vs patients who received PBO. UPA 30 mg demonstrated numerically greater clinical and endoscopic efficacy vs UPA 15 mg. The largest differences between UPA and PBO treatment groups occurred for the enhanced clinical response and endoscopic response endpoint.

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PP0829

ACUTE SEVERE ULCERATIVE COLITIS: ULCERATIVE COLITIS VERSUS CROHN'S DISEASE

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Introduction: Severe acute ulcerative colitis (ASUC) is a life-threatening medical emergency of colonic inflammatory bowel disease (IBD), most often in ulcerative colitis (UC) but also in Crohn's disease (CD).

Aims & Methods: The aim of our study was to compare the epidemioclinical and evolutionary profiles of ASUC in UC and in CD.

We conducted a retrospective, descriptive and comparative study including patients who presented with ASUC over a 10-year period [January 2010 - December 2019]. The diagnosis of ASUC was established on Truelove and Witts criteria and supported by endoscopic findings. Group 1 included patients with UC and group 2 included patients with CD. Patients followed for CD with anoperineal manifestations or upper gastrointestinal tract involvement were excluded. Data were entered and analyzed by SPSS software version 26.

Results: We included 71 patients with a sex ratio M/F of 0.65. The mean age at diagnosis of IBD was 31.08 years with extremes ranging from 12 to 58 years. Twenty-one percent of the patients had a body mass index greater than 25kg/m2. Thirty-three patients had UC, while 38 patients had CD. Patients in group 2 had a significantly lower mean age of occurrence of ASUC (30.84 vs. 37.33 years; p=0.02). The two groups were comparable for sex(p=0.62), smoking (p=0.71) and family history of IBD (p=0.94). ASUC was inaugural in 36.6% of the patients with no difference between the 2 groups (p=0.3). Twenty-six patients in group 1 were previously on treatment (p=0.03), mainly with Pentasa. For the diagnosis of ASUC, the median number of bloody stools was 7 with no difference between the 2 groups (p=0.56). The mean CRP level was significantly higher in group 2 (121mg/l vs 74.49mg/l;p=0.004). Severity signs on endoscopy were similar between the 2 groups (p=0.17). There was also no difference in the presence of colonic infection between the 2 groups (p=0.66). The response to the first line treatment with corticosteroids was found in 61.2% (n=38) and was significantly higher in group 2 (p=0.02). The mean number of bloody stools was significantly lower in group 2 at day 3 and day 5 of the treatment (p=0.003 and p=0.005 respectively). The decrease in mean CRP level at day 3 and day 5 of the treatment was comparable between the 2 groups (p=0.15 and p=0.12 respectively). Thus, the use of second-line therapy was more important in group 1 (p=0.017). There was no difference between the 2 groups regarding the occurrence of complications during the course of the disease, mainly colectasia, perforation and digestive bleeding (p=1, p=0.13 and p=1 respectively). Surgical treatment was required in 26.7% of the patients (n=19) without a difference between the 2 groups (p=0.53). It was significantly associated with an early occurrence of the ASUC (p=0.009), the need for second-line treatment (p<0.001) and the number of bloody stools at day 3 and day 5 of the follow-up (p<0.001 and p<0.001 respectively). There was no difference between the 2 groups regarding the occurrence of postoperative complications, mainly abscess (p=1) and rectal stump inflammation (p=0.6). The occurrence of a second ASUC under maintenance treatment was more important in group 1 without a significant difference (37.5 vs 14.7% p=0,08).

Conclusion: ASUC is the most severe complication of colonic IBD and is prone to an overall outcome independent of the type of the underlying IBD.

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PP0830

PREDICTORS OF ENDOSCOPIC AND HISTOLOGIC RESPONSE AFTER FIRST-LINE BIOLOGIC THERAPY IN ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is increasing in prevalence and incidence in Korea, and each patient shows a different course and treatment response. Since the 2000s, biologics have been developed and treatment options have diversified. Biologics and small-molecule therapeutics for immunological targets are currently under research and development. In the past, the goal was clinical improvement, including symptoms, but now endoscopic mucosal healing and, furthermore, the continuation of histological remission are gradually suggested. Accordingly, the purpose of this study was to identify clinical factors that could predict histological remission in patients receiving a first-line biologic agent, as well as confirm the patient's response to treatment and prognosis.

Aims & Methods: We retrospectively analyzed the medical records of 440 patients who had been diagnosed with UC and exposed to biologics for the first time in our hospital without using biologics at other hospitals between January 01, 2010 and December 31, 2022. Patients who did not undergo pre- and post-exposure endoscopy and biopsy or whose follow-up was discontinued were excluded. Clinical characteristics, blood tests, endoscopic findings, and pathological examination results of a total of 72 patients were collected. Endoscopic response was defined as a decrease in the Mayo Endoscopic Subscore (MES) compared to the score before the first exposure to the biological agent. Histological remission was defined as the result of no cryptitis, no crypt abscess, or no inflammatory cells observed on histological examination, and histological response was defined as remission in patients previously observed with active inflammation.

Results: The ratio of males to females was 53:19, and the median age at the time of diagnosis was 41 years. The average Mayo score at the time of diagnosis was 7.2, and the group with a histological response was 6.0, showing a statistically significant difference. The average albumin was 3.88 and was 4.06 in the histological response group, with a statistically significant difference. The median time to exposure to the first biologic was 1520 days. A colectomy was performed in three cases. Biologics were started with infliximab in 46.7% of patients, followed by adalimumab and vedolizumab in 22.7% and 21.3%, respectively. There was no statistical correlation between histological response and each biologic agent.

MES before exposure to biological agents was 50% in 2 and 44.4% in 3, but there was no statistical difference between each group. Multivariate logistic regression analysis was performed to identify predictors of endoscopic and histological responses after the first exposure to biological agents. As a result, it was confirmed that the Mayo score, ESR, and albumin had a causal relationship with the endoscopic response, respectively, and the odds ratio was 0.781, 1.051, and 3.319, respectively (p-value 0.044, 0.007,

0.049). In addition, it was confirmed that the Mayo score had a causal relationship with the histological response with an odds ratio of 0.796 (p-value 0.046).

Conclusion: This study confirmed that disease activity before treatment was a predictor of histological remission in UC patients using first-line biologics. It was confirmed that the histological response as well as the endoscopic response were well induced when the disease activity was low. Therefore, early escalation to biologics before the patient's condition worsens may be the basis for improving the overall prognosis.

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PP0831

REAL-WORLD EVIDENCE DATA WAREHOUSE FOR POOLED ANALYSES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASES IN GERMANY: THE "UMBRELLA-IBD REGISTRY" OF THE COMPETENCE NETWORK IBD

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Introduction: Head-to-head (H2H) comparisons of biologics and small molecules in randomised clinical trials (RCTs) are considered the gold standard in inflammatory bowel disease (IBD). However, comparative real-world evidence (RWE) registry studies can provide important additional knowledge. Our aim is to perform a range of such H2H RWE studies, including subgroup analyses, to examine different treatments in patients with IBD. To do so, we draw upon data from a large data warehouse (UMBRELLA-IBD), which pools data from all eight prospective RWE registries in the Competence Network IBD. All patients were recruited to each registry in a similar manner.

Aims&Methods: Pooled analyses have a range of important methodological and logistical requirements, all of which are met in the eight prospective RWE registries that feed data into the UMBRELLA-IBD data warehouse: (1) The prospectively collected data are highly homogeneous, with each registry using similar inclusion and exclusion criteria, and the analyses of registry data using similar outcome parameters; (2) The quality of the data is high, and the data are comparable due to comprehensive remote and onsite monitoring; (3) The advanced statistical methods used to compensate for the absence of randomisation include propensity score adjustment with inverse probability of treatment weighting (IPTW) and are applied similarly in each analysis (Table 1). In concordance with a priori protocols, data and parameters from the eight Competence Network IBD registries were checked for consistency, merged and then migrated to a common server. Additionally, a data validation plan (DVP) was created to process all data, with individual items being adapted by appropriate recoding for the pooled evaluation.

Results:

In the new UMBRELLA-IBD data warehouse of the Competence Network IBD, prospectively recorded data from a total of 6,689 IBD patients in eight registry studies in Germany are available for a planned pooled analysis (Table 1), albeit with some patients potentially having been recruited to more than one of these studies. As of 31 March 2023, 35% of the patients included in the data warehouse are biologic-naïve and started their first biologic/small molecule treatment at recruitment. Prospectively documented one-year records are available for 75% of patients, and supplementary biomaterials have been collected in 40% of patients. Recruitment and follow-up are ongoing in some registries.

Prospective RWE registries in the Competence Network IBD	Patients with IBD	Study duration	Bio-naïve patients	Pts. with short course of disease	CD/UC	Biomaterials in (%) of patients	Month 12 visit documented
BioCrohn	1,530	2008 - 2018	393	677 (< 3 years)	CD	85%	1,216
BioColitis	883	2013 - 2021	238	447 (< 2 years)	UC	51%	666
Run-CD	901	2017 - 2024	301	-	CD	30%	802
VEDO-IBD	1,284	2017 - 2022	824	150 (< 2 years)	CD/UC	51%	937
IBD-Inception Registry	140	2016 - 2019		140 (< 1 year)	CD/UC	-	110
RUN-UC	507	2020 -2024	238	-	UC	-	387
FilgoColitis	162	2022 - 2025	22	-	UC	-	28
TARGET	1,282	2019 - ongoing	308	-	CD/UC	-	861
IBD patients included in total*	6,689	2008 - today	2,324	1414	CD/UC		5,007

Table 1: IBD patients in the prospective registries of the Competence Network IBD at a glance: Umbrella-IBD (as of 31 March 2023)
* Some patients may be recruited in more than one study

Conclusion: The large UMBRELLA-IBD RWE data warehouse from eight different prospective Competence Network IBD registries is a promising initiative for conducting further comparative studies that will provide important evidence in addition to that from existing RCTs in IBD patients.

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PP0832

REAL-LIFE VS TRIAL ACCESS TO BIOLOGICAL THERAPY DIFFERENCES: A 2019-2020 EXPERIENCE IN AN ITALIAN TERTIARY IBD CENTER

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Introduction: Inflammatory Bowel Diseases (IBD) are multifactorial diseases, including Ulcerative Colitis (UC) and Crohn's Disease (CD).

Up to 50% of IBD patients show a primary or secondary non-response to standard biological therapy. Therefore, Randomized Clinical Trials (RCTs) represent a significant therapeutic opportunity for them.

Aims & Methods: This study aims to compare the clinical characteristics of "real-life" IBD patients of our tertiary IBD centre to "trial patients" and to identify novel therapeutic targets from real-life populations to be considered for RCTs. We prospectively enrolled consecutive patients who started biologic therapy from August 2019 to August 2020 at Fondazione Policlinico Universitario "A. Gemelli" IRCCS, Rome. We divided patients into three sub-groups: (1) "real-life" patients, patients treated according to clinical practice with standard biologic therapy that did not meet the inclusion and exclusion criteria for RCTs, (2) patients "real-life suitable for trial", potentially eligible in RCTs, but treated with standard of care, and (3) "trial" patients". Trial patients were treated with drugs from 14 phases 2b and 3 studies actively recruiting in our centre.

Results: We enrolled 134 patients: 72 with UC and 62 with CD. "Real-life" patients were 41 in UC and 38 in CD, "real-life suitable for trial" were 6 in UC and 14 in CD, and "trial" were 25 in UC and 10 in CD.

According to the existing inclusion and exclusion criteria, the study showed that only 43% of UC patients and 39% of CD were suitable for a potential enrollment in RCTs. However, only 16% of CD was finally enrolled in RCTs. At the enrollment, UC patients were excluded due to topical therapy use, cancer, recent *Clostridium difficile* infection or laboratory abnormalities. In contrast, CD patients were excluded mainly for a low CDAI but also due to complications of the disease that might require surgery, previous total or subtotal colectomy or major abdominal surgery in the previous six months. Both "trial" UC and CD patients showed more extraintestinal manifestations of disease, especially the articular ones ($p<0,05$). Moreover, "trial" patients presented, both in CD and UC, a higher significant concomitant use of systemic corticosteroids at the dose < or = 20mg/die ($p < 0,05$). Percentages of patients treated previously with other biological drugs were superior in "trial" patients compared to "real-life" in UC (88% vs 29%); instead, in CD, there was no significant difference (60% vs 45%).

We observed different baseline clinical disease activity scores in CD: the mean HBI of "real-life" patients was 4.8, and the mean HBI of "trial" patients was 9.1.

In addition, patients enrolled in RCTs waited longer before accessing the proposed biological therapy.

Conclusion: This study highlights some differences between clinical practice and research, particularly regarding the criteria for starting biological therapy in CD.

Firstly, "trial patients" presented more complex diseases, significantly impacting their clinical status.

Furthermore, RCTs use clinical scores (CDAI) as determinants for enrollment and decision-making, although endoscopy and radiological imaging are more widely used in clinical practice for decision making.

These differences could cover the actual effectiveness of a new drug compared to the theoretical efficacy derived from registration RCTs.

Therefore, we believe that new therapeutic targets, such as mucosal or histological healing in UC and transmural healing or new radiological scores in CD, should be considered and perhaps used in RCTs.

Disclosure: Nothing to disclose.

PP0833

VITAMIN D SUPPLEMENTATION CONTRIBUTES TO IMPROVING THE CLINICAL EFFICACY OF VEDOLIZUMAB IN CHINESE PATIENTS WITH ULCERATIVE COLITIS

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Introduction: It remains questionable whether vitamin D supplementation contributes to remission in patients with ulcerative colitis (UC).Our study aimed to investigate the influence of vitamin D supplementation on the efficacy of Vedolizumab in Chinese UC patients.

Aims & Methods: A total of 91 patients with active UC (Mayo clinical score ≥3) were collected in this study, who were bio-naïve and prescribed with Vedolizumab treatment for 22 weeks. Disease activity was assessed by Mayo clinical score and Mayo endoscopic score (MES) was used to evaluate intestinal inflammation. Patients were subsequently divided into supplementation group and non- supplementation group. Supplementation group patients were assigned to took oral vitamin D 400 IU/d within 3 days after the first Vedolizumab injection and continued during the follow-up period. The primary outcomes included clinical response rate, clinical remission rate, mucosal healing rate at week 22 as well as the change of CRP, ESR and faecal calprotectin during follow-up. The secondary endpoint was the expression profiles of Th-cell-related cytokines at week 22.

Results: At week 22, supplementation group showed a greater decline rate of CRP (93.54[80.00, 97.33] *vs* 52.22[-26.62, 83.93]%, P<0.001), ESR (75.00[51.67, 87.65] *vs* 32.69[-8.62, 76.96]%, P<0.001) and faecal calprotectin (60.94[34.63, 76.35] *vs* 25.66[17.99, 54.81]%, P<0.001) than non-supplementary group patients did. What's more, the clinical response rate, clinical remission rate, and mucosal healing rate were higher in supplementation group than in non-supplementation group (81.63 *vs* 57.14%, P=0.011; 67.35 *vs* 40.48%, P=0.010; 73.47 *vs* 52.38%, P=0.037, respectively). Among 91 enrolled patients, 30 patients (16 in supplementation group) quantitatively analyzed serum cytokines levels at baseline and week 22. In supplementary group, serum IL-6 level decreased at week 22 compared with its baseline value (4.28 ± 0.42 *vs* 5.21 ± 0.64 pg/mL, P < 0.001), while the serum IL-10 level at week 22 had a remarkable increase from baseline (4.87 [4.58, 5.74] *vs* 4.25 [3.53, 4.53] pg/mL, P = 0.003).

Conclusion: Vitamin D supplementation might relieve intestinal inflammation and improve VDZ efficacy in UC patients via down-regulating IL-6 and up-regulating IL-10.

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PP0834

IMPACT OF FILGOTINIB ON INDIVIDUAL INFLAMMATORY BOWEL DISEASE QUESTIONNAIRE ITEMS: *POST HOC* ANALYSES FROM SELECTION

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Introduction: Filgotinib (FIL) is a once-daily, oral, Janus kinase 1 preferential inhibitor approved for the treatment of ulcerative colitis (UC). Previous analyses of data from the phase 2b/3 SELECTION trial (NCT02914522) demonstrated that FIL 200 mg (FIL200) improved health-related quality of life (HRQoL) and led to comprehensive disease control (comprising clinical, biomarker, HRQoL and endoscopic improvements) in patients with UC.[1]

Aims & Methods: We evaluated individual Inflammatory Bowel Disease Questionnaire (IBDQ) item data from SELECTION to assess which items drive the benefits of FIL treatment. In SELECTION, adults with moderately to severely active UC were randomized 2:2:1 to receive FIL200, FIL 100 mg or PBO once daily for 11 weeks in Induction Studies A and B (biologic-naive and -experienced patients, respectively). Patients who responded to FIL were rerandomized 2:1 to continue their induction FIL dose in the 47-week Maintenance Study. In this *post hoc* analysis, standardized effect sizes (SES) were calculated to evaluate the relative magnitude of the difference in mean scores of individual IBDQ items at week 10 (W10) between FIL200 versus PBO-treated patients, and at week 58 (W58) between patients who continued FIL200 treatment (FIL200→FIL200) versus those who were rerandomized to PBO (FIL200→PBO). SES were also calculated for the mean change in score of individual IBDQ items from baseline to W10, and from maintenance baseline to W58. SES were categorized by Cohen's thresholds ('trivial' [<0.2]; 'small' [≥0.2–<0.5]; 'moderate' [≥0.5–<0.8]; and 'large' [≥0.8]). A last observation carried forward imputation approach was used for missing data.

Results: At W10, patients treated with FIL200 overall (n=506) had improvements in all individual IBDQ items versus those treated with PBO (n=277) and had moderate to large increases from baseline (SES ≥0.5) in all individual IBDQ items. The IBDQ items with the five largest SES for FIL200 versus PBO at W10 (analysed by induction study), and for FIL200→FIL200 (n=199) versus FIL200→PBO (n=98) at W58 are summarized in the Table. FIL200 treatment consistently resulted in the largest benefits in items related to pain ('abdominal pain' and 'abdominal cramps'), ability to engage socially ('satisfied with life', 'depressed or discouraged', 'social engagement' and 'problems with activities') and bowel urgency ('loose bowel movements' and 'finding a washroom') versus PBO at W10, and versus FIL200→PBO at W58

Conclusion: FIL200 treatment provides improvements in HRQoL versus PBO, with large SES seen for most IBDQ items, and the greatest improvements in items related to pain, social engagement and bowel urgency over 58 weeks. This analysis reveals the specific IBDQ items that drive the

FIL200 group – end of induction (W10)									
Biologic-naive (n=245)					Biologic-experienced (n=261)				
IBDQ items	W10 score, mean (SD)	SES vs PBO	Change in mean score from baseline, mean (SD)	SES vs baseline	IBDQ item	W10 score, mean (SD)	SES vs PBO	Change in mean score from baseline, mean (SD)	SES vs baseline
Social engagement	5.8 (1.4)	0.62	1.8 (1.9)	0.82	Loose bowel movements	4.1 (1.9)	0.72	1.9 (1.9)	0.88
Satisfied with life	4.6 (1.2)	0.62	1.3 (1.5)	0.73	Problems with activities	4.7 (1.8)	0.64	1.9 (1.9)	0.89
Depressed or discouraged	5.4 (1.3)	0.58	1.6 (1.7)	0.78	Abdominal pain	5.1 (1.6)	0.63	1.6 (1.6)	1.02
Abdominal cramps	5.5 (1.4)	0.56	1.8 (1.6)	0.99	Bowel movement frequency	5.2 (1.9)	0.62	2.2 (2.1)	0.83
Felt angry[a]	5.6 (1.3)	0.55	1.6 (1.7)	0.81	Rectal bleeding	5.0 (2.0)	0.62	2.6 (2.1)	1.01

FIL200→FIL200 group (n=199) – end of maintenance (W58)				
IBDQ item	W58 score, mean (SD)	SES vs FIL200→PBO	Change in mean score from maintenance baseline, mean (SD)	SES vs maintenance baseline
Bowel movement frequency	6.3 (1.4)	0.57	0.4 (1.6)	0.19
Rectal bleeding	6.3 (1.4)	0.55	0.2 (1.6)	0.10
Abdominal cramps	6.2 (1.1)	0.47	0.5 (1.4)	0.28
Problems with activities	6.0 (1.3)	0.44	0.6 (1.4)	0.42
Finding a washroom	6.1 (1.4)	0.41	0.4 (1.4)	0.27

[a]The items ‚felt angry' and ‚irritable' had the same SES versus PBO; however, ‚felt angry' had the larger change in mean score from baseline.
SES for comparison with PBO/FIL200→PBO was calculated as follows: mean differences/pooled SD.
SES for comparison with baseline was calculated as follows: mean change from baseline/(SD/√(2*(1−*r*))).
SES were categorized by Cohen's thresholds (‚trivial' [<0.2], ‚small' [≥0.2–<0.5], ‚moderate' [≥0.5–<0.8] and ‚large' [≥0.8]).
FIL200→FIL200 treatment group = patients who responded to FIL200 during induction and were rerandomized to continue FIL200 during maintenance.
FIL200→PBO treatment group = patients who responded to FIL200 during induction and were rerandomized to PBO during maintenance.
FIL200, filgotinib 200 mg; IBDQ, Inflammatory Bowel Disease Questionnaire; PBO, placebo; *r*, Pearson correlation coefficient; SD, standard deviation; SES, standardized effect size; W10, week 10; W58, week 58.

PP0834 Table. Top five individual IBDQ item scores ranked by SES for FIL200 versus PBO groups at W10 and FIL200→FIL200 versus FIL200→PBO groups at W58.

benefits to HRQoL of FIL and adds further evidence to that showing that FIL contributes to restoration of health through comprehensive disease control for patients with UC.[1]

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PP0835

EFFECTIVENESS AND SAFETY OF A SECOND-LINE RESCUE THERAPY IN HOSPITALISED PATIENTS WITH ACUTE SEVERE ULCERATIVE COLITIS STEROID-REFRACTORY AFTER FAILING INFLIXIMAB OR CICLOSPORIN (REASUC STUDY)

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Introduction: The advent of new therapeutic agents might change the management of acute severe ulcerative colitis (ASUC) by reducing the risk of colectomy and thereby changing the natural history of the disease. Thus, the effectiveness and safety of sequential treatment should be elucidated in patients admitted for ASUC. The main aim was to evaluate colectomy-free survival in patients with ASUC refractory to intravenous corticosteroids who failed to infliximab (IFX) or ciclosporin (CyA) and received a second-line (2L) therapy. The secondary aims were to evaluate the short- and long-term effectiveness and to assess the safety of this strategy.

Aims & Methods: Multicentre study of patients admitted with ASUC refractory to corticosteroids who received a 2L therapy after failing either CyA or IFX during the same hospitalisation. Clinical activity was classified based on partial Mayo score and Lichtiger activity index. Patients who stopped

the 2L therapy due to disease activity or adverse events were considered failures. Patients were followed-up until colectomy or one year after 2L initiation. Predictors of short-term colectomy-free survival were assessed by logistic regression analysis, while long-term was evaluated by Kaplan-Meier curves and Cox regression models.

Results: A total of 78 patients from 24 European centres were included. As first-line therapy (after failing corticosteroids), IFX was administered to 32 patients, and CyA to 46. The median age at hospital admission was 35 years (IQR 26-47), and 42 (54%) were men. The prescribed therapy after IFX failure was: CyA in 17, tofacitinib in 13, and ustekinumab (UST) in two patients. After CyA failure, IFX was prescribed in 45 patients, and UST in one. At last study visit, 26 patients (33%) were still under the 2L therapy (IFX in 15, CyA in two, tofacitinib in two, and UST in one).

A total of 29 patients (37%) underwent colectomy during the follow-up; the majority of them (93%) within the first eight weeks. Median time to colectomy after starting the 2L therapy was 14 days (IQR 3-23). The main indication of colectomy was primary non-response in 23 patient (79%). In multivariate analysis, older age at hospital admission (OR 1.1, 95%CI 1.0-1.1), the use of CyA as rescue therapy (OR 8.0, 95%CI 1.3-48), and severe disease (vs. moderate) before the rescue therapy initiation (OR 8.7, 95%CI: 2.0-38) were associated with the likelihood of colectomy.

A total of 31 patients (44%) at week 12 and 18 (30%) at week 52 achieved clinical remission under the 2L therapy; 39 patients (55%) at week 12 and 20 patients (33%) at week 52 reached clinical response (including remission). Corticosteroid-free clinical remission was maintained in 26% and 19% of patients at week 12 and at week 52, respectively. Clinical relapse was observed in 43 patients (55%); of them, six patients (14%) intensified the therapy and five (83%) regained response.

25 patients (32%) had adverse events (AE); 14 had serious AE. Resolution with no sequelae was observed in 20 patients (80%). Infections were the most frequent AE, reported in 12 patients (15%), followed by infusion reactions in five (6%). No differences in AEs between the 2L therapies prescribed were observed. There were two deaths: one due to cerebral thrombophlebitis and another due to bacteriemia after colectomy, both when CyA was the therapy prescribed.

Conclusion: A 2L salvage therapy avoids colectomy in a considerable percentage of patients admitted by ASUC and therefore it can be considered after IFX or CyA failure. The individual therapeutic approach must be discussed with patients due to the risk of serious AE

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PP0836

REAL-WORLD STUDY ON VEDOLIZUMAB EFFICACY AND SAFETY AFTER THE TRANSITION FROM INTRAVENOUS TO SUBCUTANEOUS VEDOLIZUMAB IN INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction: Crohn's disease (CD) and ulcerative colitis (UC) are chronic inflammatory diseases of digestive tract, and anti-inflammatory drugs, such as vedolizumab, have central role in their treatment. Intravenous form of vedolizumab is approved for induction and maintenance of remission in patients with CD and UC. Recently, subcutaneous form of vedolizumab was approved as a maintenance therapy after the induction with, at least, two intravenous doses.

Aims & Methods: The aim of this study was to show how the switch from intravenous to subcutaneous vedolizumab in a real-life setting in inflammatory bowel disease (IBD) patients on stable maintenance therapy affects vedolizumab serum concentration and clinical outcomes. IBD patients treated with intravenous vedolizumab and planned to switch to subcutaneous vedolizumab at the Department of Gastroenterology and Hepatology in the University Hospital Centre Osijek were included in the study. Patients were in remission at the time of transition (based on clinical symptoms, fecal calprotectin level or endoscopy scores).

Data on vedolizumab serum trough concentration and clinical outcomes (remission rate, fecal calprotectin level, clinical scores, hospitalization rate, rate of surgical procedures, change of therapy, and adverse events) were collected prior to and after the switch from intravenous to subcutaneous vedolizumab.

Results: In total, 31 patients, 17 with CD and 14 with UC, were included in final analysis. Median follow up was 12 months (interquartile range, IQR 9-12). Median duration of therapy with intravenous vedolizumab prior to switch was 14 months (IQR 6-32). Mean serum trough concentration of intravenous vedolizumab was significantly lower than mean serum trough concentration of subcutaneous vedolizumab (25.62 mg/L±14.29 vs. 34.93±14.59 mg/L; p=0.002). This rise in vedolizumab serum concentration after the switch to subcutaneous drug, was more evident in CD (Δ11.8 mg/L) than in UC (Δ5.79 mg/L) patients. There was no significant difference between fecal calprotectin level in all patients, as well as fecal calprotectin and Harvey–Bradshaw index in CD patients prior to or after the transition to subcutaneous vedolizumab. In UC patients, fecal calprotectin and Partial Mayo score were significantly higher (p= 0.011 and p=0.018, respectively) after the switch to subcutaneous vedolizumab, although this difference was not clinically significant.

There was a significant difference in remission rate before and after the transition to subcutaneous vedolizumab in all patients (100% vs 71%; p=0.004), and in UC patients (100% vs. 57.1%; p=0.031). During the follow up, one (3.2%) CD patient was hospitalized and had a surgical procedure due to IBD. In 7 (22.6%) patients, the therapy was discontinued during the follow-up period with a median of 8 months.

In all patients, therapy was discontinued due to loss of response. In total, 27 adverse events were reported by 17 patients, and the most common adverse event was COVID-19. One serious adverse event was reported (a patient was hospitalized for subileus).

Conclusion: Despite the rise in serum vedolizumab trough concentration after the switch from intravenous to subcutaneous vedolizumab, total remission rate was significantly lower in all patients and in the subgroup of UC patients. No new safety signals were observed in patients after the switch to subcutaneous vedolizumab.

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PP0837

BIOMARKER OF CORTICOSTEROID THERAPY FOR MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is characterized by chronic immune mediated inflammation of the colon and rectum. Prednisolone (PSL) is a common treatment for patients with moderate to severe active UC, but its effect varies among patients, including resistance, response, and dependence. In addition, the longer PSL therapy continues, the greater the concern regarding drug-related side effects. Currently, new immunomodulatory therapies are being developed for the treatment of UC, like carotegrast methyl, a drug showing promise in the treatment of patients with moderate UC refractory to 5-aminosalicylic acid (5-ASA).

Thus, the clinical benefit of being able to predict whether certain patients would benefit from PSL therapy prior to administration cannot be overestimated.

Aims & Methods: We compared the clinical characteristics of patients with steroid-resistant (SR) and steroid-non-resistant (SNR) UC and retrospectively evaluated for biomarkers that could predict the efficacy of PSL prior to administration in patients with moderate to severe active UC who failed to respond to 5-ASA.

We enrolled 92 UC patients presenting at Nippon Medical School Hospital with a history of PSL administration prior to March 2022. The patients were divided into two groups, SR patients and NSR patients, and their clinical characteristics were determined according to medical records.

Results: Clinical characteristics of UC patients were as follows: the median age, 48±17 years; height 166±9.2 cm, and weight, 58±14 kg; including 57 males to 35 females. The most common distribution of disease type was the total colitis (63%), followed by left-sided colitis (32%), and proctitis (5%). Complete SR was observed in 15 patients (16%), with remaining 77 patients (84%) classified as SNR. There was no significant difference found in Mayo Endoscopic Score, first dose of PSL, number of hospitalizations, number of relapses, percentage of patients with total-colitis type, or duration of PSL treatment between the SR group and the SNR group. The non-remission rate, defined as failure to achieve mucosal healing, was significantly higher in the SR group (66%) than in the SNR group (36%) (P=0.03). The proportion of patients treated with azathioprine was significantly higher in the SNR group (40%) than in the SR group (39%). The proportion of patients treated with biologics or small molecular compounds was significantly higher in the SR group (40%) than in the SNR group (22%) (P=0.03).

We then compared haematological biomarkers from blood samples obtained prior to PSL administration between the two groups. There was no significant difference in WBC counts, hemoglobin values, serum albumin concentrations, CRP values, and ESR between the two groups. However, eosinophil (both total count number and ratio to white blood cell count) was significantly higher in the SNR group than in the SR group (P=0.02). Neutrophil-lymphocyte ratio tended to be higher in the SNR group than in the SR group (P=0.059). Histological examination revealed that infiltrated eosinophil counts in rectal mucosa biopsied by endoscopy was significantly higher in the SNR group than in the SR group.

Conclusion: Both eosinophil ratios in the blood and rectal mucosa, and neutrophil-lymphocyte ratios in the blood may be potential biomarkers for steroid responsiveness prior to administration.

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PP0838

INVESTIGATING THE EVOLUTION OF THE TREATMENT ALGORITHM OF ULCERATIVE COLITIS PATIENTS

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Introduction: To examine the evolution of the ulcerative colitis (UC) treatment pathway in advanced therapy (AT) naïve and later line EU4+UK patients over time, as well as identifying how treatment goals may have changed.

Aims & Methods: A multi-centre online medical chart review study of patients with UC was conducted between Jan – Mar 2018, Jul – Sep 2020 and Jan – Mar 2023, among EU4+UK (UK, FR, DE, IT & ES) gastroenterologists practicing across hospital and private practices. Recruited physicians were screened for duration of practice in their specialty and caseload. Respondents completed patient record forms of their next 4 UC patients seen following receipt of the survey.

Results: The total number of sampled gastroenterologists recruited in this survey and reported UC patients are in Table 1.

Timepoint	Q1 2018	Q3 2020	Q1 2023
Surveyed gastroenterologists	207	211	220
Reported UC patients	816	844	880

Table 1: Sampled physician and reported patient sample size

Between Q1'18 – Q3'20 - Q1'23 the percentage usage of total adalimumab volume in reported UC patients dropped (30% vs 15% vs 13%, respectively), as well as the proportion of these patients reported as first line adalimumab patients (90% vs 88% vs 87%, respectively). In addition, the proportion of reported patients who experienced a switch from one TNF to another also drops between Q1'18 – Q3'20 (14% vs 10%, respectively). Conversely, the proportion of reported UC patients receiving a non-TNF therapy increases over time (12% vs 29% vs 43%, respectively); specifically, the proportion of reported non-TNF first line patients increased (5% vs 12% vs 25%, respectively). Switches from non-TNFs to TNFs increased between Q1'18 – Q3'20 (8% vs 11%, respectively). The proportion of the overall sample occupied by first line patients decreased between Q1'18 – Q3'20 (84% vs 77%, respectively).

Conclusion: In this study cohort, use of adalimumab molecule decreases over time, seemingly in favour of non-TNF therapies, as more products become available in the gastroenterology landscape. This trend is seen across both the overall market and at first line of therapy, suggesting a move away from use of the more 'traditional' therapies in general, as well as more frequently choosing a non-TNF as a first line option. The increasing proportion of non-TNF 1st line patients, as well as the increasing proportion of those switching from non-TNFs to TNFs, suggests an increasing proclivity to use non-TNF products earlier in the treatment algorithm. TNF cycling also decreases, suggesting an increased tendency to use non-TNF products. This, along with the decreasing proportion of the sample occupied by first line patients, could indicate an increased propensity by gastroenterologists to switch patients between therapies sooner. Further investigation using comparator cohort is warranted to further investigate impact of increasing numbers of approved UC treatment options.

Disclosure: Nothing to disclose.

PP0839

ASSESSING THE EVOLVING NUANCES OF JAK INHIBITOR PRESCRIPTION IN ULCERATIVE COLITIS (UC) PATIENTS

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Introduction: Targeted oral therapies offer advanced therapy options with convenient administration and different mechanism of actions to existing biologic therapies to treat ulcerative colitis (UC). The objective of this study was to assess the evolution of Janus Kinase inhibitor (JAKi) usage in UC patients, highlighting any nuances in treating different patient types.

Aims & Methods: A multi-centre online medical chart review study of patients with UC was conducted between Jul – Sep 2019, 2021, and 2022 among UK, FR, DE, IT & ES gastroenterologists practicing across hospital and private practices. Physicians were screened for practice duration and patient volume. Charts of patients prescribed with JAKis were included in the analysis.

Results: The total number of sampled gastroenterologists recruited in this survey and collective total of reported UC patients treated with JAKi therapy are

- Q3 2019: 206 gastroenterologists reporting 127 patients
- Q3 2021: 203 gastroenterologists reporting 87 patients
- Q3 2022: 206 gastroenterologists reporting 100 patients

Looking at reported JAKi-receiving UC patient characteristics, the mean age became progressively younger over time (2019: 40yrs, 2021: 38yrs, 2022: 36yrs) and the proportion of JAKi patients recorded as male also increased between 2019 to 2021 (2019: 65%, 2021: 62%, 2022: 75%). Reported JAKi patients recorded without any additional comorbidities also increased in proportion of the sample from 2019 (2019: 39%, 2021: 58%, 2022: 65%).

The mean recorded calprotectin level of reported JAKi-receiving UC patients increased over time (calprotectin mean – 2019: 204, 2021: 250, 2022: 341). When analysing reasons that prompted sampled gastroenterologists to choose JAKis for the UC patients, 'rapid symptomatic control' and 'pain reduction' were the most frequently cited reasons for every time point.

Timepoint	Q3 2019	Q3 2021	Q3 2022
% cited with ‚rapid symptomatic control'	22.0%	28.7%	36.0%
% cited with ‚pain reduction'	7.1%	10.3%	13.0%
% cited with ‚can be used as monotherapy'	37.8%	43.7%	26.0%

Table 1: Cited reasons for JAKi usage in reported UC patients (% patients)

'Can be used as monotherapy' was cited less as a reason for choosing JAKi in 2022 vs 2019. This aligns with reported JAKi monotherapy usage decreased over the same timeframe (% reported patients receiving JAKi as monotherapy – 2019: 76%, 2021: 72%, 2022: 55%), whilst reported JAKi combination usage with 5-ASA increased (% reported patients receiving JAKi as combination with 5-ASA – 2019: 8%, 2021: 16%, 2022: 30%).

Conclusion: In this study cohort, there is evidence of evolving nuances in JAKi usage among gastroenterologists in their UC patients over time. This may be partly influenced by clinical data release and regulatory influences over this timescale. Further investigation using comparator cohort is warranted.

Disclosure: Nothing to disclose.

PP0840

LONG-TERM OUTCOMES OF ORAL ANTIBIOTICS COMBINATION THERAPY FOR INDUCTION AND MAINTENANCE OF ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory bowel disease. The long-term maintenance of the disease is an important key of the treatment, as patients experience repetitive exacerbation. Dysbiosis of the gut microbiota is observed among UC patients and modifying their gut microbiota is recently attracting attention as one of the therapeutic targets. In our past study, *Fusobacterium varium* was observed on the mucosa of UC patients with high frequency. Based on this, we developed an antibiotic combination therapy (ATM therapy), which was expected to have sensitivity to *F. varium*. The regimen of our prior studies showed decent effectiveness for induction and maintenance on active UC patients.

Aims & Methods: In this study, we aim to investigate the long-term effectiveness of ATM therapy on a larger cohort.

A prospective open-label trial was undertaken. Patients were eligible if they were 18 years of age or above, and had an established diagnosis of UC based on endoscopic, clinical and histological feature. Exclusion criteria were penicillin allergy, administration of antibiotics agents within 2 weeks of study entry, ongoing biologic therapy, pregnancy, cancer and other serious comorbid illness. Patients who had stool pathogens were also excluded. A combination of oral amoxicillin (1500mg), tetracycline (1500mg) and metronidazole (750mg) was administered to patients daily for 2 weeks in addition to their conventional medication. Clinical assessment was performed using the Mayo score before treatment and at 0, 3, 6, 9 and 12 months. Endoscopic evaluation was performed using the Mayo score before treatment and at 3 and 12 months. The primary endpoint was the response rate at 3 months after the completion of ATM therapy. The secondary endpoints were the remission rate at 3 months, both remission and response rate at completion and 1 year after the ATM therapy. All adverse events were recorded.

Results: The data from 311 active UC patients were analysed. The compliance rate was 95.7%. The response rate and remission rate were 75.2% and 30.9% at completion, 62.7% and 29.6% at 3 months, 35.4% and 24.4% at 12 months, respectively. In the patient group with severe disease activity, the response rate tended to be high and was statistically higher at 6 months (p=0.0299). Regarding steroid dependent, resistant and disease extent, the response rate showed no statistical difference at any follow-up points. Adverse events were reported in 60.8% of participants. The most frequent adverse events were diarrhea (19.0%) and fever (14.8%). No life-threatening adverse event was observed and all the symptoms disappeared immediately after the discontinuation or the completement of the therapy.

Conclusion: 2 weeks administration of ATM therapy induces response and remission of UC and maintains the symptom for long-term. The ATM therapy would be considered as one of the easy and convenient therapeutic choices for both induction and maintenance of the disease.

Disclosure: Nothing to disclose.

PP0841

ANTI-TNF AGENTS AND VEDOLIZUMAB HAVE SIMILAR SAFETY AS FIRST-LINE BIOLOGIC TREATMENT OF ELDERLY PATIENTS WITH ULCERATIVE COLITIS

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Introduction: The prevalence of ulcerative colitis (UC) in elderly patients is rising and is associated with aging-related challenges such as functional reserve decline, compromised immune responses, and comorbidities. Anti-TNF agents and vedolizumab are effective therapies for UC but may also be associated with increased risk in elderly patients. Therefore, it is challenging to choose a first-line biologic therapy (FLBT) and data regarding FLBT for the aging population are scarce.

Aims & Methods: Our aim was to compare the safety, and persistence on drug of elderly patients with UC treated with anti-TNF agents compared to vedolizumab as first-line therapy.

This was a retrospective, single tertiary center study, including all patients with UC who initiated their FLBT at age≥60 years, between 1/1/2010 to 31/12/202. Clinical and demographic data were extracted and adverse events occurring within 52 weeks of treatment initiation were recorded.

Results: A total of 264 patients with UC aged ≥60 years were screened,62 patients were included in the final analysis [35 males (56.4%), age 68.9±7.0 years, disease duration 12.1±13.1 years]. Anti-TNF was the FLBT for 33 patients (53.2%) and vedolizumab for 29 patients (46.8%). Disease duration, gender, smoking status, concomitant exposure to steroids, concomitant use of IMM were comparable between the groups. Patients treated with an anti-TNF had a significantly lower CCI (4.9±1.86vs. 3.7±2.0, p=0.017) and more severe endoscopic disease (2.5±0.8 vs. 2.2±0.6, p=0.009) **(**Table **1)**.

	Anti TNF (n=33)	Vedolizumab(n=29)	
Male gender (%)	18 (54.45)	17 (58.62)	0.801
Disease duration (y)	10.45±10.55	13.93±15.47	0.301
Steroids(%)	18(54.5)	14(48.2)	0.696
IMM(%)	9(27.2)	2(6.8%)	0.194
Mayo score	2.53±0.8	2.26±0.6	0.009
CCI	3.75±2.01	4.96±1.86	0.017
SCCAI	8.2±3.4	7.2±3.4	0.614
^CRP(mg\L)	8.1 [1.27-18.10]	10.9 [2.55-37.75]	0.466
^Calprotectin(µg/g)	1392.5 [389.00-2750.00]	618.0 [281.75-1100.75]	0.367

*Anti TNF group included 21 patients on infliximab and 12 patients on Adalimumab; Plus-minus values are means ±SD, 5-ASA=5 aminosalicylic acid, IMM=immunomodulators(methotrexate, azathioprine,6-mercaptopurine),y=years
^CRP and calprotectin are calculated as medians with IQR in [ ].

Table 1: Characteristics of study cohort.

Overall, at 52 weeks of follow-up, 6 patients had an adverse event. 4 patients suffered from infections:1 patient treated with Anti-TNF had severe pneumonia and needed hospitalization, 2 patients treated with vedolizumab had CMV infection and needed treatment cessation until resolution of CMV and another patient treated with vedolizumab, with known metastatic disease (CCI=10), died due to sepsis (week 17). No de-novo or recurrent malignancy were observed. One patient on vedolizumab had a skin rash treated with antihistamines and did not require treatment cessation, another patient on infliximab stopped treatment due to anaphylaxis. There

were similar rates of hospitalizations between the cohorts (39.4% vs.17.2%, respectively, p=0.230). In terms of treatment persistence, median time on anti-TNF was similar to that on vedolizumab (32.00 weeks [20.00-80.57, n=13] vs 45.07 weeks [24.39-155.60, n=28] (p=0.324), respectively).
Conclusion: Anti-TNF and vedolizumab are equally safe as first-line biologic therapy among elderly patients with UC indicating that other factors may guide therapy selection in this patient population. Further prospective and larger studies are needed to fortify our findings.
Disclosure: Nothing to disclose.

PP0842

THE EFFECTS OF QINGCHANG WENZHONG DECOCTION ON TISSUE-RESIDENT MEMORY CD4+T CELLS IN MICE WITH ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) is a difficult-to-treat gastrointestinal disease, but its etiology and pathogenesis have not been clarified. An increasing number of studies have shown that the development and recurrence of UC are closely related to immune memory dysfunction. Our team's previous clinical and animal experiments have suggested that the treatment of UC with the Qingchang Wenzhong Decoction (QCWZD) is effective and can regulate intestinal mucosal immunity, but the exact mechanism is not yet clear. In this study, tissue-resident memory $CD4^+T$ cells ($CD4^+T_{RM}$ cells) were used as the entry point to further investigate the immunological mechanism of the QCWZD for the treatment of UC.
Aims & Methods: To explore the regulatory effect of QCWZD on $CD4^+T_{RM}$ cells in mice with DSS-induced colitis. This study aims to provide a new theoretical basis for the treatment of UC. Female C57BL/6 mice were randomly divided into control group, model group, QCWZD low-dose group, QCWZD medium-dose group, QCWZD high-dose group. Mice in control group were fed and watered freely throughout the whole process. Model group and doses group of QCWZD were used to replicate the UC model by freely drinking 2.5 % dextran sulfate sodium (DSS) (w/v) solution for 7 days. At the same time, model group was given deionized water gavage, and each dose group of QCWZD were given the corresponding concentration of QCWZD intervention for 1 week (Fig1 A). During this period, the mice were observed daily for general condition, weight measurement, detection of fecal occult blood, recording of fecal properties. The proportion of $CD4^+T_{RM}$ cells was performed with flow cytometry and the expression levels of proteins in related signaling pathways was assessed.
Results: Our findings demonstrated that DSS intervention resulted in colon inflammation with clinical changes, while QCWZD appreciably reversed these phenomenon, as evidenced by retarded body weight loss, recovery of rectal bleeding and diarrhea, decreased disease activity index scores (Fig1 B-C). Moreover, the proportion of $CD4^+T_{RM}$ cells in the lamina propria of mice in the DSS group were significantly higher than those in the Control group, while the $CD4^+T_{RM}$ cells proportion was significantly reduced after the intervention with the QCWZD (Fig1 D-E). Mechanistically, the results from RT-qPCR analysis of the colonic tissue showed that QCWZD could significantly reduce the expression of glucose transporter protein *Glut1/2/4* mRNA (Fig2 F-H), as well as the levels of key enzyme genes of glycolytic pathway (*HK2, PKM2, G6PC, LDHA* mRNA) (Fig2 I-J), suggesting that QCWZD had an inhibitory effect on glycolytic metabolism in colitis mice. We further found that the mRNA expressions of colon *LepR* and *HIF-1α* mRNA were significantly downregulated in QCWZD-treated mice (Fig2 M-N). These results demonstrated that QCWZD regulated the glycolytic metabolism of $CD4^+T_{RM}$ cells by inhibiting the activity of LepR/HIF-1α signaling axis.
Conclusion: The results from our current study demonstrated that orally administrated QCWZD regulates $CD4^+T_{RM}$ cells immune homeostasis through the modulation of glycolytic metabolism, and hold the therapeutic potential for immunology-targeted strategy in the treatment of UC.
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Disclosure: Nothing to disclose.

PP0843

COMPARISON OF REAL-WORLD TREATMENT PERSISTENCE AND SAFETY OF VEDOLIZUMAB AND ANTI-TUMOR NECROSIS FACTOR-ALPHA TREATMENT IN BIOLOGIC-NAÏVE PATIENTS WITH CROHN'S DISEASE: SYSTEMATIC LITERATURE REVIEW AND META-ANALYSIS

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Introduction: Vedolizumab (VDZ), a gut-selective anti-lymphocyte trafficking agent, was approved for the treatment of moderate-to-severe Crohn's disease (CD) in Europe and the USA in 2014. We conducted a systematic literature review and meta-analysis of studies reporting real-world effectiveness of VDZ in patients with CD. Here we describe treatment persistence in biologic-naïve patients with CD treated with VDZ compared with anti-tumor necrosis factor-alpha (TNFα) treatment at 12 and 24 months to address the gap of long-term data available on patients with CD.
Aims & Methods: Systematic literature reviews were performed using MEDLINE, MEDLINE In-Process, Embase, Cochrane Library, clinicaltrials.gov, and the World Health Organization International Clinical Trials Registry Platform to identify relevant studies published from May 2014 to July 2022. In addition, if the congress abstracts were not indexed in Embase, key congresses from 2015 to July 2022 were hand searched. Data from adults (aged ≥ 18 years) with CD treated with VDZ in observational/real-world studies were extracted for meta-analysis. The analysis was conducted using the DerSimonian-Laird random-effects method to obtain weighted mean rates (percentage of patients) and the corresponding 95% confidence interval (CI) for each treatment persistence or serious adverse event (SAE) as performed for a meta-analysis published in 2018.[1]
Results: Overall, data from 78 studies of 30 158 patients with CD had at least one outcome of interest for analysis. Four and three studies of 7082 and 5040 patients with CD, respectively, reported the rate of treatment persistence in biologic-naïve patients treated with VDZ versus anti-TNFα treatment at 12 and 24 months. The rate of treatment persistence was higher with VDZ (83.8% [95% CI 71.4–96.1]) compared with anti-TNFα treatment (75.3% [69.9–80.7]) at 12 months. Similarly, the rate of treatment persistence was higher with VDZ (70.4% [95% CI 61.3–79.6]) compared with anti-TNFα treatment (64.5% [56.9–72.2]) at 24 months. Two

studies of 491 and 86 biologic-naïve patients with CD treated with VDZ versus anti-TNFα treatment reported SAEs. In a retrospective study, safety outcomes were followed from treatment initiation up to five half-lives post-treatment discontinuation; 8.3% treated with VDZ experienced SAEs compared with 19.0% with anti-TNFα treatment.[2] In an additional retrospective study that reported SAEs within the first 12 months of treatment; the rate of SAEs was comparable between patients treated with VDZ (18.2%) and anti-TNFα treatment (17.0%).[3] Among these patients, only those receiving anti-TNFα treatment experienced drug-induced SAEs (3.8%; pancreatitis and systemic lupus erythematosus).[3]

Conclusion: This meta-analysis of real-world studies demonstrated higher rates of long-term treatment persistence and suggests that VDZ may have a favorable safety profile compared with anti-TNFα treatment in biologic-naïve patients with CD.

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PP0844

PREVENTIVE EFFECT OF CUCURBITACIN B ON DEXTRAN SULFATE SODIUM INDUCED ACUTE ULCERATIVE COLITIS THROUGH THE REGULATION OF THE MAPK/NF-KB SIGNALS IN VIVO AND IN VITRO

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Introduction: Ulcerative colitis (UC) is a chronic, relapsing, nonspecific inflammatory bowel disease (IBD). Cucurbitacin B (CuB) is a naturally occurring compound primarily found in plants of the Cucurbitaceae and Cruciferae families. CuB has been shown to have a wide range of pharmacological activities, including anti-inflammatory, antioxidant, antiviral, hypoglycemic, hepatoprotective, neuroprotective, and anti-cancer effects. However, there is a paucity of reports providing direct evidence of the efficacy of CuB in ameliorating colitis in mice.

Aims & Methods: This study aimed to explore the therapeutic effect and underlying molecular mechanisms of CuB on dextran sulfate sodium (DSS)-induced UC mice and lipopolysaccharide (LPS)-induced RAW264.7 cells. The protective effect of CuB on DSS-induced UC was evaluated by assessing weight loss, disease activity index (DAI) score, spleen index, colon length shortening, myeloperoxidase (MPO) activity, and pathological changes. The levels of inflammatory cytokines were detected by ELISA and RT-PCR analysis. The expressions of tight junction (TJ) proteins like ZO-1, Occludin, and the target proteins in the mitogen-activated protein kinase (MAPK) and nuclear factor-kappa B (NF-κB) were determined by western blotting analysis.

Results: CuB significantly attenuated the symptoms of UC and suppressed colon MPO activity. In addition, CuB could significantly increase the expression of TJs in UC mice. Meanwhile, CuB treatment reduced the levels of inflammatory cytokines and inhibited the phosphorylation of MAPK and NF-κB signaling pathways in UC mice and in LPS-induced RAW264.7 cells.

Conclusion: In summary, our study demonstrated that CuB ameliorated DSS-induced UC by inhibiting the inflammatory response and maintaining the intestinal barrier function via modulation of the MAPK/NF-κB pathways. These results suggest that CuB could be a promising candidate for UC therapy.

Disclosure: The authors hereby declare to have no conflict of interest regarding this article.

PP0845

UPREGULATED TISSUE FACTOR IN COLONIC MESENCHYMAL CELLS IN ACTIVE ULCERATIVE COLITIS IS ASSOCIATED WITH SEVERE AND RESISTANT TO TREATMENT DISEASE, BUT TOFACITINIB HAS NO EFFECT ON IT

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Introduction: Tissue factor (TF) on cell membranes initiates blood clotting upon vessel trauma and exposure of subendothelial cells to blood flow. The risk of thromboembolic events is increased in patients with ulcerative colitis (UC). Tofacitinib, a JAK1 & 3 inhibitor, recently introduced in UC therapeutics, may further increase the risk[1].

Aims & Methods: To delineate thrombosis pathophysiology in this context, TF expression in primary human colonic mesenchymal cells (PHCMC) of patients with active UC was correlated with clinical, biochemical and endoscopic data. We then treated those PHCMC with tofacitinib, with or without cytokines to better mimic the *in vivo* milieu they are exposed to. PHCMC were isolated and set to *ex vivo* culture from endoscopic biopsies of the inflamed mucosa of 10 UC patients with an endoscopic Mayo score ≥ 2 were treated with each one of all major T helper (Th)1 (TNF-α, IFN-ɣ), Th2 (IL-4, IL-13) or T regulatory (Treg; TGF-β, IL-10) cytokines with or without tofacitinib. Cells were lysed, RNA was isolated and reverse-transcribed to cDNA. *TF* and *RPL4* (housekeeping) cDNAs were quantified as C_T cycles with real-time, reverse-transcription PCR. Wilcoxon and Mann-Whitney U tests were used to compare *TF* $\Delta\Delta C_T$ for paired or unpaired values, respectively, and Spearman's rho to correlate *TF* $\Delta\Delta C_T$ with scale clinical variables and continuous laboratory values.

Results: Increased *TF* mRNA abundance in PHCMC was associated with increased partial Mayo score (Spearman's rho 0.661, $p < 0.044$), reduced serum albumin (Spearman's rho -0.723, $p < 0.05$) and more severe endo-

scopic lesions (endoscopic Mayo score 3). No association with CRP was found (p > 0.999). Cells originating from UC patients of an endoscopic Mayo score 3 expressed 20 times more *TF* than those from an endoscopic Mayo score 2 (p < 0.017). Furthermore, PHCMC from difficult-to-treat patients, defined as requiring > 1 biologics, expressed 9 times more *TF* than those from patients requiring ≤ 1 biologics.

Interestingly, treatment of PHMC with tofacitinib did not upregulate *TF*. PHCMC expressed receptors and responded to treatment with all major Th1 (TNF-α, IFN-ɣ), Th2 (IL-4, IL-13) or Treg (TGF-β, IL-10) cytokines by further upregulating *TF* by 5.5-7.5 times (p 0.001 - 0.035). IL-13 had the maximal effect. Even when tofacitinib was added together with the aforementioned cytokines, it did not further upregulate *TF*. Instead, it tended to partially inhibit their effects; for example, it decreased upregulation of *TF* by IL-13 by 40%.

Conclusion: The expression of *TF* mRNA in active UC is significantly associated with clinically and endoscopically severe disease and resistance to treatment. Tofacitinib *per se* does not increase *TF*. Instead, it may limit the upregulating effect of pro-inflammatory cytokines.

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PP0846

EARLY SURGERY AFTER HOSPITALIZATION WITH PENETRATING CROHN'S DISEASE REDUCES ADVERSE SEQUELAE COMPARED TO CONSERVATIVE TREATMENT

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Introduction: Early surgical intervention in Crohn's disease (CD) with inflammatory (B1) phenotype has been shown to be equally successful compared to biologic treatment in the LIR!C study. A recent work by PREDICT IBD group reconfirmed these findings.

On the other hand, the prospective multicenter CREOLE study demonstrated long term (>4 years) surgery free survival in stricturing (B2) CD in over 50% of patients, treated with medical and endoscopic therapy. These conflicting findings complicate decision making in the individual patient, and data on conservative management of penetrating CD is lacking.

Aims & Methods: To compare long term outcomes between the early surgery and conservative treatment approach in patients presenting with penetrating (B3) CD.

This was a retrospective, single tertiary center study, including adult CD patients hospitalized with penetrating abdominal CD, between 1/8/2010 to 30/6/2018.

Demographic and clinical data including medical treatment, hospitalization duration, medical and surgical treatments during hospitalization and subsequent hospitalizations and treatments were collected from hospital records. Patients were divided into 2 groups:

1. Early surgery (<12 weeks from index hospitalization), and;
2. Conservative treatment.

Multivariable logistic regression model adjusted for age, sex and smoking status was used for statistical analysis.

Results: A total of 43 CD patients [21 male (48.8%), age 37.9±15.1 years, disease duration 14.1±12.0 years] were hospitalized during the study period for first presentation of penetrating CD [14 (32.6%) with a sinus tract and 29 (67.4%) with an abscess]. Twenty-three patients (53.5%) underwent early surgery (69.5% of whom manifested with abscesses), and the rest were managed non-surgically.

Both groups were similar in terms of CD Montreal classification, smoking status, and type of penetrating complication. Follow up duration was comparable (median 5.2±2.3 years vs 5.3±2.3 years for early surgery vs conservative treatment, respectively, p=0.855).

Exposure to biologics, immunomodulators and glucocorticoids was comparable between the groups before and after index hospitalization.

During the follow up after discharge from the index hospitalization, patients in the surgical group had significantly lower incidence rates of recurrent abscesses (45% vs 4.5%, odds-ratio (OR) 0.04, 95% confidence interval (CI) 0.003-0.40, p=0.006), need for recurrent courses of antibiotics (55.0% vs 14.3%, OR 0.09, 95% CI 0.02-0.53, p=0.07) and recurrent hospitalizations (70.0% vs 39.1%, OR 0.16, 95% CI=0.03-0.72, p=0.017). Two patients (8.7%) in the early surgery group underwent abdominal surgery during follow-up compared to six patients (30.0%) of the conservative treatment group (OR 0.11, 95% CI 0.01-0.92, p=0.04).

Conclusion: In CD patients hospitalized with a penetrating complication, early surgery resulted in significantly less adverse long-term outcomes, such as recurrent abscesses, need for antibiotic treatment, hospitalizations, and surgeries than patients managed conservatively over a median follow up period of 5 years.

Disclosure: Nothing to disclose.

PP0847

ESTIMATION OF CARDIOVASCULAR RISK IN PATIENTS WITH ULCERATIVE COLITIS ENROLLED IN UPADACITINIB PHASE 3 CLINICAL TRIALS

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Introduction: The Janus kinase inhibitor (JAKi) upadacitinib (UPA) is approved for the treatment of moderate-to-severe ulcerative colitis (UC). However, safety warnings from the US Food and Drug Administration and the European Medicines Agency recommend caution when using JAKis in certain at-risk patients. These drug-class warnings are based on data from the ORAL Surveillance (OS) study, a safety outcomes trial comparing risk of cardiovascular (CV) events with the JAKi tofacitinib plus methotrexate vs a tumor necrosis factor inhibitor (TNFi) plus methotrexate in patients with rheumatoid arthritis (RA) who were ≥50 years of age with ≥1 CV risk factor.[1] An OS study post hoc analysis observed higher major adverse CV event risk with tofacitinib vs TNFi in patients with RA plus a history of atherosclerotic CV disease (ASCVD).[2] CV risk profiles may be different for patients with UC vs RA.

Aims & Methods: This analysis aimed to describe the CV risk profile for patients with UC relative to the CV risk profile for patients with RA included in the OS study. Patients with UC enrolled in the placebo-controlled UPA U-ACHIEVE and U-ACCOMPLISH induction trials[3] were evaluated for the OS study inclusion criteria (age ≥50 years, ≥1 CV risk factor [CV event history, hypertension, diabetes mellitus, smoking/tobacco use, and high-density lipoprotein cholesterol <1.034 mmol/L]). In addition, history of coronary artery disease or ASCVD and 10-year CV disease risk for patients with UC with no prior CV disease were estimated using the American College of Cardiology ASCVD risk score calculation.

Results: Overall, 268/1097 (24.4%) patients with UC met the OS criteria and 624 (56.9%) had ≥1 CV risk factor, regardless of age. Few patients with UC (30; 2.7%) had a history of ASCVD, in contrast to the RA population (640/4362; 14.7%). The distribution of 10-year ASCVD risk scores for patients with UC was similar between the placebo and UPA treatment arms, but markedly different from patients with RA (Table). Most patients with UC were categorized as low risk (938; 85.5%), with another 52 (4.7%) categorized as borderline risk, 51 (4.6%) as intermediate risk, and 26 (2.4%) as high risk.

	Patient Population[a]				
	Ulcerative Colitis		Rheumatoid Arthritis[2]		
ASCVD risk[b], n (%)	Placebo N = 378	UPA 45 mg N = 719	TOFA 5 mg N = 1455	TOFA 10 mg N = 1456	TNFi N = 1451
HxASCVD	10 (2.6)	20 (2.8)	204 (14)	222 (15)	214 (15)
High (≥20%)	6 (1.6)	20 (2.8)	258 (18)	289 (20)	278 (19)
Intermediate (≥7.5% to <20%)	19 (5.0)	32 (4.5)	472 (32)	490 (34)	483 (33)
Borderline (≥5% to <7.5%)	13 (3.4)	39 (5.4)	198 (14)	169 (12)	153 (11)
Low (<5%)	330 (87.3)	608 (84.6)	306 (21)	268 (18)	308 (21)

[a]In the rheumatoid arthritis population, the 10-year risk scores were multiplied by 1.5 prior to the derivation of risk categories; in ulcerative colitis, no multiplier was used. [b]ASCVD risk score was calculated based on the following factors: patient age, sex, race, systolic blood pressure, total cholesterol, HDL, history of diabetes [Y/N] or smoking [Y/N], and hypertension treatment [Y/N]). ASCVD, atherosclerotic cardiovascular disease; HxASCVD, history of ASCVD; TNFi, tumor necrosis factor inhibitors, TOFA, tofacitinib; UPA, upadacitinib

Table.

Conclusion: The majority of patients in the UC trials had low estimated CV risk, while the majority of patients with RA included in the OS study were at intermediate or high CV risk. Caution should be used when extrapolating adverse events data from patients with RA to risk discussions for patients with UC.

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R Chowdhury has no conflicts of interest to declare.

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PP0848

"REAL WORLD" PRELIMINARY DATA ON THE EFFICACY AND SAFETY OF 16-WEEK INDUCTION THERAPY WITH TOFACITINIB IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Tofacitinib is indicated for the treatment of adult patients with moderately to severely active ulcerative colitis (UC). The recommended induction scheme is 10 mg twice daily (BID) for at least 8 weeks followed by a maintenance dose of 5 mg BID. However, some patients re-

quire 10mg bid, for 16 weeks at the induction phase. Our study aimed to assess the demographics and disease characteristics of such patients and their outcome at 24 weeks.

Aims & Methods: This was a multicenter, retrospective, observational study which included patients with moderate to severe UC, who received induction therapy with Tofacitinib 10mg bid for a 16-week period. Data were collected between July 2018 and November 2022. The primary objective was disease outcome, defined as clinical remission and/or the need of steroids. Secondary outcomes were treatment withdrawal, treatment de-escalation and adverse events.

Results: In total 31 patients, are currently enrolled in our study, from 10 IBD centres [males: 51.6%, mean age at study entry: 40.0 years, median disease duration: 7 years]. Patient demographic and clinical characteristics at baseline are shown in table 1. Four patients (12.9%) discontinued treatment before week 24, due to inadequate response. De-escalation of dosing to 5mg bid tofacitinib was attempted in 13 of 27 patients (48.1%) and was successful in 7 patients (53.8%) who maintained clinical response until week 24 of the study. Of the other 6 out of 13 patients, 6 patients received again the higher dose (10 mg bid) and regained response and only one patient discontinued treatment. Overall, 85.7% (6/7) of the patients who received tofacitinib 5mg bid and 66.7% (14/21) who received 10mg bid at 24 weeks, had received more than one biologic prior to tofacitinib (*P*=0.34). At week 24, the partial Mayo score was available in 26 patients; 13 patients were in steroid-free clinical remission (pMayo <2). Twelve patients had mild active disease (pMayo 2-4) and 9 of them had stopped steroids. No major adverse events were observed during the entire observation period.

Age [years; mean (±SD)]		41.0 (±13.6)
Sex [N (%)]	Male	16 (51.6)
BMI [kg/m^2; median (IQR)]		26.8 (23.7 – 28.6)
Smokers [N (%)]	Never/Current/Prior	23 (74.2)/ 3 (9.7)/ 5 (16.1)
Previous treatment [N (%)]	Systemic corticosteroids	25 (80.6)
	Thiopurines/ Methotrexate	16 (51.6)/ 2 (6.5)
	Biologics	26 (83.9)
pMayo score [N (%)]	2-4/ 5-7/ >7	9 (29.0)/ 14 (45.2)/ 8 (25.8)
EndoMayo score [N (%)]	2/3	10 (32.3) / 18 (58.1)

Table 1. Demographic and clinical characteristics of patients (N=31).

Conclusion: In a real-world setting, a 24-week treatment with tofacitinib 10mg BID is safe and the majority of patients achieve clinical remission and manage to stop steroids. De-escalation at 5mg bid is successful in more than half of them. We prospectively follow up our cohort to investigate whether these preliminary results will be confirmed for a longer period.

Disclosure: Nothing to disclose.

PP0849

THE COMPARATIVE EFFECTIVENESS OF ANTI-TNF IN BIO-NAÏVE AND BIO-EXPERIENCED PATIENTS WITH IBD: RESULTS FROM A REAL-WORLD EXPERIENCE AT A BELGIAN TERTIARY CENTRE

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Introduction: As the therapeutic armamentarium for inflammatory bowel disease (IBD) is rapidly expanding, it is of increasing importance to optimize treatment sequencing. However, head-to-head trials comparing efficacy of tumor necrosis factor alpha inhibitors (anti-TNF) in bio-naïve and bio-experienced patients (not compared to placebo), are scarce.

Aims & Methods: Aim: To compare the effectiveness of anti-TNF (infliximab and adalimumab) in bio-naïve versus bio-experienced IBD patients in a real world setting.

Methods: A retrospective monocentric study was performed in IBD patients treated with anti-TNF at a Belgian University Hospital, from January 2018 to June 2021 with follow-up until December 2021.

Primary endpoints considering efficacy after induction and after 1 year of therapy were: clinical response (CRp) and remission (CRm), biochemical response (BRp) and remission (BRm) and endoscopic response (ERp) and remission (ERm).

Secondary endpoint was treatment survival during follow-up. For assessment of risk factors influencing efficacy and treatment survival, a multivariate logistic regression and Cox regression model were applied.

Results: A total of 114 patients were treated with anti-TNF, 57 bio-naïve and 57 bio-experienced. At baseline, significantly more bio-experienced patients had moderate to severe comorbidities (12.3% (5/57) vs. 0% (0/57), P=0.013) and longer disease duration (4 vs. 1 year, P<0.001).

Montreal classification for location in Crohn's disease (CD) was significantly different (P=0.024), as there were less patients with L3 and more patients with L4 in bio-naïve vs. bio-experienced patients. After induction of therapy, no difference could be found for CRp and CRm for both groups (P=0.364 and P=1.000 respectively).

Bio-naïve patients had a significantly higher BRp (87.8% (43/49) vs. 68.6% (35/51), P=0.021). Multiple logistic regression showed a significant higher BRp rate for patients treated for CD vs. UC (aOR 3.17 95% CI[1.03-9.78], P=0.045). Same results were found for BRm (87.8% (43/49) and 64.7% (33/51) for bio-naïve vs. bio-experienced, P=0.007).

Multiple logistic regression showed a significant higher BRm in bio-naïve patients (aOR 3.72 [1.21-11.48], P=0.022) and in patients treated for CD vs. UC (aOR 3.48 [1.14-10.60], P=0.028). ERp (P=0.377) and ERm (P=0.707) were not significantly different.

After 1 year, no difference could be found for CRp (P=0.126). Significant more bio-naïve patients reached CRm (78.2% (43/55) and 60.4% (32/53), P=0.045). Multiple logistic regression could not withheld this difference after adjustment. No significant difference was seen for BRp (P=0.954) and BRm (P=0.367). More bio-naïve patients reached ERp (81.3% (26/32) vs. 54.1% (20/37), P=0.017). Multiple logistic regression showed a just not significant higher ERp rate in bio-naïve patients (aOR 4.99 [1.00-24.86], P=0.050). Age had a significant influence on ERp (aOR 0.93 [0.874-0.996], P=0.039). No difference could be found for ERm (P=0.227). Regarding treatment survival using Cox regression model, no significant difference could be found for both groups (aHR 1.54 [0.71-3.32], P=0.273).

Conclusion: In general, in this tertiary real world cohort of patients with IBD, the effectiveness of anti-TNF did not differ significantly between bio-naïve and bio-experienced patients.

Disclosure: Nothing to disclose.

PP0850

SERUM PROTEIN PROFILES DIFFER WITH USTEKINUMAB AND ADALIMUMAB TREATMENT IN MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE

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Introduction: Ustekinumab (UST) and adalimumab (ADA) are approved for the treatment of Crohn's disease (CD); however, comparative data assessing the mechanism of action (MoA) of Interleukin (IL)-12/23p40 (UST) and TNFα (ADA) blockade in CD are limited. The SEAVUE study (NCT03464136) prospectively compared the safety and efficacy of both treatments in a randomized, double-blind, treat-through design.

The objective of this study is to assess key inflammatory mediators in CD associated with the MoA of UST and ADA in the context of a head-to-head comparator study.

Aims & Methods: Biologic-naïve patients with moderately to severely active CD received either UST (n=191; approximately 6 mg/kg intravenously on day 0, then 90 mg subcutaneously [SC] once every 8 weeks (WK)) or ADA (n=195; 160 mg on day 0, 80 mg at 2 WKs, then 40 mg SC once every 2 WKs through WK56). Serum was collected at WKs 0, 16, and 52 and assessed with a broad inflammatory panel (Olink 92 analyte) and a targeted custom IL-22 immunoassay.

Differences in temporally expressed proteins for each treatment arm were determined with a minimum fold change (≥1.2) using a linear model accounting for subject as a random effect. Normalized values for each treatment group were compared with healthy control sera (n=40). Treatment groups were further subdivided by patient reported outcomes (PRO) and endoscopic response status at WK52.

Results: Of the 93 analytes, 79 passed quality control thresholds. UST and ADA induced distinct serum inflammatory profiles at both induction WK16 and maintenance WK52, notable shifts are described here. UST inhibited interferon gamma (IFNɣ), IL-22, OSM, CXCL9 and IL-6 at WK16 and WK52 compared to baseline ($p<0.05$). ADA inhibited IFNɣ, OSM, IL-6, CXCL10, CXCL11, CCL3, CCL23, and TNFRSF9 at WK16 and WK 52 compared to baseline ($p<0.05$). Sub-group analysis revealed both UST and ADA significantly reduced IFNɣ at WK16 and WK52 in endoscopic responders ($p<0.05$). UST suppressed IL-22 in both endoscopic responders and non-responders at WK16 (31% and 20%, respectively) and WK52 (41% and 25%, respectively) while ADA had no impact on IL-22 at Wk16 and elevated IL-22 levels in endoscopic non-responders at WK52 ($p<0.05$). In UST patients, a reduction of IFNɣ significantly correlated with an improvement in the fatigue component of the PROMIS-29 (>5 point decrease). ADA reduced IFNɣ only in responders ($p<0.05$) with no correlation to fatigue and more broadly suppressed of chemokines. Inflammatory chemokines CXCL11 and CCL23 were elevated at baseline and significantly reduced at WK16 and WK52 by both UST and ADA ($p<0.05$). CCL4 and CXCL10 were not elevated at baseline or impacted by UST but were reduced by ADA relative to control sera ($p<0.05$).

Conclusion: These data demonstrate differential systemic inflammatory mediators associated with UST and ADA treatment in biologic-naïve patients with moderately to severely active CD as observed in the SEAVUE active comparator study. The magnitude of reduction of IFNɣ was linked to endoscopic response and improvement in fatigue. Suppression of IL-22 by UST is consistent with inhibition of IL-12/23p40.

While ADA reduced IFNɣ only in endoscopic responders, it did not reduce IL-22 and exhibited a broader anti-inflammatory effect via chemokine level decrease that was not associated with endoscopic response. Long-term treatment data are necessary to understand the association of therapeutic MoA with treatment retention and PRO.

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PP0851

FILGOTINIB FOR THE TREATMENT OF MODERATE TO SEVERE ULCERATIVE COLITIS: AN EARLY REAL-WORLD UK TERTIARY CENTRE EXPERIENCE

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Introduction: Filgotinib is an oral Janus kinase 1 selective inhibitor licensed for the treatment of moderate to severe ulcerative colitis (UC) following the successful UC-SELECTION registration trials.[1] However, no real-world data have been published since filgotinib first received marketing authorisation in November 2021.

Aims & Methods: The aim of this study was to assess the short-term safety and effectiveness of filgotinib for the treatment of UC. The primary outcome was post-induction clinical remission, defined as a Simple Clinical Colitis Activity Index (SCCAI) of ≤2. A retrospective, observational cohort study was conducted at a tertiary IBD referral centre using prospectively maintained records between August 2022 and February 2023. Clinical disease activity was assessed at baseline and following induction at week 10 using paired SCCAI scores, faecal calprotectin (FCAL), and C-reactive protein (CRP). Quality of life was assessed using the IBD-Control questionnaire. Non-responder imputation was used for analyses.

Results: Thirty-four patients were initiated on filgotinib during the study period, with post-induction outcome data available for 32 patients; 56% male, median age 38 (IQR range 26–53), 41% with prior biologic and/or tofacitinib exposure. Patients were treated for a median duration of 20 weeks (IQR 13–25) with treatment persistence of 69% at the time of analysis; eight patients were switched to alternative treatments due to non-response and two patients underwent colectomy.

At the end of induction, nine patients (28%) were in clinical remission; all patients were corticosteroid-free. Median SCCAI decreased significantly from a baseline of 7 (IQR 4-10) to 1 (IQR 0-6) at week 10, p<0.01, n=25. Median FCAL fell numerically from a baseline of 464 mcg/g (IQR 183-1245) to 125mcg/g (IQR 30-502) following induction, p=0.06, n=20.

There was no significant change in CRP, haemoglobin, serum albumin, or lipid profile components following induction. There was a significant improvement in pre- and post-treatment quality of life scores from a median of 5 (IQR 2-9) to 16 (IQR 4-16), p<0.01.

Thirteen patients described a mild self-resolving coryzal illness, sore throat, or headaches during treatment. There was one reported case of oral herpes simplex infection requiring treatment interruption. There were no serious adverse events.

Conclusion: Filgotinib was well tolerated and clinically effective in the short term with improvements in quality of life but larger prospective cohorts with longer follow up are needed.

References: 1. Feagan BG, Danese S, Loftus EV, et al. Filgotinib as induction and maintenance therapy for ulcerative colitis (SELECTION): a phase 2b/3 double-blind, randomised, placebo-controlled trial. The Lancet. 2021 Jun 19;397(10292):2372–84.

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KP has received honoraria for educational meetings and speaker fees from AbbVie, Janssen, Takeda, Pfizer, DrFalk, PredictImmune and Ferring and has received advisory board fees from AbbVie, Galapagos, Pfizer and Janssen.

SH served as a speaker, a consultant, and/or an advisory board member for Pfizer, Janssen, AbbVie, and Takeda. Travel grants received from Ferring, Falk Pharma, and Pharmacosmos.

RH, AA and SK have no disclosures.

PP0852

APPLICATION OF ARTIFICIAL INTELLIGENCE TO PREDICT THE LONG-TERM EFFECTIVENESS OF VEDOLIZUMAB FOR THE TREATMENT OF INFLAMMATORY BOWEL DISEASE

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Introduction: Real-world studies on vedolizumab (VDZ) are often limited by small sample size and short follow-up; furthermore, there is still only limited knowledge regarding predictors of response. Our study aims to evaluate the long-term effectiveness and safety of VDZ, and to apply a machine learning (ML)-based algorithm to identify predictors of both outcomes.

Aims & Methods: The Long-term Italian VDZ Effectiveness (LIVE) study included CD and UC patients (pts) started on VDZ from 04/2016 to 06/2017 at 47 centers of the Italian Group for the study of IBD. Pts were prospectively followed-up to 06/2019. The primary endpoint was steroid-free clinical

remission (SFCR) at 12 months (mo). Secondary endpoints included persistence and safety. An eXplainable Artificial Intelligence (XAI) model (XGBoost) was applied to identify the main baseline clinical predictor of SFCR at 12 months and of the development of adverse events (AEs).

Results: We enrolled 1111 pts (564 CD, 547 UC). At baseline, mean age and disease duration were 47.7 (±16) and 11.8 (±9) years; 256 (23%) pts were bionaïve. SFCR (clinical remission + no steroid therapy in previous 3 mo) was reported in 193 (34.3%) and 178 (31.6%) CD pts, and in 205 (37.8%) and 215 (39,7%) UC pts, at 12 and 24 mo. Notably, a nearly significant increase in the rates of SFCR was observed from 14 weeks to 6 mo (27.1% *vs.* 35.7%, p=0.051) in the CD cohort; similarly, a significant increase in the rates of SFCR between 14 weeks and 6 mo (28.0% *vs.* 35.6%, p=0.008) was recorded in UC patients. From 6 months onwards, a substantial stability was observed in both cohorts. Overall, 488 (44.2%) patients suspended vedolizumab during the observation: 261 (46.4%) CD and 227 (41.9%) UC patients. Cumulative treatment persistence at 12 and 24 mo was 73.3% and 67.3%. Median vedolizumab therapy duration was 98.7 (14.0-117.1) and 102.2 (14.0-117.4) weeks for patients with CD and UC, respectively (p=ns). Vedolizumab ineffectiveness was the cause of treatment discontinuation in 399 (81.8%) patients: specifically, 79 (16.2%) primary failures and 320 (65.6%) secondary failures. A significantly longer persistence was observed among bionaïve compared to bioexperienced CD pts (p=0.02), but not in UC. In the entire cohort, 318 AEs were experienced by 308 patients, with an incident rate of 0.14 AE per patient-year; infections were the most common (120, 38.0%). AEs caused 61 (20.0%) patients to withdraw from vedolizumab treatment. The trained ML algorithm was used to predict 12 mo-SFCR and the development of AEs. To minimize the bias introduced by the imbalanced dataset, a data augmentation technique (Synthetic Minority Over-sampling Technique, SMOTE) was introduced. The predictive model's accuracy (F1 score) was 0.85 for both outcomes. To explore the relations between the variables for the predicted outcome, Shapley Additive exPlanations (SHAP) was adopted. Previous exposure to anti-TNFα, female sex, more severe baseline clinical activity and baseline steroid therapy at baseline were the most important drivers of predicting no SFCR at 12 months. In regard to safety, fewer comorbidities and baseline corticosteroid therapy were the most important features associated with no development of AEs.

Conclusion: About 1/3 of VDZ-treated pts achieved 12 mo-SFCR. With ML, we identified the most important predictors of SFCR and of the development of AEs: in that regard, XAI is a promising tool in precision medicine, as it helps reconcile sophisticated models with the biological explainability of data.

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PP0853

ACHIEVEMENT OF LONG-TERM TREATMENT GOALS WITH UPADACITINIB IN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS: A POST-HOC ANALYSIS OF INDUCTION AND MAINTENANCE PHASE 3 TRIALS

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Introduction: Per the STRIDE II consensus, mucosal healing and normalization of quality of life are considered long-term treatment goals in ulcerative colitis (UC). Results from Phase 2/3 induction and maintenance trials (U-ACHIEVE and U-ACCOMPLISH) showed that patients with moderately to severely active UC treated with upadacitinib (UPA) had significant improvements in these outcomes individually.

However, there is a need to understand better the extent to which patients treated with UPA can achieve both treatment goals jointly within one year of maintenance therapy.

Aims & Methods: In the U-ACHIEVE and U-ACCOMPLISH trials, patients with a clinical response after 8-week induction treatment with UPA 45 mg QD were re-randomized 1:1:1 to UPA 15 mg QD, UPA 30 mg QD or placebo (PBO) QD. Long-term treatment goals were determined based on the percentage of patients who achieved the composite endpoint of endoscopic remission (ER), complete symptom resolution (CSR), and Inflammatory Bowel Disease Questionnaire (IBDQ) remission at the end of induction week 8 and maintenance week 52. ER was defined as an endoscopic score of 0; CSR as stool frequency subscore ≤1, rectal bleeding subscore of 0, no bowel urgency, no abdominal pain; and IBDQ remission as IBDQ total score ≥170.

The response rate between PBO and UPA was calculated using the Cochran-Mantel-Haenszel test, adjusting for baseline characteristics. The percentage of patients who maintained vs achieved ER+CSR+IBDQ remission during maintenance week 52 was also calculated.

Results: At induction week 8, a significantly greater percentage of patients treated with UPA 45 mg achieved ER+CSR+IBDQ remission vs PBO (6.4% vs 0.9%, respectively, p<0.001, Table).

At maintenance week 52, the percentage of induction responders who achieved ER+CSR+IBDQ remission reached 18.3% with UPA 30 mg and 13.1% with UPA 15 mg vs 4.5% with PBO (p<0.001).

Of the patients who achieved ER+CSR+IBDQ remission by week 0 of maintenance, 42.1% (8/19), 23.5% (4/17), and 22.2% (4/18) in the UPA 30 mg, UPA 15 mg, and PBO groups, respectively, sustained the composite endpoint at week 52.

Among patients who did not achieve this composite endpoint by week 0 of maintenance, 16.2% (35/214), 12.3% (26/208), and 2.9% (6/205) in the UPA 30 mg, UPA 15 mg, and PBO groups, respectively, achieved it at week 52.

Conclusion: Results of this post hoc analysis indicate that the rigorous, long-term treatment goals of ER+CSR+IBDQ remission can be achieved with UPA in some patients with moderately to severely active UC by week 8 of induction. By maintenance week 52, nearly one in five patients treated with UPA 30 mg and approximately one in eight patients treated with UPA

15 mg achieved the stringent target. Sustained maintenance treatment with UPA results in an increasing proportion of patients achieving or maintaining these long-term goals of treatment after only one year.

	Responder, n/N (%)	Adjusted rate diff[a], % (95% CI)
Induction week 8		
PBO	3/328 (0.9)	5.5 (3.3, 7.7)*
UPA 45 mg QD	42/660 (6.4)	
Maintenance week 52[b]		
PBO	10/223 (4.5)	
UPA 15 mg QD	30/225 (13.1)	8.5 (3.4, 13.7)*
UPA 30 mg QD	43/233 (18.3)	13.7 (8.1, 19.3)*

*p ≤ 0.001 for UPA vs PBO.
[a]At week 8, the adjusted response rate between PBO and UPA 45 mg was calculated using the Cochran-Mantel-Haenszel (CMH) test adjusting for baseline corticosteroid use, Adapted Mayo score, and inadequate response to biologic (Bio-IR) status. At week 52, the rate difference between PBO and UPA 30 mg and 15 mg was calculated using CMH adjusted for Bio-IR status at induction baseline, and clinical remission status and corticosteroid use at week 0 of maintenance. Calculations were based on non-responder imputation incorporating multiple imputation to handle missing data due to COVID-19 or non-responder imputation if there were no missing data due to COVID-19. [b]The maintenance study population comprises patients who achieved clinical response after UPA 45 mg QD 8-week induction treatment in the Phase 2 and 3 programs and were enrolled in the 52-week maintenance treatment period. CI, confidence intervals; IBDQ, Inflammatory Bowel Disease Questionnaire (IBDQ), PBO, placebo; QD, once daily; UPA, upadacitinib.

Table. Percentage of patients who achieved composite endpoint of endoscopic remission and complete symptom resolution and IBDQ remission at week 8 of induction and week 52 of maintenance.

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PP0854

THE COMPARATIVE EFFECTIVENESS OF VEDOLIZUMAB AND TNF INHIBITORS IN BIO-NAÏVE PATIENTS WITH IBD: RESULTS FROM A REAL-WORLD EXPERIENCE AT A BELGIAN TERTIARY CENTRE

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Introduction: The therapeutic armamentarium for inflammatory bowel disease (IBD) is rapidly increasing recent years with newer therapies such as vedolizumab (VDZ). Their effectiveness has already been demonstrated against placebo, but head-to-head trials compared to tumour necrosis factor alpha inhibitors (anti-TNF) are scarce.
Aims & Methods: Aim: To compare the effectiveness of VDZ versus anti-TNF in bio-naïve IBD patients in a real world setting.
Methods: A retrospective monocentric study was performed in IBD patients treated with VDZ and anti-TNF at a Belgian University Hospital, from January 2018 to June 2021 with follow-up until December 2021. Primary endpoints considering efficacy after induction and after 1 year of therapy were: clinical response (CRp) and remission (CRm), biochemical response (BRp) and remission (BRm) and endoscopic response (ERp) and remission (ERm). Secondary endpoint was treatment survival during follow-up. For assessment of risk factors influencing efficacy and treatment survival, a multivariate logistic regression and Cox regression model were applied. Propensity scores for VDZ vs. anti-TNF were weighted for age at start biological, IBD type, perianal disease activity, disease duration and previous IBD-related intestinal resection.
Results: In total, 42 patients received VDZ and 57 anti-TNF. At baseline, the VDZ group had an older median age (38 vs. 31 years, P=0.024), longer disease duration (P=0.017) and more moderate to severe comorbidities (21.4% (9/42) vs. 0% (0/57), P<0.001). In the anti-TNF group, percentage of CD patients was higher (77.2% (44/57) vs. 57.1% (24/42),P=0.034), patients had more upper GI, penetrating or stricturing disease (P=0.013 for location and P=0.004 for behavior), perianal disease (P=0.034) and used more immunomodulators (IMM) during treatment (52.6% (30/57) vs. 16.7% (7/42), P<0.001). After treatment induction, CRp (P=0.311) and CRm (P=0.216) rate was not significantly different. The anti-TNF group had a significantly higher BRp rate compared to the VDZ group (87.8% (43/49) *vs.* (23/34), P=0.026). After adjusting for propensity score, age, IBD type, systemic corticosteroid (CS) or IMM use, the higher rate of BRp remained (aOR 3.83 [1.01-14.60], P=0.049).
Similar results were found for BRm (87.8% (43/49) vs. 67.6% (23/34), P=0.026). After adjustment for the same confounders, the higher rate of BRm in the anti-TNF group remained (aOR 3.83 [1.01-14.60], P=0.049). No significant difference was seen for ERp (P=1.000) and ERm (P=0.338). After 1 year, univariate analysis showed no significant difference for CRp (P=0.736) and CRm (P=0.404), nor for BRp (P=0.907) and BRm (0.890) or

for ERp (P=0.163) and ERm (P=0.533). Treatment survival using Cox regression model with adjustment for propensity and IMM or CS use, showed no significant longer treatment duration for anti-TNF compared to VDZ (aHR 0.947 [0.36-2.49], P=0.913).

Conclusion: In this tertiary real-world cohort of bio-naïve patients with IBD, anti-TNF and VDZ showed a similar efficacy, with an advantage of anti-TNF regarding onset of action.

Disclosure: Nothing to disclose.

PP0855

INFLIXIMAB BIOSIMILAR SWITCH IS SAFE AND EFFECTIVE, IT DOES NOT HAVE MAJOR PSYCHOLOGICAL IMPLICATIONS AND DOES NOT AFFET PHARMACOKINETICS IN A LARGE COHORT OF PATIENTS WITH IBD

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Introduction: Biosimilars are used for the treatment of inflammatory bowel disease (IBD). However, data on the switch from one biosimilar to another still lack. We aimed to study, in an IBD cohort, the effects of the CT-P13-to-SB2-switch, in terms of effectiveness, safety, psychological implications, pharmacokinetic and inflammatory marker levels.

Aims & Methods: Consecutive CT-P13-to-SB2-switched IBD patients were enrolled and prospectively followed-up for 12 months (mo). Patient-reported outcomes (PROs) were employed: specific PRO-2 for CD and UC, IBD-Disability Index (IBD-DI), Functional Assessment of Chronic Illness Therapy Fatigue (FACIT), Short-IBD-Questionnaire (SIBDQ). Psychometric tests were administered to assess the psychological impact of the switch: Hospital Anxiety and Depression Scale (HADS), Perceived Stress Scale (PSS), Believes About Medicine (BMQ). C-reactive protein (CRP) levels, concomitant steroid use, and adverse events of interest (AEIs) were recorded. Serum samples were obtained before and after the switch to measure: infliximab (IFX) and anti-IFX trough levels (TLs), and cytokine (TNF-α, IL-6, IL-8, IL-17A, IL22) concentrations.

Results: We enrolled 119 (73 CD, 46 UC). Median age was 40 years (IQR:27-52), median disease duration 9 years (IQR:4-16). Median duration of pre-switch infliximab was 45 mo (IQR:24.5-75.5); 50 (42.0%) patients had previously received infliximab originator-to-CT-P13 switch (median CT-P13 duration: 28 mo, IQR:27-29). In UC, mean stool frequency scores were 0.2±0.5, 0.4±0.8, 0.7±1.5, 0.2±0.5, and mean rectal bleeding scores were 0.1±0.4, 0.1±0.4, 0.4±0.8, 0.0±0.0, at baseline, 2, 6 and 12 mo (p=ns for all). In CD, mean stool frequency scores were 1.9±2.0, 2.1±2.2, 1.8±1.9, 1.5±1.8(p=ns for all), and mean abdominal pain scores were 0.5±0.7, 0.4±0.6, 0.3±0.6, 0.2±0.5 (p=ns for all, expect baseline vs.12 mo p=0.01) at baseline, 2, 6 and 12 mo. Patients in SFCR were 100 (84.0%) at baseline, 97 (81.5%) at 2 mo (p=ns vs baseline), 86 (72.3%) at 6 mo (p=0.03 vs baseline) and 90 (75.6%) at 12 mo (p=ns vs baseline). Mean CRP levels were constantly <5mg/L (3.4±8.0, 3.2±5.8, 2.4±4.0, 2.2±5.7, at baseline, 2, 6 and 12 mo, p=ns for all). No significant changes in psychometric assessments were observed during follow-up in regard to: HADS (10.3±6.8 at baseline, 10.6±8.1 at 2 mo, 11.3±8.1 at 6 mo), PSS (14.3±7.8, 15.7±8.8, 14.9±8.1), IBD-DI (-0.7±4.6, -1.3±5.9, 9.0±4.7), FACIT (42.2±8.9, 40.6±10.8, 41.8±8.6), SIBDQ (55.2±11.4, 54.1±11.8, 56.7±10.7), BMQ-S1-SS1 (18.0±3.4, 18.0±2.3, 17.5±2.9), BMQ-S1-SS2 (15.3±2.6, 15.4±2.0, 15.1±1.9), BMQ-S2-SS1 (9.8±3.2, 9.3±2.6, 9.5±2.7), BMQ-S2-SS2 (8.7±2.9, 8.6±3.0, 9.0±2.7). AEIs were observed in 43(36.1%) patients, most commonly infections (17) and arthralgias (15); 3 cancer diagnoses and 2 infusion reactions were recorded. Pre- and post-switch median IFX TLs remained stable (4.07 vs 4.86 µg/mL, p=ns). Anti-IFX antibodies were detected in 5.1% and 2.5% of patients before and after the switch, respectively; de novo antibody formation was observed in one patient after the switch. The median concentration of TNF-α (9.77 vs 9.16 pg/mL, p=ns), IL-8 (9.04 vs 10.10 pg/mL, p=ns) and IL-22 (5.52 vs 6.43, p=ns) remained stable; conversely, a significant increase was observed in IL-6 (1.20 vs 1.73 pg/mL, p=0.01) and IL-17A (0.72 vs 1.08 pg/mL, p=0.02) median concentrations.

Conclusion: Switching from CT-P13 to SB2 can be considered safe, does not significantly affect treatment effectiveness nor drug pharmacokinetic, and is seemingly not associated with major negative psychological implications.

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PP0856

THE COMPARATIVE EFFECTIVENESS OF VEDOLIZUMAB IN BIO-NAÏVE AND BIO-EXPERIENCED PATIENTS WITH IBD: RESULTS FROM A REAL-WORLD EXPERIENCE AT A BELGIAN TERTIARY CENTRE

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Introduction: As the therapeutic armamentarium for inflammatory bowel diseases (IBD) is rapidly expanding, it is of increasing importance to optimize treatment sequencing. However, head-to-head trials comparing efficacy of vedolizumab (VDZ) in bio-naïve versus bio-experienced patients are scarce.

Aims & Methods: Aim: To compare the effectiveness of VDZ in bio-naïve versus bio-experienced patients with IBD in a real world setting.

Methods: A retrospective monocentric study was performed in IBD patients treated with VDZ at a Belgian University Hospital, from January 2018 to June 2021 with follow-up until December 2021. Primary endpoints considering efficacy after induction and after 1 year of therapy were: clinical response (CRp) and remission (CRm), biochemical response (BRp) and remission (BRm) and endoscopic response (ERp) and remission (ERm). Secondary endpoint was treatment survival during follow-up. For assessment of risk factors influencing efficacy and treatment survival, a multi-

variate logistic regression and Cox regression model (CRM) were applied.

Results: A total of 84 patients were treated with VDZ, 42 bio-naïve and 42 bio-experienced. At baseline, significantly more bio-experienced patients had prior intestinal resection (IR) (40.5% (17/42) vs. 16.7% (7/42), P=0.016), used an immunomodulator (IMM) (35.7% (15/42) vs. 16.7% (7/42), P=0.047) and had a longer disease duration (12.5 vs. 3.5 years, P<0.001). Bio-naïve patients had more moderate to severe comorbidities (21.4% (9/42) vs. 2.4% (1/42), P=0.007). After VDZ induction, CRp rate was higher in bio-naïve patients (60.9% (39/42) vs 39.1% (25/42), P<0.001).

Multiple logistic regression analyses revealed that bio-naïve patients had a higher chance reaching CRp (aOR 14.69, 95%CI [3.12-69.14], P<0.001) (table). CRm was reached in 35.7% bio-naïve and 19% bio-experienced patients (P=0.087). No significant difference in BRp (P=0.932) or BRm (P=0.730) rate was found . A significantly higher ERp rate was seen in bio-naïve patients (90.3% (28/31) vs. 66.7% (18/27), P=0.027). Multiple logistic regression analyses showed a trend towards higher ERp rate in bio-naïve patients (aOR 4.65, [0.99-21.84], P= 0.051) (table).

No significant difference was seen for ERm (32.3 % (10/31) vs. 11.1% (3/27), P=0.054). After 1 year of VDZ, CRp was significantly higher in bio-naïve patients (82.9% (34/41) vs. 62.5% (25/40), P=0.039). Multiple logistic regression analyses showed no significant difference between both groups. Univariate analyses showed significantly higher CRm rate in bio-naïve patients (70.7% (29/41) vs. 37.5% (15/40), P=0.003).

After adjustment for age, disease duration, IMM use and prior IR, this difference was no longer significant. Patients without prior IR had significantly higher odds of reaching CRm (aOR 4.33,[1.13-16.59], P=0.032). No significant difference was seen for BRp (P=0.443) and BRm (P=0.313), nor for ERp (P=0.184) or ERm (P=0.061) in univariate analyses. Cox regression analysis showed significantly longer treatment survival in bio-naïve patients (aHR 2.32, [1.03-5.23], P=0.043).

	Clinical response after induction		Endoscopic response after induction	
Multivariate regression model	aOR [95% CI]	P-value	aOR [95% CI] P-value	P-value
VDZ in bio-naïve patients (vs. bio-experienced patients)	14.69 [3.12-69.14]	P<0.001	4.65 [0.99-21.84]	P=0.051
Age (years)	1.00 [0.96-1.04]	P=0.954	1.01 [0.96-1.06]	P=0.998
Ever IMM use during treatment (yes)	1.22 [0.30-4.97]	P=0.783	3.48 [0.38-32.33]	P=0.273
Disease duration (years)	1.08 [0.99-1.18]	P=0.095	1.00 [0.91-1.10]	P=0.998
Prior intestinal resection (yes)	0.52 [0.11-2.49]	P=0.417	1.04 [0.13-8.34]	P=0.968

Conclusion: In this tertiary real-world cohort of patients treated with VDZ, overall, a better efficacy was seen in bio-naïve compared to bio-experienced patients.

Disclosure: Nothing to disclose.

PP0857

SAFETY OF VEDOLIZUMAB, USTEKINUMAB AND TNF INHIBITORS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A RETROSPECTIVE MONOCENTRIC COHORT STUDY

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Introduction: New biologics such as vedolizumab (VDZ) and ustekinumab (UST) have expanded the therapeutic armamentarium for inflammatory bowel diseases (IBD) over the past decade. Head-to-head trials comparing safety to tumor necrosis factor alpha inhibitors (anti-TNF) are limited. Data on safety of biologic sequencing remains scarce.

Aims & Methods: Aim: To assess the impact of different biologics and previous treatments on the incidence of severe adverse events (SAE) in a real-world tertiary IBD patient cohort.

Methods: A retrospective monocentric study was performed at the Ghent University Hospital. Patients starting anti-TNF, VDZ or UST from January 2018 to June 2021 with follow-up until December 2021 were included. SAE were defined as intestinal resection (IR), IBD-inflammation related hospitalization (IBD-hosp), IBD-treatment related hospitalization (e.g. infections) (treat-hosp), malignancy and death. Cox regression analysis was used to explore risk factors (RF) of SAE.

Results: In total 267 patients were included: 84 on VDZ, 69 UST, 60 infliximab (IFX) and 54 adalimumab (ADM). At baseline a significant difference was found between biologic groups for age (younger in IFX and ADM - P=0.001), IBD type (Crohn's disease (CD): VDZ 51.2%, UST 73.9%, IFX 70%, ADM 77.8% - P=0.003), CRP (in mg/L, med, IQR - VDZ: 5[1.6-12.4], UST: 8.5[2.8-19.3], IFX: 13 [1.87-31.8], ADM:3.2[1-8.1] - P<0.001) and calprotectin (in µg/g, med, IQR) (VDZ: 579 [175- 1801], UST: 707 [244-2889], IFX: 652 [65-2449], ADM 200 [43.7-789] - P=0.021)). Perianal CD rate was higher in anti-TNF and UST patients (P=0.003) and prior disease duration differed significantly (VDZ: 9years, UST10y, IFX 2y,ADM 3.5y - P<0.001)). Concomitant immunomodulator (IMM) use was higher in the IFX group (81.7% vs 25% for all other groups P<0.001)) and corticosteroid (CS) use differed among treatment groups (VDZ 78.6%, UST 68.1%, IFX 70%, ADM 55.6% (P=0.041)). Number of prior biologics was higher in the UST group (P<0.001).

No significant difference in SAE rate could be found between different biologics (UST 37.7%, IFX 33.3%, VDZ 23.8%, ADM 22.2% - P=0.148). Cox regression revealed age ≥60years (aHR 2.00, 95%CI 1.11-3.60, P=0.020) and higher number of previous biologics (aHR 1.29, 95%CI 1.03-1.60, P=0.024) as independent RF for SAE. Considering SAEs types, IR rate was not significantly different between biologic groups (VDZ 4.8%, UST 15.9%, IFX 8.3%, ADM 5.6% - P=0.096). Cox regression revealed previous IMM use as an independent RF for IR (aHR 4.26, 95%CI 1.62-11.19, P=0.003). No significant difference was found between biologics considering IBD-hosp (VDZ 15.5%, UST 30.4%, IFX 21.7%, ADM 14.8% – P=0.087). Higher number of previous biologics was an independent RF for IBD-hosp (aHR 1.32, 95%CI 1.02-1.71, P=0.036). Treat-hosp rate was not significantly different between biologic groups (VDZ 7.1%, UST 10.1%, IFX 6.7%, ADM 5.6% – P=0.811). Age ≥60years was found to be an independent RF of treat-hosp (aHR 4.93, 95%CI 1.91-12.76, P=0.001). Six patients developed malignancy (3 VDZ: colorectal carcinoma, melanoma, low grade appendix neoplasia; 2 IFX: cervix CIN3, gastric adenocarcinoma; 1 ADM: basal cell carcinoma). One patient died due to progressive melanoma while on VDZ.

Conclusion: In this tertiary real-world IBD patient cohort, no influence of type of biologic on the SAE rate could be found. Elderly age (≥60 years) and higher number of previous biologics were an independent RF for SAEs.
Disclosure: Nothing to disclose.

PP0858

MATCHING-ADJUSTED INDIRECT COMPARISON OF UPADACITINIB VERSUS USTEKINUMAB ON ENDOSCOPIC OUTCOMES AMONG PATIENTS WITH MODERATELY TO SEVERELY ACTIVE CROHN'S DISEASE

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Introduction: Crohn's disease (CD) clinical trials have evolved from evaluating symptoms to including endoscopic outcomes as coprimary endpoints, as was done in clinical trials of upadacitinib (UPA), an oral, reversible Janus kinase inhibitor, and ustekinumab (UST), an anti-interleukin 12/23. Endoscopic healing has been recommended as a long-term treatment target by the Selecting Therapeutic Targets in Inflammatory Bowel Disease (STRIDE) initiative.
Aims & Methods: The objective of this study is to conduct a placebo (PBO)-anchored matching-adjusted indirect comparison (MAIC) of endoscopic outcomes between UPA and UST among patients with moderately to severely active CD. Data from phase 3 UPA trials (NCT: 03105128, 03104413, 03105102) and an UST endoscopy substudy (NCT: 01369329, 01369342, 01369355) from the phase 3 UNITI/IM-UNITI program were used. For induction, patients (pts) received UPA 45mg once daily (QD) for 12 weeks (wks), UST 6mg/kg intravenously, or PBO. For maintenance, pts received UPA 15mg or 30mg QD, subcutaneous UST 90mg every 8 (Q8W) or 12 wks (Q12W), or PBO. Individual pt level data from the UPA trials included pts with baseline (BL) CD Activity Index between 220-450 and excluded pts with prior UST or vedolizumab exposure or missing data due to COVID. Induction BL characteristics identified as treatment-effect modifiers, including disease duration, location, and phenotype, median c-reactive protein, prior biologic failure, and mean Simple Endoscopic Score for CD (SES-CD), were weighted to match those reported in the UST endoscopy substudy for both induction and maintenance. Endoscopic outcomes were evaluated after induction (Wk 12 UPA, Wk 8 UST) and maintenance (Wk 52 UPA, Wk 44 UST). Endoscopic outcomes included endoscopic response (reduction of ≥50% from induction BL in SES-CD) and remission (total SES-CD ≤2), mucosal healing (present with ulceration in at least 1 ileocolonic segment at induction BL) and change in SES-CD score from induction BL.
Results: The effective sample sizes for induction MAICs were 207 UPA and 155 UST pts and ranged from 16–53 (UPA) and 17–46 (UST) for maintenance MAICs. A significantly (P<0.05) greater proportion of UPA vs UST pts achieved endoscopic response and remission, mucosal healing, and had a larger reduction from BL in mean SES-CD score at the end of induction; PBO-adjusted treatment differences were 26.3%, 9.9%, 13.0%, and –3.7 points, respectively. Endoscopic remission rates at the end of maintenance were numerically higher for UPA 30mg vs UST 90mg (Q8W+Q12W). PBO-adjusted rate differences in endoscopic response and mucosal healing between UPA 30mg and UST Q12W were significant (35.5% and 39.0%, respectively; p<0.05); other outcomes (UPA 15mg vs UST) were comparable.
Conclusion: Greater proportions of pts on UPA vs UST achieved endoscopic outcomes at the end of induction for pts with moderately to severely active CD. Although sample sizes during maintenance were limited, these MAICs show endoscopic outcomes are achieved in a numerically higher proportion of pts treated with UPA 30mg vs. UST, while outcomes are comparable with UPA 15mg vs UST.

Outcome[a]	N or ESS	Rate[b]	Rate Difference (95% CI) UPA or UST vs PBO	Rate Difference (95% CI) UPA vs UST
Induction				
Endoscopic Response				
UPA 45mg/PBO	207/104	45.4%/11.9%	33.5% (24.2%, 42.8%)	26.3% (13.2%, 39.5%)*
UST 6mg/kg/PBO	155/97	20.6%/13.4%	7.2% (–2.1%, 16.5%)	
Endoscopic Remission				
UPA 45mg/PBO	207/104	17.5%/4.0%	13.5% (7.6%, 19.4%)	9.9% (1.6%, 18.2%)**
UST 6mg/kg/PBO	155/97	7.7%/4.1%	3.6% (–2.2%, 9.4%)	
Mucosal Healing				
UPA 45mg/PBO	207/104	21.9%/4.0%	17.9% (11.6%, 24.3%)	13.0% (4.3%, 21.8%)**
UST 6mg/kg/PBO	155/97	9.0%/4.1%	4.9% (–1.1%, 10.9%)	
SES-CD mean change from baseline				
UPA 45mg/PBO	207/104	–6.5/–0.8	–5.8 (–7.0, –4.5)	–3.7 (–5.5, –1.8)*
UST 6mg/kg/PBO	155/97	–2.8/–0.7	–2.1 (–3.4, –0.8)	
Maintenance				
Endoscopic Response				
UPA 15mg/PBO	51/36	28.8%/12.9%	15.9% (–0.3%, 32.1%)	–4.0% (–27.8%, 19.9%)
UPA 30mg/PBO	63/36	40.6%/12.9%	27.7% (11.6%, 43.8%)	7.8% (–16.0%, 31.6%)
UST Q8W/PBO	29/24	24.1%/4.2%	19.9% (2.4%, 37.4%)	
Mucosal Healing				
UPA 15mg/PBO	51/36	13.9%/4.4%	9.5% (–2.1%, 21.1%)	–3.5% (–23.2%, 16.2%)
UPA 30mg/PBO	63/36	27.9%/4.4%	23.5% (10.8%, 36.2%)	10.5% (–9.9%, 30.8%)
UST Q8W/PBO	29/24	17.2%/4.2%	13.0% (–2.9%, 28.9%)	
Endoscopic Remission				
UPA 15mg/PBO	51/36	11.2%/3.6%	7.6% (–3.2%, 18.4%)	0.9% (–15.3%, 17.1%)
UPA 30mg/PBO	63/36	27.7%/3.6%	24.1% (9.0%, 39.1%)	17.4% (–1.9%, 36.6%)
UST Q8W+Q12W/PBO	46/24	10.9%/4.2%	6.7% (–5.3%, 18.7%)	

[a]Endoscopic Response= reduction of ≥50% from induction baseline in SES-CD; endoscopic remission= total SES-CD score ≤2; mucosal healing= present with ulceration in at least 1 ileocolonic segment at induction baseline. [b]After weighting results from the MAIC.
*P<0.001;**P<0.05
CI=confidence interval, ESS=effective sample size, PBO=placebo, Q8W=every 8 weeks, Q12W=every 12 weeks, SES-CD=simple endoscopic score in Crohn's Disease; UPA=upadacitinib, UST=ustekinumab.

Table.

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PP0859

COMPARATIVE EFFICACY AND SAFETY OF BIOLOGIC THERAPIES IN ELDERLY AND YOUNGER PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Biologic therapies are associated with an increased risk for adverse events such as infections and malignancies. This is of particular importance in elderly patients with inflammatory bowel disease (IBD).

Aims & Methods: The aim of this study was to compare the efficacy and safety of different biologic therapies between IBD patients aged over 60 years and younger patients.All adult patients with IBD treated with biologic agents from 2010 to 2022 in the sole tertiary referral center for inflammatory bowel disease in central Greece were screened for eligibility and their electronic medical records were retrospectively reviewed. Data collected included the socio-demographic and clinical characteristics of the study population, endoscopy reports as well as information regarding treatment compliance and drug sustainability. Adverse events (AEs) and serious AEs were also recorded. Patients with incomplete information were excluded from the analysis.

Results: 267 IBD patients were screened for eligibility and 187 were included. The majority (65%) of the patients had Crohn's disease. Of all patients, 47.8% received infliximab, 18% adalimumab, 18% vedolizumab, and 16% ustekinumab. The median duration of biologic treatments was 10 years. Parallel steroid therapy was required in 70% at baseline, 35% at 3 months, 18 % at 6 months, and 5% at 12 months from treatment onset. The efficacy of biologic therapies did not differ significantly between patients aged > 60 years and younger patients. Kaplan-Meyer analysis did not show statistical differences or trends in drug sustainability (P > 0.05), time to an adverse event (P >0.05), and infection rates (P >0.05) among the different classes of biologic agents compared. The most common AEs leading to drug discontinuation were loss of response and local injection site reactions. After adjusting for differences in baseline characteristics between the two age groups, no significant differences in drug sustainability and the need for treatment optimization were found between elderly and younger patients (p >0.05).

Conclusion: Available biologic therapies were characterized by comparable efficacy, sustainability, and safety among elder and younger patients, hardening the preferential selection among the available biologic agents for the elderly. More real-world evidence is required to make treatment recommendations.

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PP0860

THE ASSOCIATION OF ENDOSCOPIC AND HISTOLOGIC ENDPOINTS WITH FAECAL CALPROTECTIN AND C-REACTIVE PROTEIN IN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS TREATED WITH MIRIKIZUMAB

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Introduction: Mirikizumab [(miri), a p19-directed IL-23 antibody] has been shown to be effective in patients with moderately to severely active ulcerative colitis (UC) in Phase 3, randomised, double-blind, placebo-controlled trials (LUCENT-1 NCT03518086; LUCENT-2 NCT03524092).[1] Given the importance of understanding treat-to-target strategies, the relationship between improved histologic and endoscopic endpoints and improvement of the inflammatory biomarkers faecal calprotectin (fCal) and C-reactive protein (CRP) was studied within miri-treated patients enrolled in the programme.

Aims & Methods: This analysis focused on miri-treated patients (n=868) from the induction study receiving intravenous (IV) every 4 weeks (Q4W) until week (W)12 and miri induction responders at week W12, who were rerandomised for the maintenance period, receiving subcutaneous miri (n=365) Q4W up to W52. The relationship between achieving histologic-endoscopic mucosal improvement (HEMI), histologic-endoscopic mucosal remission (HEMR) (definitions in Tables) and improvement of fCal (≤250µg/g) and CRP (≤6mg/L) levels at W12 and W52 was explored using Fisher's exact tests.

Relationship between mirikizumab treated patients achieving HEMI and HEMR at end of induction (W12) and normalised faecal calprotectin and C-reactive protein values				Relationship between mirikizumab responder patients rerandomised to mirikizumab achieving HEMI and HEMR at end of maintenance (W52) and normalised faecal calprotectin and C-reactive protein values			
Mirikizumab treated patients (N=868)				Mirikizumab induction responder patients rerandomised to mirikizumab (n=365)			
End of induction-Week 12	Patients achieving HEMI (n=235)	Patients not achieving HEMI (n=633)	p-value	End of maintenance-Week 52	Patients achieving HEMI (n=174)	Patients not achieving HEMI (n=191)	p-value
% fCal ≤ 250µg/g	179 (76.2%)	138 (21.8%)	<0.001	% fCal≤250µg/g	129 (74.1%)	62 (32.5%)	<0.001
% CRP ≤ 6mg/L	208 (88.5%)	460 (72.7%)	<0.001	% CRP≤6mg/L	153 (87.9%)	117 (61.3%)	<0.001
End of induction-Week 12	Patients achieving HEMR (n=193)	Patients not achieving HEMR (n=675)	p-value	End of maintenance-Week 52	Patients achieving HEMR (n=158)	Patients not achieving HEMR (n=207)	p-value
% fCal ≤ 250µg/g	153 (79.3%)	164 (24.3%)	<0.001	% fCal≤250µg/g	121 (76.6%)	70 (33.8%)	<0.001
% CRP ≤ 6mg/L	173 (89.6%)	495 (73.3%)	<0.001	% CRP≤6mg/L	139 (88.0%)	131 (63.3%)	<0.001

Abbreviations: CRP=C-reactive protein; fCal=faecal calprotectin; HEMI=Histologic-endoscopic mucosal improvement defined as Mayo Endoscopic Subscore (ES)=0 or 1 (excluding friability) and Geboes≤3.1; HEMR Histologic-endoscopic mucosal remission defined as ES=0 or 1 (excluding friability) + Geboes≤2b; N=patient population; n=patient subpopulation; W=week

Results: At W12, a significantly higher percentage of miri-treated patients achieving HEMI (n=235/868) had normalised fCal and CRP values (76.2% and 88.5%), compared to miri-treated patients who did not achieve HEMI (n=633/868) (21.8% and 72.7%, both p<0.001; Table). Similarly, a higher

proportion of patients achieving HEMR (n=193/868) had normalised fCal and CRP values (79.3% and 89.6%), compared to those who did not achieve HEMR (n=675/868) (24.3% and 73.3%, both p<0.001; Table). At W52, a significantly higher percentage of the miri induction responder patients rerandomised to miri achieving HEMI (174/365) had normalised fCal and CRP values (74.1% and 87.9%), compared to patients not achieving HEMI (191/365) (32.5% and 61.3%; both p<0.001).

Similarly, at W52, a higher proportion of patients achieving HEMR (n=158/365) had normalised fCal and CRP values (76.6% and 88.0%), *versus* patients not achieving HEMR (n=207/365) (33.8% and 63.3%; both p<0.001, Table).

Conclusion: At both W12 and W52, patients treated with miri who achieved HEMI or HEMR showed statistically significant improvements in fCal and CRP levels. This suggests that CRP and fCal may be useful markers of histology and endoscopy outcomes after induction and maintenance with miri.

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PP0861

FATIGUE IS NOT RELATED TO SARCOPENIA IN CROHN'S DISEASE PATIENTS IN DEEP REMISSION

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Introduction: Fatigue is commonly reported by Crohn's Disease patients even in the absence of disease activity.

Other possible causative factors need to be determined in order to successfully address this problem, which significantly affects patients' lives even when treatment targets have been achieved.

Sarcopenia and Depression are also common in Crohn's Disease and possibly related to fatigue.

Aims & Methods: Consecutive patients with Crohn's Disease who came to the infusion center to receive maintenance intravenous infliximab treatment were included. All participants had to be in full clinical (HBI <5), biological (C-RP < 0.5 mg/dL and/or fecal calprotectin <100 μg/mg) , endoscopic (SES-CD 0-2), or enterographic remission in the past 6 months.

Anthropometric measurements (Weight, Height, Body Mass Index, Circumcenter waist, hips, gastrocnemius, Waist to Hip Ratio), Body Composition Measurements (Body Fat, Total Body Water, Body Fat Mass Index, Lean Body Mass), Physical Activity Tests (Handgrip Strength test, 6-meter Walk Test, One Leg Standing test, 30-second Chair Stand test) and Questionnaires related to Sarcopenia (Lawton Instrumental Activities of Daily Living Scale-LIADLS, Activities Daily Living Scale-ADLS, Dixon's Diet Score-DASH, Mini Nutritional Assessment-MNA, Mediterranean Diet Serving Score MDSS, the Mind Diet Score-MDS) were conducted.

We used the Functional Assessment of Chronic Illness Therapy-Fatigue scale (FACIT-F) to measure fatigue. We used the Hamilton Depression Rating Scale (HAM-D) to assess for depression. Linear regression analysis was used to assess the impact of sarcopenia and depression on fatigue.

Results: A total of 39 patients were included: mean age 38.6 years, mean body weight 80 Kg, median disease duration 9 years, female 22 (56,%), male 17 (44%).
We included patients with ileal disease (48%), perianal disease (28%), stomas (8%), extraintestinal manifestations (12%), on second or third biologic therapy (56%), smokers (10%).
Median C-RP was 0.13 mg/dL and median albumin was 4.5 g/dL.
Sarcopenia was almost non existent by all measures: Indicatively, Median Max Hand Grip was 25.7 (range 10.8-57.4).
Median FACIT-F was 45 (range 7-52).
Median HAM-D was 4 (range 0-25).
There was no correlation between FACIT-F and Sarcopenia (Max Hand Grip): p=0,280, β coefficient = 0,159.
There was a correlation between FACIT-F and HAM-D: p<0,001, β coefficient = -1,576.
Interestingly there was also a correlation between HAM-D and max Hand Grip: p=0,029, β coefficient = -0,804.
Conclusion: We found expectantly low (though not in all patients) estimates of sarcopenia, fatigue and depression in this selected group of Crohn's Disease patients in complete remission receiving intravenous infliximab.
Fatigue could not be attributed to sarcopenia. On the contrary depression seemed to be one of the main determinants of fatigue.
Multidisciplinary care of fatigue should include psychological evaluation and possible intervention.
Further research in the field of fatigue related to Inflammatory Bowel Disease is needed.
Disclosure: Nothing to disclose.

PP0862

PREDICTIVE FACTORS ASSOCIATED WITH LONG-TERM SURVIVAL OF ANTI-TNF AGENTS IN THE MANAGEMENT OF CROHN'S DISEASE

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Introduction: Tumor necrosis factor (TNF) inhibitor therapies (anti-TNFs) are routinely used for the management of Crohn's disease (CD) in patients with moderate to severe disease activity. However, approximately 30% of patients discontinue anti-TNF treatment due to inefficacy or adverse events.
Aims & Methods: This study analyzed the long-term anti-TNFα drug survival in a cohort of patients with CD from central Greece aiming to find potential predictive factors that are associated with increased survival of anti-TNF agents. All adult patients with CD treated with anti-TNF agents including infliximab (IFX) ή adalimumab (ADA) from 2012 to 2022 in the sole tertiary referral center for inflammatory bowel disease in central Greece were screened for eligibility and their electronic medical records were reviewed retrospectively. Data collected included the socio-demographic and clinical characteristics of our population as well as specific information regarding anti-TNF treatment survival, concomitant treatment modalities, treatment compliance, adverse events, and the need for treatment optimization. Parametric and non-parametric statistical tests were used for the description of the study population.
To evaluate the survival of anti-TNF agents, a Kaplan-Meier survival curve was performed whereas the influence of population characteristics on the survival of anti-TNF agents was assessed with linear regression. Patients with incomplete data were excluded from the analysis.
Results: 193 patients were screened for eligibility and 123 were finally included. Over the study period, 68% and 71% of the population treated with IFX and ADA required treatment optimization. The majority of the population (>60%) received anti-TNF as a 1-st line treatment. At 1 year, the probability of retaining anti-TNFs was>75% with no significant differences being recorded between IFX and ADA whereas the percentage of patients who remained on the same treatment at 5 years gradually reduced to 23% and 35% respectively.
Among the population characteristics, the increased disease duration at the onset of treatment was the sole factor that was positively associated with increased survival to both anti-TNFs ([standardized beta: .545, t: 3.690, p: < .001 95,0% Confidence Interval: 1.580-5.511 for ADA], [standardized beta: .479, t:5.119, p: <.001 95,0% Confidence Interval: 1.738-3.952 for IFX]), whereas the development of antibodies (standardized beta: .247, t: 2.639, p: < .01 95,0% Confidence Interval: 3.682-26.312) and the early need for treatment optimization (standardized beta: .203, t: 2.128, p: < .037 95,0% Confidence Interval: 1.373-41.358), defined as the need for treatment optimization within the first year, were the sole factors that were associated with reduced survival of IFX.
Conclusion: Treatment survival with anti-TNF agents decreases in CD patients over time. A trend for increased long-term survival was recorded for ADA over IFX. Among CD patients, the increased disease duration at treatment onset was found to be associated with increased treatment survival irrespective of the type of anti-TNF agents that was selected. Immunogenicity and the need for early treatment optimization were the sole factors that were associated with reduced treatment survival among CD patients receiving IFX.
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PP0863

COMPARATIVE EFFICACY OF SECOND-LINE THERAPIES IN ULCERATIVE COLITIS: A MONOCENTRIC EXPERIENCE FROM A TERTIARY REFERRAL CENTER

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Introduction: Several therapeutic options are now available for the treatment of moderate-to-severe ulcerative colitis (UC): pivotal trials have reported efficacy and safety of anti-TNF-α, Vedolizumab (VDZ), Ustekinumab (USTE) and Tofacitinib (TOFA) but comparative data are scanty and only one head to head trial (Varsity trial) is available. Network meta-analysis from Singh et al. demonstrated that TOFA and USTE are the best options in anti-TNF exposed patients. Real-worlds studies are discrepant most reporting similar efficacy of second-line drugs. Thus, the optimal sequence of therapeutic choices is still unclear.

Aims & Methods: Our aim was to analyze comparative efficacy of VDZ, TOFA and USTE in a homogeneous cohort of UC patients in a real life setting. We report data of a retrospective-prospective study conducted between 2020 and 2023 in our tertiary referral center. The primary outcome (PO) was clinical response (assessed by partial Mayo score). Secondary outcomes were: steroid-free remission (SFR), adverse events (AEs), time and reasons for treatment discontinuation, surgery and hospitalization rate. All outcomes were investigated at 8 weeks and at the end of follow-up (FU). At the end of FU another secondary outcome was therapy optimization. All data were analysed using the Medcalc program.

Results: 73 patients (65,75% males, mean age 55 yrs) with moderate-to-severe UC were included, mostly (84%) anti-TNF experienced, treated with TOFA (27,4%), USTE (26%) or VDZ (46.6%). Average FU was 11 months. TOFA showed a significant higher clinical response rate at week 8 (80% vs 58,8% VDZ and 42,1% USTE; p = 0,016) while there were no significant differences at the end of FU. SFR rate didn't reach the statistical significance at week 8 and at the end of FU (55% TOFA, 58,8% VDZ and 47,37% UST). 4 patients experienced AEs: 2 paresthesias and 1 mild AST/ALT elevation in the TOFA group; 1 fever of unknowkn origin (FUO) in the USTE group. Treatment discontinuation rate didn't show significant differences. All discontinuations were for treatment failure except the patient with FUO. All the other AEs showed spontaneous resolution. None of the patients was submitted to surgery or hospitalized. Optimisation rate at the end of FU was higher in the VDZ group (50% vs 25% TOFA and 15,8% USTE ; p value (VDZ vs UST 0,009; VDZ vs TOFA 0,05).

Conclusion: TOFA was more effective at wk 8 in comparison with USTE in agreement with previous studies which have documented an increased speed of action of JaK-inhibitors. In the long run efficacy results are similar, thus not confirming superiority of TOFA and USTE as compared to VDZ observed in other studies and reported by national and European guidelines. Treatment optimization was more frequently required with VDZ. Further head-to-head trials and real-world studies are needed to investigate the comparative efficacy of second-line therapeutic agents after anti-TNF failure.

Disclosure: Nothing to disclose.

PP0864

LONG-TERM VEDOLIZUMAB PERSISTENCE IN ULCERATIVE COLITIS: THE EDINBURGH IBD UNIT EXPERIENCE 2014-2022

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Introduction: Long-term VDZ outcomes in real-world cohorts have mostly focussed on 1-year follow-up, with the longest reporting outcomes at 2-years. However, most of these studies include biologic exposed patients and also report limited data on objective markers of inflammation.

Aims & Methods: We performed a retrospective, observational, cohort study. All adult UC/IBDU patients who ever received VDZ complete induction from 2014 to December 2021 were included. Baseline phenotype and follow-up data were collected via review of electronic medical records.

The primary outcome of this study was VDZ persistence.

Secondary outcomes included: clinical (partial Mayo <2), biochemical (CRP <5 gr/L) and faecal biomarker (faecal calprotectin <250 µgr/gr) remission at 1,3 and 5 years; hospitalisation, steroid prescription, surgical rates; predictors of VDZ persistence; and serious adverse events.

Results: We included 290 patients (UC n=271 [93.4%], IBDU n=19 [6.6%]), median time on VDZ 27.6 months (IQR 14.4-43.2). VDZ persistence at first year was 80.7%, 64.4% at two years, 56.5% at 3 years, 49.5% at 4 years, 47.9% at 5 years and 41.5% at 6 years. Median time to discontinuation was 14.1 months (IQR 7.0-23.3 months).

Reasons for drug discontinuation: 51(17.6%) primary non-response, 63 (21.7%) secondary loss of response [8 (2.8%) during the first year; 33 (11.4%) between the first and second year; 13 (4.5%) between the second and third year; 5 (1.7%) between the third and fourth year and 4 (1.4%) over the fourth year], 9 (3.1%) adverse event, 4 (1.4%) remission and 6 (2.1%) other reasons.

Multivariable Cox Regression model found previous exposure to one biologic/small molecule (HR 1.52, 95% CI 1.03-2.22, p=0.033); two or more biologic/small molecule (HR 2.37, 95% CI1.37-4.09, p=0.002), steroid at baseline (HR 1.57, 95%CI 1.08-2.29, p=0.019), left-side colitis (HR 2.80, 95% CI 1.11-7.09, p=0.029), extensive colitis (HR 3.32, 95%CI 1.34-8.21, p=0.010) and disease duration ≥ 10 years (HR 0.60, 95%CI 0.43-0.86) were independent predictors for VDZ persistence (Table 1).

Clinical, biochemical and faecal biomarker remission at year 1 were 171/226 (75.7%), 157/217 (72.4%) and 127/181 (70.2%); at year 3, 83/92 (90.2%), 78/91 (85.7%) and 52/59 (88.1%) and at year 5, 23/25 (92%), 23/26 (88.5%) and 15/17 (88.2%) respectively. During follow-up, steroid prescription was needed in 98 (33.8%), hospitalization 45 (15.5%) and surgery 10 (3.4%). Serious adverse events were 1.2 per 100 patient-year follow-up.

Variable	Univariable Cox Regression			Multivariable Cox Regression		
	Hazard Ratio	95% CI	p	Hazard Ratio	95% CI	p
Disease duration ≥ 10 years	0.57	0.41-0.84	0.002	0.60	0.43-0.86	0.005
Disease extension						
- E1: distal (reference)			0.022			0.030
- E2: left side	2.72	1.08-6.83	0.034	2.80	1.11-7.09	0.029
- E3: extensive	2.94	1-19-7.23	0.019	3.32	1.34-8.21	0.010
Number of previous biologic/small molecule						
- None (reference)			0.004			0.003
- One	1.53	1.05-2.22	0.028	1.52	1.03-2.22	0.033
- Two or more	2.26	1.31-3.88	0.003	2.37	1.37-4.09	0.002
Concomitant steroids at baseline	1.67	1.16-2.42	0.006	1.57	1.08-2.29	0.019
Partial Mayo ≥ 2 at baseline	1.81	1.11-2.94	0.017			

Conclusion: VDZ effectiveness is durable and its persistence is influenced by disease duration, previous exposure to biologics/small molecules, disease extension and steroids at baseline. Long-term VDZ safety is confirmed in our study.

Disclosure: Beatriz Gros has served as a speaker for Abbvie, Jansen, Takeda, Pfizer and Galapagos.

Nikolas Plevris has served as a speaker for Janssen, Takeda and Pfizer.

Professor Charlie Lees has acted as a consultant to Abbvie, Janssen, Takeda, Pfizer, Galapagos, Bristol Myers Squibb, B.I., Sandoz, Novartis, GSK, Gilead, Vifor Pharma, Dr Falk, Trellus Health and Iterative Scopes; he has received speaking fees and travel support from Pfizer, Janssen, Abbvie, Galapagos, MSD, Takeda, Shire, Ferring, Hospira, and Dr Falk.

Gareth-Rhys Jones has served as a speaker for Takeda, Janssen, Abbvie and Ferring.
Lauranne Derikx has served on advisory board for Sandoz and as a speaker for Janssen.
Colin Noble has acted as a consultant to Galapagos.
None of the other authors reported any conflicts of interest.

PP0865

JAK INHIBITORS FOR THE TREATMENT OF INFLAMMATORY BOWEL DISEASE: RESULTS OF AN INTERNATIONAL SURVEY OF PERCEPTIONS, ATTITUDES, AND CLINICAL PRACTICE

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Introduction: Janus kinase inhibitors (JAKi) are small molecule drugs with demonstrated efficacy in inflammatory bowel disease (IBD). However, widespread utilisation may be hindered by safety concerns.

Aims & Methods: The aim of this study was to assess the risk-benefit perceptions, attitudes, and clinical practices of those using JAKi to treat IBD. A prospective, cross-sectional study was conducted using a 23-item electronic survey, which was distributed to ECCO members and delegates of the 18th Congress of ECCO, 2023, held in Copenhagen, Denmark.

Results: There were 385 respondents from 48 countries; 72% were based in tertiary referral centres and 50% were gastroenterologists with ≥10 years' experience. JAKi were rarely used first line (8%) but were commonly used outside market authorisation (31%). Many (17%) were unconfident discussing JAKi risk-benefit profile and 7% had never prescribed JAKi despite consulting >100 unique IBD patients/year. If venous thromboembolism risks were present, 15% preferentially referred for surgery than initiate JAKi; 21% would do this even if the patient was already anticoagulated. IBD subspecialists with full GI accreditation were less likely to refer to surgery over JAKi initiation, OR 0.40 (95% CI 0.17-0.85) p=0.02. For patients relapsing on dose-reduction, 8% would switch treatment rather than dose-escalate. Conversely, 45% felt that cardiovascular safety concerns from post-marketing studies were irrelevant to IBD. Despite lack of detailed, long-term safety data, safety profiles of novel JAK1-selective drugs were perceived to be favourable to tofacitinib by most (62%).

Conclusion: The study provides unique insights from an international cohort of experienced IBD clinicians and indicates that while clinical practice appears to be in keeping with international guidance, a significant minority remain deterred by safety concerns.

Disclosure: SH served as a speaker, a consultant, and/or an advisory board member for Pfizer, Janssen, AbbVie, and Takeda. Travel grants received from Ferring, Falk Pharma, and Pharmacosmos.
PMI has received lecture fees from AbbVie, Warner Chilcott, Ferring, Falk Pharma, Takeda, MSD, Johnson and Johnson, Shire and Pfizer. Financial support for research: MSD, Takeda, and Pfizer. Advisory fees: AbbVie, Warner Chilcott, Takeda, MSD, Vifor Pharma, Pharmacosmos, Topivert, Genentech, Hospira, Samsung Bioepis.
MAS served as a speaker, a consultant, and/or an advisory board member for Sandoz, Janssen, Takeda, MSD, Falk, AbbVie, Bristol Myers Squibb, Galapagos, Pfizer, and Samsung Bioepis.

PP0866

THE ROLE OF CHEST X-RAYS WHEN SCREENING FOR LATENT TUBERCULOSIS INFECTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE BEFORE STARTING BIOLOGIC TREATMENT

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Introduction: The use of biologics has improved the outcome for patients with inflammatory bowel disease (IBD) treatment. However, most biologics, particular TNF inhibitors, can reactivate latent tuberculosis infections (LTBI). (1)
It is therefore common practice to screen patients for tuberculosis (TB) before initiating biologic treatment. The value of chest X-ray (CXR) as a screening instrument for latent tuberculosis is contested. This, some guidelines recommend always using CXR in addition to an immunological assay test like a QuantiFERON-TB (QFT) test, while others recommend CXR be used under certain conditions, only, such as in immunocompromised patients or if the immunological assay produces a positive result. (2)

Aims & Methods: The primary objective of the present study was to investigate if a chest X-ray identifies patients with latent tuberculosis who are not identified with a QuantiFERON-TB test when screening for latent tuberculosis infection before starting biologic treatment in inflammatory bowel disease patients.
A secondary objective was to identify possible patient characteristics which could increase the necessity for a chest X-ray when screening.
This study was a single center, retrospective cohort study of all IBD patients at the Department of Medical Gastroenterology at Odense University Hospital in Denmark who initiated biologic treatment between Oct. 2017 to Oct. 2022.
The primary outcome of interest in this study was the test results for the QFT test and the CXR. Secondary outcomes of interest were patient characteristics thought to influence either the strength of the QFT test or the likelihood of a patient having LTBI.
The test results were compiled and presented together in a 3x2 table. The total number of patients who received a negative QFT test result, but a TB suspect CXR would represent the number of patients who would be of increased risk of LTBI reactivation when starting biologic treatment without a CXR.

Results: The population studied was low risk for TB and had few risk factors for having false negative QFT results except for concurrent glucocorticoid treatment and inflammatory activity. None of the 8 TB cases present in the population were identified based solely on a suspect chest X-ray (see table). Since no patients had a negative QFT combined with suspect CXR, patient characteristics associated with such an outcome could not be identified.

	TB suspect CXR	Non-suspect CXR
Positive QFT test	1	7
Negative QFT test	0	494
Inconclusive QFT test	0	18

TB=tuberculosis QFT=QuantiFERON CXR=Chest X-ray

Conclusion: This results indicate that the benefits of supplementing a QFT test with a CXR are limited and is unlikely to outweigh the cost of patient test-burden, radiation exposure, and economic resources when screening for LTBI in a low endemic population.
While it remains likely that imaging still plays an important role in certain subgroups of patients with higher TB incidence, no characteristics could be identified in this study due to the low-endemic nature of the study population.

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PP0867

SAFETY AND EFFECTIVENESS OF COMBINING BIOLOGICS AND SMALL MOLECULES IN THE TREATMENT OF INFLAMMATORY BOWEL DISEASE: AN UPDATED SYSTEMATIC REVIEW WITH METANALYSIS

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Introduction: The number of patients with inflammatory bowel disease (IBD) refractory to different biologic classes and small molecules is growing. Combining mechanisms of action seems to be the key to breaking the therapeutical ceiling; however, the available evidence is still limited and of low quality.
Aims & Methods: We conducted a systematic review and meta-analysis to summarize the available data on the safety and effectiveness of different combinations of biologics and small molecules in Crohn's disease, ulcerative colitis, and indeterminate colitis.
Through a systematic search of multiple electronic databases until March 1, 2023, we included studies with two or more patients on dual biologic therapy or in combination with small molecules due to active intestinal disease.
We reported effectiveness as pooled rates of clinical and endoscopic response and remission. Safety was assessed as pooled rates of adverse events and serious adverse events for each combination. The quality of evidence was rated according to the Critical Appraisal Skills Programme checklist.
Results: We included 28 studies - 2 randomized controlled trials and 26 observational studies - with 499 patients on 7 different combinations (Anti-TNF + Vedolizumab/Ustekinumab/Tofacitinib/Natalizumab/Goselkumab or Vedolizumab + Ustekinumab/Tofacitinib). The most common was tumor Anti-TNF & anti-integrins (n=96).
In patients mostly refractory to monotherapy due to active intestinal disease, combination therapy resulted in pooled clinical and endoscopic remission rates of 48% (CI 0.44-0.52) and 32% (CI 0.26-0.39), respectively. Pooled clinical and endoscopic response rates were 76% (CI 0.65-0.85) and 52% (CI 0.46-0.58), respectively.
Pooled serious adverse event rates (SAE) were 9% (CI 0.06-0.11), with Anti-TNF + Ustekinumab (n=19)/Natalizumab (n=52) and Ustekinumab + Tofacitinib (n=22), being the safest options with no registered SAE.
Heterogeneity was significant only for pooled rates of adverse events. The certainty of the evidence was low due to the nature and inconsistencies between the included studies.
Most of the studies failed to report the outcomes based on the disease subtype and specify which biological agent was used when an anti-TNF was part of the combination. Only one study had a control arm with monotherapy.
Conclusion: Combining Biologics and Small Molecules appears safe and possibly effective in patients with IBD. New trials with higher-quality data will be detrimental to generalizing access to this approach.
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Disclosure: Nothing to disclose.

PP0868

CELLULAR AND MOLECULAR IMPACT OF THE MELANOCORTIN RECEPTOR AGONIST PL8177 IN DEXTRAN SULFATE SODIUM–INDUCED COLITIS IN RATS

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Introduction: The melanocortin 1 receptor (MC1R)–specific agonist PL8177 and its main metabolite PL8435 have demonstrated MC1R binding affinity and functional activity that mirrors that of α-melanocyte–stimulating hormone, which has been shown to be effective in reducing inflammation in numerous experimental models. This study investigates the effects of PL8177 on inflammation, cell population composition, and gene and protein expression in colons from a dextran sulfate sodium (DSS)–induced rat model of colitis. The objective is to determine the effectiveness of PL8177 in this model and to characterize its underlying mechanism of action.
Aims & Methods: Male Wistar rats received 5% DSS in drinking water for 3 days to induce colitis (each group n=6). Rats in the sham group received drinking water only. The other groups received vehicle control (placebo)–filled capsules; PL8177-filled capsules at 20, 50, and 100 µg per animal (by oral gavage); or oral mesalazine (positive control). At termination on day 8, 24 hours after the last dose, colon tissues were harvested, dissected, and snap frozen with liquid nitrogen. Colon samples were analyzed for cytokine levels, single nuclei RNA-seq, and data-independent acquisition tandem mass spectrometry. Colitis was assessed by a disease activity index (diarrhea and rectal bleeding), colon length shortening, colon weight gain, and histopathological assessment. The total colitis index was used to assess inflammatory damage.
Results: Colitis was induced in rats treated with DSS. Treatment with oral PL8177 50 µg showed a significant (P<0.05) improvement in colon weight (53% reduction), stool consistency, and fecal occult blood score compared to vehicle. There was a significant (P<0.05) improvement in the total colitis index for the PL8177 100-µg group vs vehicle control group. All PL8177 cohorts showed greater improvement in the total colitis index compared to the mesalazine-treated cohort. PL8177 50 µg showed a significant (P<0.05) improvement in colon weight (53% reduction), whereas mesalazine treatment was associated with a marked reduction in colon length, but only moderate improvement (35%) in colon weight. Single nuclei

RNA-seq analysis showed that after oral PL8177 100 µg treatment, relative cell populations and key gene expression levels were closer to those of healthy controls. A subclustering analysis revealed significant differences between the PL8177 100-µg and vehicle populations. Although both showed the presence of macrophages, those present in vehicle-treated colons were primarily M1 macrophages that are involved in inflammation. In the PL8177 100 µg–treated colons, macrophages were primarily M2, which are pro-resolution. Proteomic analysis showed that the colons of PL8177-treated rats are more similar to sham colons than to vehicle colons.

Additionally, after treatment with PL8177, a protein known to promote intestinal homeostasis and a blood-based biomarker protein showed expression similar to that seen in the sham group, a result not seen in vehicle-treated colons.

Conclusion: In a rat model, oral PL8177 treatment of colonic inflammation showed significant improvement in anatomical markers of colitis vs the vehicle and mesalazine control groups, supporting the aim of treating inflammatory bowel disease (IBD) in humans. Transcriptomics and proteomics data show that oral PL8177 treatment causes diseased colons to move toward the healthy state and to resolve inflammation. Resolving inflammation—rather than blocking it—provides the possibility of efficacy coupled with safety in treating IBD.

Disclosure: Priyanka Dhingra, Alison Obr, Carl Spana, John H. Dodd, and Paul S. Kayne are employees of Palatin Technologies, Inc.

PP0869

POSSIBLE THERAPEUTIC EFFECT OF HELIX POMATIA MUCUS ON AN EXPERIMENTALLY INDUCED MODEL OF ULCERATIVE COLITIS

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Introduction: Ulcerative colitis (UC) represents the widespread inflammatory bowel disease (IBD) affecting millions of patients worldwide. UC usually begins at the onset of adulthood and progresses across the patient's lifetime. Snail mucus has many hidden activities; many of them have been discovered in recent years. Scientific researchers have demonstrated that mucus-derivate drugs can be used in many therapies.

For example, it is used in creams to ease skin abrasions and scars, to cure respiratory diseases and heartburn, and at last, scientists discovered unexpected and previously unknown properties.

At the beginning of the twentieth century, a new interest in gastropods has grown up for their possible employment in medicine and industries.

Aims & Methods: This study aimed to investigate the possible therapeutic effect of mucus extracted from helix pomica snail in an experimental ulcerative colitis model induced by dextran sulphate sodium. Twenty-four mice were included and categorized into four groups.

The 1st group acted as a normal control group, whereas the 2nd group acted as a pathological control group and ingested dextran sulphate sodium in drinking water.

The 3rd Group was treated orally with sulfasalazine and then ingested dextran sulphate sodium in drinking water.

The 4th group was treated orally with helix pomatia mucus and then ingested dextran sulphate sodium in drinking water. After seven days, the animals were euthanized, and the intestinal specimens were collected for pathological and biochemical assessment.

Results: Our results showed an improvement in histopathology with regression of the intestinal lesions in the 4th group compared to the pathological control group. The levels of nuclear-kappa B, and IL-1B decreased significantly after using helix pomatia mucus.

Conclusion: Helix pomatia mucus could be a potential therapy to protect against experimentally induced ulcerative colitis.

Disclosure: Nothing to disclose.

PP0870

DATA IN A TERTIARY HOSPITAL ON SWITCHING FROM AN INTENSIFIED AND NON INTENSIFIED REGIMEN OF INTRAVENOUS VEDOLIZUMAB TO A SUBCUTANEOUS IN ADULTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Vedolizumab is a humanised monoclonal antibody whose mechanism of action is inhibition of the α4β7 integrin of T leukocytes. It is indicated for moderate or severe flare of inflammatory bowel disease. Subcutaneous (SC) vedolizumab, a new formulation recently approved, is a major advantage for patients for home administration.

Aims & Methods: Analyse the percentage of clinical and biochemical remission in patients on treatment with intravenous (IV) vedolizumab after switching to SC vedolizumab. In addition, the relationship between a treatment with intensified IV vedolizumab and subsequent drug levels versus patients without intensification.

Single-center, descriptive, observational, and retrospective study of a cohort of all of 19 patients diagnosed with ulcerative colitis (UC) and crohn disease (CD) teatred with IV vedolizumab in January 2022, who underwent a switch to SC vedolizumab. Analyse of clinical and analytical parameters (faecal calprotectin (FC), concomitant treatment, vedolizumab levels during follow-up, need for intensified intravenous treatment, ocurrence of adverse effects or loss of response) in patients on IV vedolizumab treatment and subsequent switch to SC vedolizumab with follow-up during weeks 4, 12, and 24.

Results: Ten patients (22.6%) were diagnosed with UC and 9 patients (47.3%) with CD. The baseline characteristics of the patients are described in table 1. 68% of patients were exposed to anti-TNF when initiating IV Vedolizumab due to loss of response, and 15,7% had been exposed to >1 anti-TNF. 31% (6 patients) were naive to Anti-TNF, 4 patients (21%) IV vedolizumab was started as the first line of treatment due to the increased risk of infections and a previous history of neoplasia and in 2 patients with CD (10.5%) vedolizumab was started as prevention of recurrence. Up to 8 patients (42.1%) were on an intensified IV vedolizumab prior to switching to SC vedolizumab. Biochemical remission (FC < 150 µg/g) was achieved in 14 patients (77.7%) at week 24 of follow-up. All 19 patients (100%) achieved clinical remission. It was noted that biochemical remission was not achieved in up to 50% of patients on the intensified regimen with IV vedolizumab. Mean baseline intravenous vedolizumab levels were 12.1 µg/ml. After switching to SC vedolizumab, the mean levels were 13.1 µg/ml at week 4, 19.9 µg/ml at week 12 and 22.9 µg/ml at week 24 **(p= 0.001).** There was no statistically significant difference in biochemical remission between patients who received an intensive IV vedolizumab regimen and those who did not. One adverse event (paraesthesia) was described in one patient (5.2%) in relation to IV vedolizumab.

Age (years) median (IQR)	60 (38-71)
Sex (male) n (%)	12 (63.1%)
Inflammatory bowel disease: Ulcerative colitis/Crohn disease n (%)	10 (52.6%) / 9 (47.3%)
Reason for starting iv VDZ	
Anti-TNF naive, n (%)	4 (21%)
Failure to first Anti-TNF/ Failure to second Anti-TNF, n (%)	10 (52.6 %) / 3 (15.7%)
Recurrence prevention, n (%)	2 (10.5%)
Concomitant treatments	
Topical salicylates/ Another Biologic (ustekinumab), n (%)	7 (36.8 %) / 1 (5.2%)
Current intensification when switched, n (%)	8 (42.1 %)

Table 1. Baseline characteristics.

Conclusion: 78% of patients after switching from IV vedolizumab to SC vedolizumab, reached clinical and biochemical remission at 6 months of follow-up. In addition, vedolizumab levels increased progressiively after switching IV vedolizumab to SC treatment. These findings confirm that SC vedolizumab is a good therapeutic option for long-term maintenance.

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Disclosure: Nothing to disclose.

PP0871

HOW CAN WE PREDICT THE DEVELOPMENT OF ANTIBODIES TO INFLIXIMAB IN CROHN'S DISEASE?

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Introduction: Anti-tumour necrosis factor-alpha (anti-TNF-alpha) therapy is an effective treatment for the management of Crohn's disease (CD). However, treatment failure is common.

Aims & Methods: The aim of this study was to identify predictors of anti-TNF-alpha therapy failure.

Retrospective single-center study including anti-TNF-alpha naïve patients with CD, who started on intravenous infliximab, between January 2019 and December 2021. Biochemical parameters included erythrocyte sedimentation rate (ESR), c-reactive protein (CRP), faecal calprotectin, infliximab serum concentrations and the presence of antibodies to infliximab (ATI). Anti-TNF-alpha therapy failure was defined as the development of ATI at 6 and 12 months, absence of clinical response at 6 months, absence of clinical remission or of objective response at 12 months. Clinical response was defined as a reduction in Harvey-Bradshaw index (HBI) of ≥ 3 points comparing with initial value or HBI < 5 points if initial HBI ≥ 7 points and clinical remission as HBI ≤ 4 points. Objective response was assessed by endoscopic studies, defined by improvement of mucosal inflammation and absence of deep ulcerations, or imaging, defined as improvement in bowel wall thickness, inflammatory fat, mural blood flow and hyperenhancement.

Results: A total of 53 CD patients were included, 30 were female (56.6%), with a mean age at the beginning of treatment of 39 ± 2 years. Considering the Montreal classification, 31 patients had ileal disease (58.5%), 7 colonic (13.2%) and 15 ileocolonic disease (28.3%); 22 patients had nonstricturing, nonpenetrating disease (41.5%), 22 stricturing (41.5%) and 9 penetrating disease (17.0%). Eleven patients had perianal disease (20.8%). A total of 26 patients (49.1%) were treated with combination of anti-TNF-alpha and immunomodulatory therapy (thiopurine or methotrexate). Anti-TNF-alpha therapy failure occurred in 21 patients (39.6%). At 6 months, the development of ATI occurred in 6 patients (11.3%) and absence of clinical response in 9 patients (17.0%). At 12 months, absence of clinical remission was seen in 13.6% of patients and absence of objective response in 27.0% of patients.

At 6 months, the development of ATI was significantly higher in patients with lower infliximab serum concentrations at week 14 (with antibodies 5.9±3.2 µg/mL vs without 14.3±7.7 µg/mL, p<0.001). Additionally, the development of ATI was significantly higher in patients with a higher initial value of ESR (with antibodies median 35 vs without median 13, p=0.045). The infliximab serum concentrations at week 14 (AUC 0.828; p=0.009; sensitivity 0.833 and specificity 0.404 for values ≤11.6) and the initial value of ESR (AUC 0.754; p=0.045; sensitivity 0.833 and specificity 0.468 for values ≥15) had very good and good discriminative capacity, respectively, in predicting the development of ATI. No statistically significant differences were found in initial values of CRP and faecal calprotectin, between both groups. Moreover, the other definers of anti-TNF-alpha therapy failure were not associated with the combination with immunomodulatory therapy, infliximab serum concentrations at week 14 or initial values of ESR, CRP and faecal calprotectin.

Conclusion: Infliximab serum concentration after induction therapy is the most important factor in the development of ATI, influencing treatment response, regardless of the combination of anti-TNF-alpha therapy with immunomodulatory therapy. A higher initial value of ESR can also predict the development of ATI.

Disclosure: Nothing to disclose.

PP0872

TREATMENT DISCONTINUATION DUE TO LACK OF EFFICACY DURING MAINTENANCE TREATMENT WITH INFLIXIMAB OR VEDOLIZUMAB IN PATIENTS WITH CROHN'S DISEASE: A COMPARATIVE ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction: A previous meta-analysis in Crohn's disease (CD) patients suggested lower discontinuation rates due to lack of efficacy in infliximab (IFX) compared to vedolizumab (VDZ) during a one-year maintenance phase.[1] This study aims to compare the discontinuation rates due to lack of efficacy between VDZ and IFX by adding the one-year clinical results of "A Randomized, Placebo-Controlled, Double-Blind, Phase 3 Study to Evaluate the Efficacy and Safety of the Subcutaneous Injection of CT-P13 (CT-P13 SC) as Maintenance Therapy in Patients With Moderately to Severely Active Crohn's Disease (LIBERTY-CD; NCT03945019)".[2]

Aims & Methods: Discontinuation rates due to lack of efficacy during the one-year maintenance phase were compared between the treatments. Using a random-effect model, pooled discontinuation rates were reported as forest plots with 95% confidence intervals (CI). The heterogeneity between studies was examined. A sensitivity analysis was conducted among patients who responded to induction therapy. Statistical analyses were performed using MetaProp in R (version 4.2.2).

Results: Four randomized controlled trials (RCTs) (NCT02883452, NOR-SWITCH, PLANETCD, and LIBERTY-CD) on IFX and two RCTs (GEMINI 2 and VISIBLE 2) on VDZ in patients with CD were included for the analysis (IFX: N=659, VDZ: N=995). Pooled discontinuation rates due to lack of efficacy during the one-year maintenance phase were significantly lower in patients who were treated with IFX (0.05 [95%CI: 0.00-0.09], heterogeneity: I^2=86%) compared to those treated with VDZ (0.37 [95%CI: 0.26-0.48], heterogeneity: I^2=93%) (Table 1).

A sensitivity analysis was performed after excluding non-responders to induction therapy which resulted in slightly lower rates of discontinuation due to lack of efficacy in VDZ (0.32 [95% CI: 0.27-0.37], heterogeneity: I^2=48%). However, the significant difference was maintained (Table 1).

Treatment	Study[a]	Route	Dosing	Events	Total	Proportion (95% CI)	Weight	Random effect model	Heterogeneity I^2 (P-value)
IFX	NCT02883452	SC	Q2W	3	28	0.11 (0.02–0.28)	9.1%	0.05 (0.00–0.09)	86% (p<0.01)
	NCT02883452	IV	Q8W	0	25	0.00 (0.00–0.14)	19.0%		
	PLANET CD	IV	Q8W	23	220	0.10 (0.07–0.15)	21.6%		
	NOR-SWITCH	IV	Q8W	1	155	0.01 (0.00– 0.04)	26.3%		
	LIBERTY-CD	SC	Q2W	12	231	0.05 (0.03–0.09)	24.0%		
VDZ	GEMINI 2	IV	Q4W[a]	48	154	0.31 (0.24–0.39)	24.4%	0.37 (0.26–0.48)	93% (p<0.01)
	GEMINI 2	IV	Q4W[b]	208	412	0.50 (0.46–0.55)	25.9%		
	GEMINI 2	IV	Q8W	58	154	0.38 (0.30–0.46)	24.2%		
	VISILE 2	SC	Q2W	78	275	0.28 (0.23–0.34)	25.6%		
VDZ (excl. primary non-responder)	GEMINI 2	IV	Q4W	48	154	0.31 (0.24-0.39)	30.2%	0.32 (0.27–0.37)	48% (p=0.15)
	GEMINI 2	IV	Q8W	58	154	0.38 (0.30-0.46)	28.7%		
	VISIBLE 2	SC	Q2W	78	275	0.28 (0.23-0.34)	41.1%		

a: responders at week 6; b: non-responders at week 6; CI, confidence interval; IFX, infliximab; IV, intravenous; Q*n*W, every *n* weeks; SC, subcutaneous; VDZ, vedolizumab

Table 1. Discontinuation rates due to lack of efficacy during the one-year maintenance phase.

Conclusion: Consistent with previous findings, IFX showed significantly lower rates of discontinuation due to lack of efficacy during the one-year maintenance compared to VDZ. In the sensitivity analysis that excluded non-responders to induction therapy in VDZ studies, the significant difference between treatments was maintained.

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PP0873

EXPOSURE TO ANTI-TNFA AGENT IS ASSOCIATED WITH THE DEVELOPMENT OF AUTOIMMUNE DISEASE IN INFLAMMATORY BOWEL DISEASE: A POPULATION-BASED CASE-CONTROL STUDY

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Introduction: Autoimmune-related phenomena appearing after anti-TNFα agent use are increasingly being reported. However, the precise pathogenesis has not been elucidated, and there is little evidence to establish a clear cause-effect relationship. Therefore, we evaluate whether exposure to anti-TNF agents is associated with the development of autoimmune diseases in patients with inflammatory bowel disease (IBD).

Aims & Methods: This population-based case-control study investigated all IBD patients identified from 2004 to 2018 using the Korean National Health Insurance Service (NHIS) database. IBD patients with diagnostic codes for autoimmune disease (central nervous system (CNS) event, psoriasis, interstitial lung disease (ILD), lupus or systemic vasculitis) was

included as case in the study. Each case was matched to a control patient with IBD without the presence of autoimmune disease based on index date, age, sex, and subtype and diagnosis year of IBD. Incidence estimates were established by using the earliest claim data with diagnostic codes for autoimmune disease as the index date. Association with TNF inhibitor was evaluated with conditional logistic regression. Subgroup analyses were performed according to the type of autoimmune disease, and we also stratified anti-TNFα agent exposure according to drug type, cumulative frequency, and duration.

Results: During the study period, a total of 515,707 incident IBD patients (ulcerative colitis, 314,824; Crohn's disease, 180,669) were included. We identified 45,430 cases of autoimmune disease and 470,277 unmatched controls. Of this total, more than two-thirds (68%) were over the age of 40 and median of IBD duration until diagnosis of autoimmune disease was 5.75 years. The proportion of cases with overall autoimmune disease who received treatment with anti-TNFα agents (3.2%) was higher than that of controls (2.4%). Exposure to anti-TNFα agents after IBD diagnosis significantly increased overall autoimmune disease risk by approximately 1.35, and the elevated risk was maintained even after adjusting for multiple confounding factors (adjusted odds ratio [AOR], 1.43; 95% CI, 1.35–1.51). Logistic regression analysis was also performed after matching and revealed that use of anti-TNF agents increases the risk of autoimmune disease compared to never use especially in psoriasis and lupus. In addition, the cumulative effect of anti-TNF agents, which increases the risk of autoimmune disease according to frequency, was confirmed (P_{trend} <0.0001).

	Simple logistic regression			Multiple logistic regression			Matching		
	OR	CI	P-value	OR	CI	P-value	OR	CI	P-value
Overall	1.35	1.28–1.42	<.001	1.43	1.35–1.51	<.001	1.86	1.70–2.04	<.001
CNS	1.08	0.91–1.26	0.386	1.03	0.87–1.22	0.722	1.056	0.89–1.26	0.540
ILD	1.13	0.97–1.31	0.111	1.12	0.96–1.31	0.144	1.15	0.98–1.35	0.082
Psoriasis	1.33	1.24–1.42	<.001	1.41	1.31–1.51	<.001	1.53	1.40–1.67	<.001
Lupus	2.15	1.89–2.44	<.001	2.56	2.24–2.93	<.001	2.21	1.92–2.54	<.001
Vasculitis	1.25	0.94–1.66	0.127	1.32	0.98–1.76	0.066	1.19	0.88–1.62	0.297

Conclusion: This study found that exposure to anti-TNFα in patients with IBD appeared to be associated with increased risk of autoimmune disease especially psoriasis and lupus. It is presumed that inhibition of inflammatory cascade by anti-TNF agents induces other unexpected immune responses. Therefore, clinicians should be aware of the risks and benefits of theses agents and take appropriate measures to minimize potential adverse effects.

Disclosure: Nothing to disclose.

PP0874

DUAL THERAPY WITH CAROTEGRAST (AJM300: ORAL A4 INTEGRIN ANTAGONIST) AND BIOLOGICS FOR REFRACTORY ULCERATIVE COLITIS

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Introduction: A diverse variety of biologics and *small molecule*s have been developed for the treatment of refractory ulcerative colitis; however, it is still reported that 10% of these patients will undergo surgery within a decade for inadequate induction and maintenance of remission due to reasons such as drug ineffectiveness, loss of response, and side effects. Dual therapy using a combination of biologics has been attempted for rheumatoid arthritis with lack of success, owing to insufficient efficacy and increase in side effects.

In inflammatory bowel disease, biologics have been developed against adhesion molecules, which are considered to have high intestinal selectivity and safety, with potential for safe co-administration with other drugs. Carotegrast (AJM300), an oral α4 integrin antagonist, has been developed and approved as a novel therapy for ulcerative colitis, however there have been no reports so far on the dual use of carotegrast with other biologics.

Aims & Methods: We investigated the efficacy and safety of carotegrast in combination with other biologics in treating refractory ulcerative colitis. Six patients (3 males, median age 27 years) who underwent dual therapy with carotegrast and another biologic (4 cases of ustekinumab and 2 cases of infliximab) for treatment refractory ulcerative colitis at the Advanced Clinical Center for Inflammatory Bowel Diseases, Tokyo Medical and Dental University after May 2022 were included, Patient background, short-term efficacy, and safety profile were investigated.

Results: The median pMayo at induction was 5.0 (3-6). 50% of patients were steroid-refractory, 50% were steroid-dependent. 5 patients had inadequate or no response to previous biologics and 1 patient had a loss of response to biologics. The median time between the last dose of biologic and the start of carotegrast was 14.5 days, and the mean duration of carotegrast administration was 38.8 days. Carotegrast was discontinued in one patient due to epigastric pain.

All 5 patients who were eligible for continued treatment achieved pMayo0 at 2 weeks, and also maintained pMayo0 at the end of the 6-8 week treatment period, and were placed on maintenance therapy with biologics. No side effects other than epigastric pain were observed.

Conclusion: Dual therapy with carotegerast and another biologic may be effective and safe in ulcerative colitis patients with biologics failure.

Disclosure: Nothing to disclose.

PP0875

VITAMIN D DEFICIENCY IS ASSOCIATED WITH POOR DISEASE OUTCOME UNDER ANTI-TNF THERAPY IN CHILDREN WITH IBD

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Introduction: Deficiency of serum 25-hydroxyvitamin D [25(OH)D] was associated with decreased short-term response to anti-tumor necrosis factor-alpha (TNFα) agents in adults with inflammatory bowel disease (IBD). Data on the long-term outcome of pediatric IBD with 25(OH)D deficiency under anti-TNFα therapy are scarce.

The aim of this study was to evaluate the relation between serum 25(OH)D levels and the long-term outcome of pediatric IBD under anti-TNFα therapy.

Aims & Methods: Children (<18 years) with IBD that were treated with anti-TNFα agents, and had 25(OH)D levels measured at the initiation of therapy and at least 12 months of follow up under this therapy were included. Demographic, clinical and laboratory data were retrospectively collected. IBD activity was measured by Pediatric Crohn's Disease Activity Index (PCDAI) or Pediatric ulcerative colitis activity index (PUCAI). IBD outcomes were defined as clinical response (reduction of PCDAI > 12.5 or PUCAI > 20 points), clinical remission (PCDAI or PUCAI < 10 points), laboratory remission (C-reactive protein < 5 mg/L and fecal calprotectin < 150 mcg/g), IBD exacerbation (relapse of clinical symptoms accompanied with an elevation above 10 points in the PCDAI or the PUCAI), IBD-related hospitalization, surgery and durability of therapy. Vitamin D deficiency was defined as serum 25(OH)D levels < 30 ng/ml.

Results: Of 530 children with IBD, 150 were treated with anti-TNFα agents and 84 [58 Crohn's disease, 26 ulcerative colitis, median age 15.2 (12.8-16.5) years] met the inclusion criteria. Their median 25(OH)D level was 23 (16.3-29.6) ng/ml, and 65 (77.4%) were 25(OH)D-deficient. 25(OH)D levels above 30 ng/ml were significantly associated with clinical response [HR=4 (1.43-11.11), P=0.008], clinical remission [HR=4.62 (2.56-8.33), P<0.001] and laboratory remission [HR=6.34 (3.39-11.84), P<0.001). Disease exacerbation, IBD-related hospitalization and surgery were non-significantly more prevalent among 25(OH)D-deficient children (12.2% vs. 5.3%, 13.8% vs. 0, 3.1% vs. 0, respectively, P=NS). While anti-TNFα trough levels were similar between 25(OH)D-deficient and non-deficient children, intensification of anti-TNFα therapy was more prevalent among 25(OH)D-deficient children (64.6% vs. 21.1%, P<0.001), as was discontinuation of anti-TNFα therapy (32.3% vs. 10.5%, P=0.061). In a multivariate analysis that included age, sex, IBD type, disease duration and anti-TNFα trough levels, 25(OH)D levels above 30 ng/ml were significantly associated with clinical response and remission [HR=3.92 (1.52-10.08), P=0.005 and HR=5.23 (1.88-14.55), P=0.002, respectively].

Conclusion: Deficiency of serum 25(OH)D is an independent predictor to poor IBD outcome under anti-TNFα therapy in children with IBD. Prospective studies are needed to determine whether supplementation of vitamin D can improve IBD outcome under anti-TNFα therapy.

Disclosure: Nothing to disclose.

PP0876

AN AUSTRALIAN STUDY OF EXCLUSIVE ENTERAL NUTRITION FOR MANAGEMENT OF ACTIVE SEVERE INFLAMMATORY BOWEL DISEASE FOCUSING ON EFFICACY AND PATIENT REPORTED PERSPECTIVE

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Introduction: Exclusive enteral nutrition (EEN) is a well-established first line therapy in paediatric Crohn's disease and is as effective as corticosteroids but without the harmful adverse effects (1; 2; 3). EEN is an emerging therapeutic option in adult Inflammatory Bowel Disease (IBD), however there are concerns about poor tolerability and compliance. The Western Health IBD team has been using EEN in adult IBD patients with active severe disease.

The study aims to examine the tolerability, compliance and efficacy of EEN and provide a unique insight into the patient perspective.

Aims & Methods: Patients with IBD, either Crohn's Disease (CD) or Ulcerative Colitis (UC) who initiated EEN at Western Health, Australia between 1/12/2020 and 30/3/2023 were included in the study. The standard course of EEN consists of exclusive consumption of an oral nutrition supplement and water for at least 4 weeks. A retrospective audit of patients' basic demographic data, disease phenotype and clinical outcomes was conducted. Fisher's exact test was used to assess differences between the cohort who completed ≥4 weeks of EEN and those who did not. Comparison of patients' clinical outcomes pre- and post-EEN was conducted with the Wilcox signed-rank test to assess efficacy of EEN. Patients were invited to participate in an online survey regarding their compliance and views of EEN efficacy and tolerability.

Results: 24 IBD patients with active disease were included; 21 with CD and 3 with pan UC. There were 16 males and the median age was 44.5 (IQR 35.5) years old. 10 patients had fistulising CD, 13 had stricturing disease and 8 had perianal disease. 7 patients reported previous surgical intervention. At time of initiation of EEN, 12 patients were on corticosteroids and 14 were on biologic therapy. 17 out of 24 patients who started EEN completed ≥ 4 weeks of therapy.

Fisher's exact tests for age, sex, smoking history, concurrent steroid use, CDAI or faecal calprotectin did not reveal statistically significant associations (p<0.05) with patients' ability to complete ≥4 weeks of EEN.

The Wilcox signed-rank test showed a statistically significant reduction in the median Crohn's Disease Activity Index (CDAI), albumin and haemoglobin in CD patients. Median reduction in CDAI was 137 (n=14,z=3.296,p=<0.001). Median improvement of albumin was 5g/L (n=16,z=2.67,p=0.008), median improvement of haemoglobin was 8g/L (n=16,z=-2.304,p=0.021). In the small UC cohort, there was no change in Partial Mayo Scores before and after EEN.

Patient perspective surveys were completed by 11 of the 19 invited patients. 7 patients reported that the EEN diet was successful in achieving their goal and they would repeat the diet if it was recommended. Patient goals included delaying surgery, avoiding steroids and improving symptoms. Overall satisfaction was measured with a linear analogue scale, the median score was 8 (IQR 5.5). Compliance analysis revealed 6 patients reported never straying from the EEN diet, 4 patients consumed non-recommended food or drink once or twice in the time period and 1 patient did this roughly once per week.

Conclusion: Our small single centre study provides supportive evidence that EEN is effective and well tolerated in adult IBD patients. 70% of patients completed at least 4 weeks of EEN. There is a statistically significant improvement in CD patient clinical outcomes. There was a high level of patient satisfaction, as well as high patient compliance. In the future, this form of dietary intervention could be more widely accepted in management of IBD patients with moderate to severe disease.

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Disclosure: Nothing to disclose.

PP0877

RELATIONSHIP BETWEEN DIETARY PATTERNS AND MENTAL HEALTH IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Introduction: Pro-inflammatory diets have been associated with increased depression and anxiety in general populations. Patients with inflammatory bowel disease (IBD) have higher rates of depression and anxiety as compared to the healthy population. Whether the dietary patterns impact mental health outcomes in patients with IBD remains unclear.

Aims & Methods: This study was performed as part of a randomized controlled trial (RCT) designed to identify the impact of a dietary intervention in ulcerative colitis (UC). The goal of this sub-study was to determine if there is a relationship between mental health and dietary patterns in patients with UC utilizing baseline data from the RCT. Patients over the age of

18 years with UC either in clinical remission or with active disease were recruited in Calgary, Alberta. Clinical and demographic data were collected including IBD activity utilizing the partial Mayo score. At enrollment, all patients completed a validated 24-hour dietary recall questionnaire, the Patient Health Questionnaire-8 (PHQ) to assess for depression and the General Anxiety Disorder-7 (GAD) to evaluate for anxiety. In addition, serum and intestinal inflammatory markers (c-reactive protein [CRP]) and stool calprotectin were collected at the time of enrollment. Utilizing this information, the healthy eating index (HEI) and Mediterranean Diet Score (MDS) were calculated. A higher HEI score indicates greater adherence to a general healthy eating pattern while a higher MDS is suggestive of adherence to a Mediterranean diet. Bivariate comparisons were made using Chi-squared and student t-tests. Multivariable regression was also performed controlling for potential confounders.

Results: In total, 30 patients were recruited for this study; 16(53%) were male with a mean age of 38.6 years (standard deviation [SD] =12.0). At the time of enrollment, 12(40%) patients were on corticosteroids for treatment of their UC, 8(27%) were on a biologic, and 5(17%) on an immunomodulator. The mean partial Mayo score in the cohort was 4.5 (SD=3.6, range 0-11) and 13(43%) had a fecal calprotectin greater than 250 µg/g. Among participants, the mean PHQ score was 6.6 (13 with no depression, 8 with mild depression, 4 with moderate, 3 with moderate/severe and no one with severe depression). The mean GAD score was 5.0 (15 with no anxiety, 9 with mild anxiety, 3 with moderate anxiety and none with severe anxiety). In this study, the mean total MDS was 4.8 (SD =1.6, range 1-8) and mean total HEI was 69.0 (SD=9.1, range 53-85). When controlling for age, sex, body mass index, disease activity and corticosteroid use, severity of depression (p=0.03, 95% Confidence interval [CI] -.26 to -.01) and anxiety (p=0.02 95%CI -.34 to -.03) was inversely correlated with total MDS. Of interest, similar associations were not seen with the HEI.

Conclusion: The impact of diet and nutrition on mental health illness is increasingly being recognized in patients with IBD. Patients with UC in this study who had a lower prevalence of anxiety and depression were more likely to be eating a Mediterranean style diet. In contrast, there was no significant association between mental health disease and HEI, suggesting that the Mediterranean diet score is potentially identifying different dietary behaviors. Future studies to establish causality are necessary to better elucidate these relationships.

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PP0878

RELATIVE ASSOCIATION OF BOWEL URGENCY CLINICALLY MEANINGFUL IMPROVEMENT OR BOWEL URGENCY REMISSION VS STOOL FREQUENCY REMISSION AND RECTAL BLEEDING REMISSION WITH IMPROVEMENT IN IBDQ SCORES IN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS: AN ANALYSIS FROM LUCENT-1 AND LUCENT-2

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Introduction: Bowel urgency is increasingly being recognized as an impactful symptom in patients with ulcerative colitis (UC)[1]. However, limited information is available regarding its potential association with other patient reported outcomes. We assessed the association of bowel urgency clinically meaningful improvement (CMI) or bowel urgency remission with Inflammatory Bowel Disease Questionnaire (IBDQ) scores whilst adjusting for the potential confounding effects of stool frequency (SF) and rectal bleeding (RB) remission using data from LUCENT-1 (NCT03518086) and LUCENT-2 (NCT03524092) phase 3 trials.

Aims & Methods: Bowel urgency severity was assessed by the Urgency Numeric Rating Scale (UNRS) (0=no urgency to 10=worst possible urgency). Bowel urgency CMI was defined as ≥3-point decrease in UNRS compared to baseline and bowel urgency remission was defined as UNRS of 0 or 1.[2] IBDQ scores (range: 32–224) were calculated; higher scores indicate better quality of life. Mediation analyses were performed to examine the relative association between direct effects of bowel urgency CMI and bowel urgency remission (separate predictors) and IBDQ scores while adjusting for the potential confounding effects of SF remission and RB remission (mediators). Analyses were treatment agnostic and combined patients from mirikizumab and placebo groups from LUCENT-1 (N=1162) and LUCENT-2 (N=544) trials at Week (W) 12 and 40 (W52 of continuous treatment).

Results: At W12 and W52, bowel urgency remission directly accounted for 44.8% and 32.5% improvement in IBDQ total score, respectively; 22.7% and 39.1% of improvement was mediated by RB remission and 32.5% and 28.4% by SF remission, respectively. At W12, bowel urgency remission resulted in the largest proportion of improvement in each of the IBDQ domain subscores, whereas at W52, RB remission had a greater confounding effect. At W12 and W52, bowel urgency CMI accounted for 70% and 57.3% improvement in IBDQ total score, respectively; 12.8% and 25.6% of effects were mediated by RB remission and 17.2% and 17.1% by SF remission, respectively. Bowel urgency CMI accounted for the largest proportion of association with improvement in each of the IBDQ domain subscores at both W12 and W52.

Conclusion: Improvements in IBDQ scores were primarily ascribed to bowel urgency remission and bowel urgency CMI relative to RB remission and SF remission, particularly at W12, in patients with moderately-to-severely active UC. These findings suggest that bowel urgency is a critical and independent symptom that considerably impacts patients' quality of life.

References: [1]Dubinsky MC, et al. *J Patient Rep Outcomes*. 2022;6(1):31.

[2]Dubinsky MC, et al., *J Patient Rep Outcomes*. 2022;6(1):114.

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RELATIVE ASSOCIATION OF BOWEL URGENCY CLINICALLY MEANINGFUL IMPROVEMENT AND BOWEL URGENCY REMISSION VS STOOL FREQUENCY REMISSION AND RECTAL BLEEDING REMISSION WITH IMPROVEMENT IN WPAI SCORES IN PATIENTS WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS: AN ANALYSIS FROM LUCENT-1 AND LUCENT-2

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Introduction: Bowel urgency is increasingly recognized as a common and impactful symptom in patients with Ulcerative Colitis (UC)[1]. However, there are limited data exploring the relationship of bowel urgency with work productivity. We examined the relative association of bowel urgency clinically meaningful improvement (CMI) and bowel urgency remission with Work Productivity and Activity Impairment (WPAI) scores in the presence of rectal bleeding (RB) remission and stool frequency (SF) remission as potential confounding variables using data from LUCENT-1 (NCT03518086) and LUCENT-2 (NCT03524092) phase 3 trials.

Aims & Methods: Bowel urgency severity was assessed using the Urgency Numeric Rating Scale (UNRS; 0=no urgency to 10=worst possible urgency). Bowel urgency CMI is a ≥3-point decrease and bowel urgency remission is a UNRS score of 0 or 1[2]. WPAI scores (absenteeism, presenteeism, and work productivity loss in employed patients, and activity impairment in all patients) were measured using a 6-item questionnaire; higher scores indicate greater impairment and less productivity. Mediation analyses were performed to separately examine the relative association between the direct effect of bowel urgency CMI and bowel urgency remission (predictor) and WPAI scores while adjusting for the potential confounding effects of RB remission and SF remission (mediator). Analyses were treatment agnostic and combined patients from mirikizumab and placebo groups from LUCENT-1 (N=1162) and LUCENT-2 (N=544) trials.

Results: At week (W)12 and W52, the direct effect of bowel urgency remission accounted for 43%–49% and 27%–57% of the improvement in all WPAI domain scores except absenteeism, respectively. The association values greater than 100% at W12 and W52 (153% and 148%, respectively) reflect the critical importance of SF remission in the improvement of absenteeism score. Bowel urgency CMI resulted in the largest proportion of improvement in WPAI domain scores (except absenteeism) at W12 (71%–74%) and W52 (66%–78%). Bowel urgency CMI accounted for 68% and 239% of the improvement in absenteeism scores at W12 and W52, respectively. At W52, 750% of the effect was mediated by RB remission.

Conclusion: Improvement in work productivity and regular activities were primarily ascribed to bowel urgency remission or bowel urgency CMI relative to RB remission and SF remission in patients with moderately-to-severely active UC. These findings suggest that bowel urgency is a critical and independent symptom that considerably impacts patients' productivity.

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1. Dubinsky MC, et al. *Crohn's & Colitis 360*. Volume 4, Issue 3, July 2022;7(4):3.
2. Dubinsky MC, et al. *J Patient Rep Outcomes*. 2022;6(1):114.

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COMMUNICATION GAP BETWEEN PATIENTS AND HEALTH CARE PROFESSIONALS ON BOWEL URGENCY WITH FOCUS ON CROHN'S DISEASE: RESULTS FROM THE COMMUNICATING NEEDS AND FEATURES OF IBD EXPERIENCES (CONFIDE) SURVEY

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Introduction: In contrast to ulcerative colitis (UC), the impact of bowel urgency (BU) in patients with moderate-to-severe Crohn's disease (CD) is unclear. The Communicating Needs and Features of IBD Experiences (CONFIDE) survey aims to understand the experience and impact of symptoms on lives of patients with UC or CD worldwide (United States [US], Europe [EU], and Japan). This survey also explores the communication gaps between healthcare professionals (HCPs) and patients. Previously reported CONFIDE data suggested that BU was the second most reported symptom among US and EU5 (France, Germany, Italy, Spain, and UK) patients with moderate-to-severe UC.[1] Persistent BU was reported in 46% US and 28% EU5 patients receiving advanced therapies for UC and 45% US and 37% EU5 patients reported wearing diapers/pads/protection at least once every week.[1] Here, we present patient and HCP perspectives on the experiences and impact of CD-related symptoms.

Aims & Methods: Online, quantitative, cross-sectional surveys were conducted separately among HCPs and patients with CD from US and EU5 between May and October 2021. Moderate-to-severe CD was defined using criteria based on previous treatment, steroid use, and/or hospitalization. Data are presented as descriptive statistics.

Results: Surveys were completed by 215 US (male [M]=55%, mean age 41 years) and 547 EU5 (M=55%, mean age 38 years) patients. Of these, 58% US and 63% EU5 patients were receiving advanced therapies (biologic/novel oral) and 66% and 63% were receiving steroids at the time of survey completion, respectively. Most patients in the US (61%) and EU5 (62%) reported moderate CD, followed by severe (25% and 10%), and mild CD (14% and 28%).

In both US and EU5 populations, top three symptoms currently (past month) experienced by patients were diarrhoea (US: 55%, EU5: 55%), BU (US: 42%, EU5: 38%), and increased stool frequency (US: 40%, EU5: 37%). Among the patients receiving advanced therapies (US: 58%, EU5: 63%), 46% US and 39% EU5 patients experienced BU and 27% US and 19% EU5 patients reported fistula-related symptoms around the anus/rectum. Of the patients who had experienced BU, only 40% US and 27% EU5 patients were completely comfortable discussing BU with their HCPs and only 27% US and 23% EU5 patients felt comfortable discussing BU-related accidents. Embarrassment was the most common reason for discomfort associated with discussing BU (US: 73%, EU5: 64%) and BU-related accidents (US: 72%, EU5: 66%) with HCPs.

A total of 200 US (M=78%) and 503 EU5 (M=71%) HCPs completed the surveys, of which 92% were gastroenterologists or specialists in internal medicine and 7% were non-physicians. According to HCPs, the top three patient-reported symptoms were diarrhoea (US: 67%, EU5: 66%), blood in

stool (US: 44%, EU5: 24%), and increased stool frequency (US: 32%, EU5: 28%). BU was reported among the top three symptoms only by 19% US and 16% EU5 HCPs. Many HCPs (US: 34%, EU5: 40%) reported not proactively discussing BU, with the most common reason being that they "expect the patient to bring this up if this is an issue" (US: 34%, EU5: 42.0%).

Conclusion: Similar to the findings in UC patients[1], bowel urgency was the second most reported symptom among patients with CD, but not among the HCP-perceived top three symptoms. A large proportion of patients with moderate-to-severe CD receiving advanced therapies continued to experience bowel urgency. These results indicate a communication gap between HCPs and patients with CD, highlighting the underappreciation of the impacts of bowel urgency on patients' daily lives.

Reference:

1. Rubin, D. T. et al. (2021) P028 Communicating Needs and Features of IBD Experiences (CONFIDE) Survey: Patient and Healthcare Professional Perspectives on Experience of Ulcerative Colitis Symptoms. The American Journal of Gastroenterology, 116:p S7. https://doi.org/10.14309/01.ajg.0000798712.28363.8b

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UTILITY OF VEDOLIZUMAB CLINICAL DECISION SUPPORT TOOL IN PREDICTION OF BIO-NAIVE CROHN'S DISEASE PATIENTS OUTCOMES TREATED WITH ADALIMUMAB OR USTEKINUMAB

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Introduction: Vedolizumab Clinical Decision Support Tool (V-CDST) identifies Crohn's disease (CD) patients most likely to benefit from vedolizumab administration. Real world data are needed to assess whether V-CDST is drug specific or can be applicable for other biologic CD agents. Aim of this study is to evaluate ability of the 5-variable V-CDST (5V-CDST) and new modified 3-variable V-CDST (3V-CDST) to predict effectiveness of adalimumab (ADA) or ustekinumab (UST) treatment for bio-naive CD patients.

Aims & Methods: A single center, noninterventional retrospective cohort review study was performed on real-life data of adult bio-naive CD patients who were treated with adalimumab (160/80 mg SC at BL/W2, then 40 mg SC every 2 Ws) or ustekinumab (6 mg/kg IV at BL then 90mg SC every 12 Ws) for a minimum of 6 months. Routine clinical, biochemical (CRP, serum albumin, fecal calprotectin - FC), and endoscopic (Simple Endoscopic Score for Crohn's disease – SES-CD; Rutgeerts score) findings were assessed according to STRIDE-II recommendations.

Treatment effectiveness was defined as FC <250 mcg/g, and/or SES-CD ≤3/ Rutgeerts score ≤i2b, and/or no need for steroids, treatment escalation, switching biologics, and CD-related surgery. 5V-CDST score >19/3V-CDST score >3 were associated with high probability of treatment response and 5V-CDST score ≤19/3V-CDST score ≤3 with low probability of treatment response. Participants' characteristics were assessed using descriptive statistics. Normal distribution was assessed using Kolmogorov-Smirnov and Shapiro-Wilk tests.

Categorical variables were analyzed using the Chi-square and Fisher exact test. Binary logistic regression was carried out in order to assess the predictive capacity of 5V-CDST/3V-CDST.

Results: Total of 69 patients (53.3% females; smokers 25%) were included; 48 received ADA (median age 31.5 years), and 21 received UST (median age 52 years). Poor discriminative and predictive performance for the both 5V-CDST and 3V-CDST was observed both in the ADA and UST treated patients; there was no statisticaly significant difference between 5V-CDST and biochemical remission (ADA p=1; UST p=0.6), 3V-CDST and biochemical remission (ADA p=1; UST p=0.08), 5V-CDST and steroid-free remission (ADA p=0.36; UST p=0.28), 3V-CDST and steroid-free remission (ADA p=0.7; UST p=1), 5V-CDST and endoscopic remission (ADA p=0.36; UST p=0.6), 3V-CDST and endoscopic remission (ADA p=0.7; UST p=1), 5V-

CDST and combination of steroid-free + biochemical + endoscopic remission (ADA p=0.18; UST p=0.46), 3V-CDST and combination of steroid-free + biochemical + endoscopic remission (ADA p=0.6; UST p=0.3), 5V-CDST and treatment escalation (ADA p=0.75; UST p=1), 5V-CDST and switching biologics (ADA p=0.33; UST p=1), 3V-CDST and switching biologics (ADA p=0.3; UST p=1), and 5V-CDST and CD-related surgery (ADA p=0.5 vs UST p=1). 3V-CDST in ADA group can discriminate patients with high probability for CD-related surgery; patients with 3V-CDST ≤3 are 48 times more likely to undergo operation compared to those with higher 3V-CDST (p<0.01; OR: 48). Same performance was not detected in UST group (p=0.2)

Conclusion: Regarding our cohort the 5V-CDST and 3V-CDST do not have a predictive capacity to identify groups of bio-naive CD patients which could benefit from administration of ADA or UST.

Disclosure: Nothing to disclose.

PP0882

EFFICACY AND SAFETY OF GRANULOCYTOAPHERESIS IN THE TREATMENT OF STEROID-DEPENDENT AND STEROID-REFRACTORY INFLAMMATORY BOWEL DISEASE

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Introduction: Despite the importance of granulocytoapheresis (GCA) in the treatment of inflammatory bowel disease (IBD), its effectiveness in steroid-dependent and steroid-refractory IBD has not been widely evaluated, the approaches are heterogeneous and data on efficacy and safety remain limited in our population.

Aims & Methods: This study aims to assess the effectiveness of GCA for induction of remission and maintenance in patients with steroid-dependent and steroid-refractory IBD in the real-world practice.

Retrospective cohort of patients with steroid-dependent and steroid-refractory colonic IBD, in which GCA was used as induction of remission and maintenance treatment between January-2015 to January-2023. We analyze demographics, disease characteristics, prior exposure including biologic agents. The success of GCA was defined on a decrease of at least 3 points in the True-love score for Ulcerative Colitis (UC) and a decrease of at least 100 points in the CDAI for Crohn Disease (CD).

To analyze predictive factors of treatment success we performed a univariate and multivariable analysis.

Results: 49 patients were included. 5 cycles of apheresis were performed in the first 3 weeks as induction and at least 10 cycles of apheresis as maintenance in the next 6 months.

75 % (37 / 49) had UC, 86.4 % (32 / 37) were steroid-refractory while 13.6 % (5 / 37) steroid-dependent, 54 % (20 / 37) male; median age 60 ± 10.5 years with a mean of 10.5 years from diagnosis. 67.7 % (25 / 37) had received at least 1 biological treatment in the past, 43.5 % (17 / 39) ≥ 2 biological. After induction, 75 % (28 / 37) responded to treatment, 62 % (23 / 37) continued with maintenance therapy of which 67 % (15 / 23) responding. Mean PCR and calprotectin were 3,16 mg / dl and 2038 mg / dl before treatment, 1.45 mg / dl and 1025 mg / dl after induction, 1.15 mg / dl and 900 mg / dl after maintenance, respectively.

25 % (12 / 49) had CD, 50 % (6/12) male; median age 62 ± 9.8 years, 75 % (9 / 12) steroid-refractory and 25 % (3 / 12) steroid-dependent, with a mean of 9 years from diagnosis, 67.7 % had received at least one biological treatment in the past. After induction, 58 % (7 / 12) responded, 80 % (10 / 12) continued with maintenance with 50 % (5 / 10) responding. Mean CRP and calprotectin were 3.16 mg / dl and 3645 mg / dl before treatment, 1.7 mg / dl and 2473 mg / dl after induction, 1.14 mg / dl and 623 mg / dl after maintenance.

Factors such as smoking, extent of disease, longer disease course and lack of response to previous treatments, were not significantly related to response in either induction or maintenance.

No patient had major adverse events recorded.

Conclusion: GCA appears to be safe and effective for inducing and maintaining clinical remission in patients with IBD, especially in patients with UC. No significant differences were found in disease extension, duration or lack of response to previous treatments.

Disclosure: Nothing to disclose.

PP0883

EARLY REAL WORLD EXPERIENCE OF FILGOTINIB FOR TREATMENT OF MODERATE-SEVERE ULCERATIVE COLITIS

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Introduction: Filgotinib is a selective JAK1 inhibitor recently licensed for use in moderate-severe Ulcerative Colitis (UC)[1].

Aims & Methods: We sought to review outcomes for patients commenced on Filgotinib for UC in the Glasgow South Sector IBD Service. Patients were identified using the local IBD Biologics Database. Electronic patient records were reviewed for demographics, previous treatment, and outcomes since commencing Filgotinib.

Results: 28 patients were commenced on filgotinib between July 2022 and February 2023. 21.4% were female and 78.6% male with a median age of 38y. By Montreal classification, 3.6% were classified as E1, 64.3% as E2 and 32.1% as E3. 50% of patients were biologic naïve with 71.4% on concomitant treatment with aminosalicylate. Median follow-up was 4 months.

78.6% (22/28) reported improvement in their symptoms with only 21.4% (6/28) experiencing side effects (SEs). 64.3% in the biologic-naïve group found subjective improvement in symptoms with 85.7% noting improvement in the biologic-experienced group. SEs included infections (3), Increase in cholesterol/triglycerides (2) and subjective worsening of low mood (1).

17 Patients had pre and post-treatment Faecal calprotectin (FC) available. Of those patients, 70.6% had an improvement with an overall reduction in median FC level from 1567 to 203 across the group. This reduction did not reach statistical significance.

7/28 patients required a course of rescue steroids after starting treatment. No patients required IP admission since commencing treatment. 5/28 were considered to have a primary non-response to Filgotinib. Of these, 4 were switched to alternative advanced therapies and 1 awaits surgery.

Conclusion: Filgotinib appears a safe and effective treatment in moderate-severe UC for both biologic-naïve and experienced patients. Its oral route of administration and quick onset mechanism of action make it an appealing choice. Further real-world data is required with larger patient cohorts to establish its true utility in routine clinical practice.

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Disclosure: Nothing to disclose.

PP0884

REAL-LIFE EXPERIENCE OF THE EFFICACY, SAFETY AND PHARMACOKINETIC DATA OF SWITCHING FROM INTRAVENOUS TO SUBCUTANEOUS INFLIXIMAB IN INACTIVE INFLAMMATORY BOWEL DISEASE PATIENTS. RESULTS FROM THE ENEIDA REGISTRY

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Introduction: Recently, a subcutaneous formulation of biosimilar infliximab (CT-P13) (SC-IFX) has been approved for inflammatory bowel disease (IBD). The aims of this study were to evaluate efficacy, safety, pharmacokinetics and patient experience following a switching to SC-IFX in patients who are in clinical remission on IV-IFX maintenance treatment.

Aims & Methods: Multicentre, descriptive, and observational study including Crohn's disease (CD) and ulcerative colitis (UC) patients who were going to be changed from IV-IFX to SC-IFX on the ENEIDA registry (a large, prospectively maintained database of the Spanish Working Group in IBD–GETECCU). All patients were on clinical and biological remission at least 24 weeks before changing. Demographic and disease data, clinical activity (Harvey-Bradshaw index for CD and mayo index for UC), analytical data (C reactive protein (CRP) and fecal calprotectin (FC), as well as trough levels were collected at baseline, at 12 and 24 weeks.

Results: One hundred and fifty-five patients were included: 54 UC (35%) and 91 (65%) CD; 44% women and 56% men; age 45.5 years (32-55). IV-IFX was mainly administered due to active disease (72%) and perianal disease (7%) and during 32 months [range 14-56]. Pre-switch, 78 (50.3%) were on 8-weekly dosing of IV-IFX, 77 (49.7%) were with intensification dose and the half (50.3%) were on concomitant immunomodulatory therapy. SC-IFX was mainly switching by COVID-19 pandemic (60%), to increase through levels (15%) or patient request (25%). The majority of patients (140, 90%) remained with standard dose, 8 (5%) required dose intensification (120 mg weekly in 4 and 240 mg every 2 weeks in 4) and 7 (4.5%) had successful de-escalation (120 mg every 3 weeks in 4 and 120 mg every 4 weeks in 3). Clinical indices, CRP levels and FC remained unchanged. Median SC-IFX levels significantly increased from baseline of 4.5 µg/dl [range 2.6-9.2] to 14 µg/dl [range 9.5-16.2] at week 12 and 13.2 µg/dl [range 10.4-19.7] at week 24. No factors (immunossupresor, body mass index, disease location) were associated with the increase of IFX trough levels. During 24 weeks of follow-up, 16 of the 78 patients (20.5%) stopped immunosuppressant treatment. The adverse events were recorded in 9 patients (5.8%), 4 (2.6%) were hospitalized and 4 (2.6%) had surgery (one of them for perianal disease). Nine patients (5.8%) stopped SC-IFX (1 primary failure, 2 loss of response, 4 adverse events, 1 voluntarily, and 1 surgery).

Conclusion: The switch from IV to SC IFX maintains clinical remission safely in IBD patients, offers higher drug levels and a good patient acceptance. However, the significance of higher drug levels with SC-IFX requires further exploration.

Disclosure: Nothing to disclose.

PP0885

THE IMPORTANCE OF ANTITNF LEVELS DURING THE INDUCTION IN PERIANAL CROHN´S DISEASE

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Introduction: Perianal Crohn´s disease(PCD) have a substantial negative impact on quality of life and implies poor long-term prognosis. Anti-tumor necrosis factor(antiTNF) therapy remain as the treatment of choice, although only infliximab has improved fistula closure rates in randomized controlled trials.

However, achieving permanent fistula closure remains a major challenge for physicians. For this reason, treatment optimization based on antiTNF serum levels has been evaluated, usually based on clinical response.

Aims & Methods: Our aim is to evaluate the relation between antiTNF serum concentrations at induction(w2 and 6), including infliximab and adalimumab, and clinical and radiological outcomes at w24 and w52 after initiation of the biologic therapy.

We conducted a single tertiary center, retrospective, cohort study including 65patients with an established diagnosis of PCD according to usual criteria(clinical, analytical, endoscopic) treated with antiTNF because of perianal activity.

Variables related to their PCD such as phenotype, location, treatment, type of fistulas according to AGA classification and proctitis presence were collected.

Regarding treatment, we collected antiTNF type(original/biosimilar) and serum levels at week 2,6,24 and 52, concomitant treatment and setons presence.

We defined clinical response as the absence of drainage on physical examination without a seton and clinical remission as the absence of external fistula openings.

Radiological response was defined as the absence of hypersignal T2 or gadolinium enhancement, absence of abscess or proctitis in pelvic MRI.

Results: 65patients were included, whose baseline characteristics are shown in Table1. None of the demographic nor disease characteristics collected were statistically significant related to clinical or radiological response at w24 or w52.

Taking into account the clinical response at w52, IFX mean levels at w2 were 25.8µg/mL(SD 4.1) in non responders and 30.9µg/mL(SD 14) in responders(p=0.39). At w6 they were 17.2µg/mL(SD 12.2) and 19.4µg/mL(SD 13.8) respectively(p=0.7). ADA mean levels at w2 were 13.3µg/mL(SD 7.7) in non responders and 14µg/mL(SD 6.3) in responders(p=0.87). At w6 they were 10.1µg/mL(SD 3.3) and 12µg/mL(SD 6.1) respectively(p=0.59).

For radiological response at w52 IFX mean levels at w2 were 27µg/mL(SD 15.3) in non responders and 32.7µg/mL(SD 14.5) in responders(p=0.45). At w6 the mean levels were 15.9µg/mL(SD 6.7) and 23.7µg/mL(SD 14.8) respectively(p=0.27). In ADA group the mean levels at w2 were 14.8µg/mL(SD 7.6) in responders and only one patient did not respond. At w6 ADA mean levels were 12.3µg/mL(SD 5.9) in non responders and 12.7µg/mL(SD 6.2) in responders(p=0.94).

We also observed that an early response at w24 was related with a long-term response at w52, 89.9% of the patients who responded at w52, had already responded at w24.

Age (yr), mean (SD)	**46.28(14.62)**
Male/female (%male)	30/35(46,2%)
Location,N(%)	
L1	10(15.4%)
L2	32(49.2%)
L3	23(35.4%)
Behavior,N(%)	
B1	35(53.84%)
B2	12(18.46%)
B3	18(27.7%)
Fistula,N(%)	
Simple	12(18.5%)
Complex	53(81.5%)
Seton,N(%)	
Never	12(18,5%)
Removed	34(52,3%)
Still placed	19(29.2%)
Previous treatment,N(%)	
Thiopurines	
Corticosteroids	61(93.8%)
Biological drugs	29(44.6%)
	23(35.4%)
AntiTNF,N(%)	
Infliximab/biosimilar	10(15.4%)/22(33.8%)
Adalimumab/biosimilar	26(40%)/7(10.8%)

Conclusion: In our study we observed that almost 90% of the patients who had an early response also responded at w52, so trying to achieve an early response should be an aim in clinical practice.

Despite the limited number of patients, our study shows a trend in the relationship between higher antiTNF levels and clinical and radiological response rates.

Disclosure: Nothing to disclose.

PP0886

REINDUCTION AND INTENSIFICATION STRATEGY WITH USTEKINUMAB IN IBD PATIENTS, A SINGLE CENTER REAL LIFE EXPERIENCE

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Introduction: Biological therapy in IBD patients is one of the cornerstones of treatment. For patients with loss of response while on maintenance therapy, options for dose escalation with the same agent are used to avoid switching targets, and this is done through a reinduction and dose intensification. While dose escalation is standard treatment with anti-TNF agents, current data on the efficacy of dose optimisation with ustekinumab in real life is limited.

Aims & Methods: The aim of the study is to assess the efficacy of dose optimisation (reinduction and intensification) therapy with Ustekinumab and to identify prognostic factors associated with clinical response. We performed a retrospective cohort study of patients that received dose optimisation with ustekinumab between January 2016 to July 2022. Demographic and clinical characteristics were obtained from the medical records. To assess for prognostic factors, responders and non-responders were compared using logistic regression analysis.

Results: A total of 94 patients were on ustekinumab treatment, and from these, 32 (30%) patients required dose optimisation during follow-up. The characteristics of patients included are summarized in Table 1. In 16 (50%) patients dose optimization was performed due to lack of response during the induction with Ustekinumab, the other 16 patients (50%) were intensified due to secondary failure. There were 15 (46.9%) patients in whom intravenous reinduction was performed prior to intensification. Three types of intensification were performed: 90mg subcutaneous every 4 weeks, 90mg subcutaneous every 6 weeks or 130mg intravenous every 4 weeks.

In 23 (72%) patients clinical remission was obtained after dose optimisation and were considered responders for logistic regression analysis. Extraintestinal manifestations (p=0.03) and secondary failure to Ustekinumab (p=0.049) were associated with a better response. No significant differences were observed between the type of intensification, the fact that they received prior reinduction or other demographic characteristics.

	n = 32
Gender (% women)	18 (56,2%)
Smokers (%)	8 (25%)
Disease type (%)	
Crohn's disease	27 (84,4%)
Ulcerative colitis	5 (15,6%)
Disease extension:	
Crohn's disease (L1-L2-L3-L4)	L1 12(37,5%), L2 3 (9,4%), L3 9 (28,1%), L4 3 (9,4%)
Ulcerative colitis (E2-E3)	E2 1 (3,1%), E3 4 (12,5%)
Behaviour in Crohn's disease (B1-B2-B3)	B1 9 (28,1%), B2 7 (21,9%), B3 9 (28,1%), B2+3 2 (6,3%)
Surgery (%)	10 (31,3%)
Perianal disease (%)	14 (43,8%)
Extraintestinal manifestations (%)	15 (46,9%)
Previous treatments (%)	
Naive	4 (2,5%)
Immunosupressor	19 (59,4%)
Biologic	28 (87,5%)
Only intensification	17 (53,1%)
Reinduction + intensification	15 (46,9%)
Reason for reinduction + intensification	
Primary failure	16 (50%)
Secondary failure	16 (50%)
Type intensification	
90mg sc /4 weeks	17 (53,3%)
90mg sc /6 weeks	5 (15,6%)
130mg iv /4 weeks	10 (31,3%)

Table 1. Demographic data and prognostic factors of the cohort.

Conclusion: Dose optimization with ustekinumab is useful in clinical practice with a good response rate, specially in patients with secondary failure.

Disclosure: Nothing to disclose.

PP0887

PREDICTORS OF ANTI-TNF TREATMENT FAILURE IN INFLAMMATORY BOWEL DISEASE PATIENTS NAÏVE TO BIOLOGIC DRUGS: A 20-YEAR REAL WORLD STUDY

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Introduction: Biologic drugs are key in the current treatment of patients with inflammatory bowel disease (IBD). Identifying patients at high risk of primary non-response or loss of response is key to individualize treatment

Aims & Methods: Aim: To identify risk factors associated with primary nonresponse, loss of response and adverse effects to the first biologic drug used in patients with IBD.

Methoids: Single-centre retrospective cohort study including all consecutive patients with IBD naïve to biologic treatment who have started biologic treatment from 2000 to January 2022. A minimum follow-up of 6 months from the start of the biologic was required. Only the first biologic used in each patient was evaluated. HLA-DQA1 genotyping was done in all patients. Primary response rate was assessed at 24 weeks. Regression analyses were used to assess risk factors. The possible risk factors evaluated were sex, HLADQA1 genotype, smoking at diagnosis, body mass index, age at diagnosis, disease type, location, extent and phenotype disease according to Montreal classification, type biologic drug, disease severity at biologic initiation (Mayo index and Harvey Bradshaw index), combotherapy (≥ 6 months), and history of IBD resective surgery.

Results: A total of 421 patients were included, 290 with Crohn's disease and 131 with Ulcerative Colitis. 51.1% were male. The mean age at biologic initiation was 39 years. The most commonly used biologic was infliximab (IFX) (50.1%), followed by adalimumab (ADA) (46.8%). 46.1% carried HLADQA1*05 allele/s and 24.2% carried HLADQA1*03 allele/s. Almost half of the patients (47.7%) were treated with combotherapy (biologic + inmmunomodulator). The primary response rate was high: 84.8% (IFX 82.5%, ADA 87.8%). The loss of response rate was 33.3% (IFX 29.9%, ADA 35.5%), with a mean time of 5 years. Adverse effects occurred in 22.1% of patients (IFX 28.9%, ADA 16.2%). In multivariate analysis, carrying HLADQA1*05 allele was the only factor of all evaluated that was associated with an increased risk of loss of response [Odds Ratio: 1.83 (1.16-2.87), p=0.009], while carrying an HLADQA1*03 allele was protective for loss of response [Odds ratio: 0.37 (0.15- 0.89), p=0.026]. Female sex [Odds ratio: 1.61 (1.04-2.49), p=0.032)], the use of infliximab [Odds ratio: 2.00 (1.28-3.14), p=0.003] and the use of higher than standard doses in the IFX induction regimen [Odds Ratio: 3.28 (1.10-9.81), p=0.034] were identified as risk factors for the development of adverse effects.

Conclusion: 1) Our results support that carrying HLADQA1*05 increases the risk of secondary loss of response to anti-TNF drugs and suggest that carrying HLADQA1*03 decreases this risk.

2) Female sex is an independent risk factor for the development of adverse effects to anti-TNF drugs.

3) Infliximab is the biologic drug with the highest rate of adverse effects and the use of higher than standard doses during induction is associated with an increased risk of adverse effects.

Disclosure: Nothing to disclose.

PP0888

MACHINE LEARNING APPROACH TO PREDICT TREATMENT OUTCOMES OF ANTI-TUMOR NECROSIS FACTOR -A ANTIBODY AGENTS FOR PATIENTS WITH CROHN'S DISEASE

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Introduction: The number of patients with inflammatory bowel diseases continues to increase, and several biologic therapies can be used. However, there have yet been few useful biomarkers for drug selection in clinical practice, resulting in difficulty to optimize treatment with biologics. Recently, the usefulness of machine learning approach to predict treatment outcomes has been reported in the fields of several gastrointestinal diseases. Here, we applied machine learning approach to predict treatment outcomes of anti-tumor necrosis factor (TNF)-α antibody agents in patients with Crohn's disease (CD). In addition, the clinical variables that weighed significantly for anti-TNF-α antibody agents selection for patients with CD were identified.

Aims & Methods: Consecutive CD patients who had been treated with anti-TNF-α antibody agents in Chiba University Hospital from July 2004 to March 2022 were analyzed. Medical information including age, gender, medical history, disease type, treatment history, endoscopic findings, and blood test findings at the start of biological agents administration was collected. These variables were applied to machine learning approach, and the primary outcome was to predict primary failure of anti-TNFα antibody agents. Then, factors related to the poor outcome with anti-TNFα antibody agents were identified. The used machine learning system was LightGBM, a gradient boosting method. The constructed model performance was assessed through the area under the curve (AUC) with specificity and sensitivity. The SHapley Additive exPlanations (SHAP) were implemented for each predictive factor for evaluation of the impact on primary failure of anti-TNFα antibody agents.

Results: Total 232 CD patients who were treated with anti-TNF-α antibody agents at the hospital were analyzed. Of these, 29 patients failed in remission induction with anti-TNFα antibody agents. The constructed model with LightGBM was showed high prediction performance with AUC of 0.94 (sensitivity: 1.00 and specificity: 0.88).

The SHAP value showed that several variables were correlated with primary failure; platelet count (0.045), current medical treatment with thiopurine (0.025) and elemental diet (-0.008), surgical history (0.011), and disease duration (0.019).

Conclusion: Machine learning approach using clinical parameters alone could construct a predictive model of primary failure of anti-TNF-α antibody agents in CD patients with high accuracy. Platelet count, current medical treatment with thiopurine hand elemental diet, surgical history and disease duration were correlated with the primary failure, among which platelet count appeared to affect the most to the primary failure.

Disclosure: Nothing to disclose.

PP0889

CORTICOSTEROID-FREE REMISSION IN ANTI-TNF FAILED CROHN'S DISEASE PATIENTS TREATED WITH VEDOLIZUMAB AS SECOND-LINE BIOLOGIC THERAPY: A REAL WORLD DATA REVIEW

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Introduction: Clinical response to vedolizumab has been reported as being significantly lower in patients exposed to anti-TNFs [1,2]. However, in most countries anti-TNFs remain the de facto first biologic therapies for patients with Crohn's disease (CD). After failure of a first Anti-TNF drug, change of class of therapy is increasingly recommended in lieu of a second anti-TNF [3]. Using corticosteroid-free (CSF) remission as the main clinical outcome, we collected data on vedolizumab used as second biologic in CD patients who failed anti-TNF therapies.

Aims & Methods: PubMed and Embase were searched for real world data from cohorts of adult patients with at least 95% of exposure to anti-TNFs, at least 6 months of data, direct access to patients data (no claims database), and CSF remissions (no cumulative data) were selected. Additionally, the use rates of corticosteroids and other concomitant medications at baseline were extracted.

Results: A total of 10 studies met the search requirements, with patient numbers ranging from N=45 to N=161. One author from the Netherlands reported twice on the same registry, only one dataset was retained to avoid counting patients twice. Clinical remission was defined as either a Harvey Bradshaw index of less than or equal to 4 (8 studies) or as a Crohn's disease activity index score <150 without resort to surgery (1 study). Across studies, the rates of corticosteroid use at baseline varied from 15.5% in a 2017 French cohort to 51.0% in a 2018 US study. Rates of CSF remission at 6 months were not related to baseline corticosteroid use and ranged from 15.3% in a 2020 UK report to 58.2% in a 2021 French cohort.

On average, CSF remission at 6 months was achieved in 37.1%, (95% CI 33.6 - 40.5%) of TNF failed CD patients treated with vedolizumab as second line biological therapy [Table]. Clinical remission rates at 6 months were generally higher, but at 1 year, clinical remission and CSF remission rates were almost identical in most cohorts, highlighting the importance of achieving early CSF remission.

Conclusion: Despite anti-TNF failure, a significant proportion of CD patients may respond to vedolizumab and achieve CSF remission, regardless of the baseline use of concomitant corticosteroids. This benefit is established within 6 months after induction.

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Disclosure: Christian Agboton and Dirk Lindner are employees of Takeda and hold stock/options in Takeda.

Source	Clinical remission	CSF clinical remission	CD patients, N	Clinical remission definition	Baseline concomitant therapies
Amiot A et al. (2017) Alimentary Pharmacology & Therapeutics 46:310–321. France	W6: 31.2% W14: 36.4% W22: 37% W30: 31.8% W54: 30%	W6: 19.1% W14: 30.6% W22: 33.5% W30: 27.7% W54: 27.2%	161	HBI ≤4	Corticosteroids: 15.5% Immunosuppressants (IS): 18.6% Steroids + IS: 6.8% No Steroids or IS: 59%
Christensen B et al. (2018) Inflamm Bowel Dis 24:849–860. US	W14: 38% W30: 62% W52: 51%	W14: 22% W30: 44% W52: 31%	94	HBI ≤4	Corticosteroids: 51% Thiopurines: 29% Methotrexate: 13% Calcineurin inhibitor: 9%
Kolar M et al. (2019) Gastroenterol Hepatol 73:25–31. Czech republic	W30-32: 58.1%	W30-32: 45.2%	45	HBI ≤4	Corticosteroids: 20% Thiopurines/methotrexate: 46.7%
Kopylov U et al. (2019) Digestive and Liver Disease 51:68–74. Israel	W14: 35%	W14: 29% W52: 21%	133	HBI ≤4, CDAI <150	Corticosteroids: 36.8% Immunomodulators: 15.2%
‡Biemans VBC et al. (2020) Aliment Pharmacol Ther 52:123–134. The Netherlands		W12: 22.7% W24: 29.7% W52: 26.8%	128	HBI ≤4	Corticosteroids: 31.3% Immunosuppressant (IS): 18.8% Steroids + IS: 15.6%
*Alric H et al. (2020) Aliment Pharmacol Ther 51:948–957. France	W14: 47.7% W48: 37.1%	W14: 34.8% W48: 31.8%	132	HBI ≤4	Corticosteroids: 48.5% Thiopurines 33.3% Methotrexate: 6.8% Other: 2.3% No: 57.6%
*Townsend T et al. (2020) Aliment Pharmacol Ther 52:1341–1352. UK	M2: 16.5% M4: 21.2% M6: 16.5% M12: 25.9%	M2: 11.8% M4: 20% M6: 15.3% M12: 24.7%	85	HBI <5	Corticosteroids: 35.3% Mercaptopurine: 12.9% Azathioprine: 25.9% Methotrexate: 8.2% None: 50.6% Unknown: 2.4%
*Manlay L et al. (2021) Aliment Pharmacol Ther 53:1289–1299. France		W14: 56.8% W24: 58.2% W54: 40.5%	88	CDAI < 150 without resort to surgery	Corticosteroids: 31.8% Thiopurines: 14.8% Methotrexate: 4.6% No Immunosuppressant: 80.7%
‖ Onali S et al. (2022) Am J Gastroenterol 117:1279–1287. Italy	W26:44.8% W52: 55.5%	W26: 40.7% W52: 51.1%	132	HBI ≤4	Corticosteroids: 49.4% Immunomodulators: 9.5%

‡ Overlaps with Biemans VBC et al. (2020) Clin Pharmacol Ther 107:1189–1199.
*Data from unweighted cohort
‖ Data from weighted cohort

PP0889 Table: Rates of clinical remission and corticosteroid-free (CSF) clinical remission in cohorts reported in the literature.

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PP0890

COMBINATION THERAPY WITH BIOLOGICS AND SMALL MOLECULES IN REFRACTORY INFLAMMATORY BOWEL DISEASE (IBD): A SINGLE TERTIARY-CENTRE EXPERIENCE

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Introduction: There are a growing number of drugs approved for IBD. Despite this, there remains a subset of patients with IBD who do not respond to conventional medical treatment, which can result in significant morbidity and detrimentally impact quality of life. In these refractory cases, biologics or small molecules may be combined and the aim was to report the experience of IBD patients treated with such combination therapies in our tertiary-centre.

Aims & Methods: This was a retrospective single-centre cohort study evaluating adult IBD patients receiving combination therapy, which was defined as either two biologics or one biologic and a small molecule simultaneously. All patients received combination therapy to treat refractory IBD. Baseline patient characteristics, IBD phenotype and combinations used were reported. Response to combination therapy was based on overall evaluation, comprising clinical, biochemical, endoscopic and radiological measures, where appropriate. Steroid use during combination therapy was documented. Safety outcomes were recorded for each patient and included infection, development of cancer and hospitalisation. Worsening of IBD was not included as an adverse event as this was not felt to be directly related to combination therapy.

Results: We identified 13 patients (all with Crohn's disease) that were treated with combination therapy. One patient received two combinations. Combinations included: Vedolizumab and Adalimumab (n=3), Ustekinumab and Adalimumab (n=5), Ustekinumab and Infliximab (n=1), Vedolizumab and Infliximab (n=2), Upadacitinib and Vedolizumab (n=1), Upadacitinib and Infliximab (n=1), Vedolizumab and Ustekinumab (n=1). The median duration of combination therapy was 182 days (interquartile range 277) and duration of follow up was 11.4 patient years. Response to combination therapy was observed in 9 of the 13 patients (69%), with a steroid-free response in 7 patients (54%). Three patients (23%) had worsening of their IBD and in 1 patient (8%) combination therapy was started too recently to be able to meaningfully measure response. During follow up, one patient on Infliximab and Upadacitinib required hospitalisation for active luminal symptoms and developed mild nosocomial COVID-19 infection, but he was also receiving steroids concomitantly and had previously received Methotrexate earlier on during the period of combination therapy. The same patient also required intestinal surgery for medically refractory IBD during the hospital admission. No other patients developed adverse events during follow up. Combination therapy is currently being continued in 10 out of 13 patients (77%).

Conclusion: In this small cohort, combination therapy led to improvement in IBD in the majority of patients. Those that had worsening of their IBD whilst on combination therapy all had complex, multi-focal Crohn's disease, including the one patient who required surgery. Only one patient (8%) developed an adverse event. Combination therapy was shown in our single-centre experience to be a successful way to treat refractory IBD in high-risk phenotypes and is likely to be the future of treating these groups of patients. Two of our patients were treated with Upadacitinib as part of their combination therapy, which is a newly approved small molecule for IBD. Additional studies on different combinations of biologics and small molecules are needed, especially with more IBD drugs on the horizon.

Disclosure: Dr Kamal Patel has received honoraria for educational meetings and speaker fees from Abbvie, Janssen, Takeda, DrFalk, PredictImmune, Ferring and Pfizer and has received advisory board fees from Abbvie, Galapagos, Janssen and Pfizer.

PP0891

HISTOLOGICAL OUTCOMES AND THE IMMUNE LANDSCAPE IN ULCERATIVE COLITIS PATIENTS TREATED WITH TOFACITINIB

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Introduction: Tofacitinib is an oral small molecule Janus kinase inhibitor for the treatment of ulcerative colitis (UC). Histological outcomes and the immune landscape were assessed in an UC patient cohort at baseline and after 8 weeks tofacitinib.

Aims & Methods: In this prospective study, 40 patients with moderate to severely active UC received tofacitinib 10 mg twice daily for 8 weeks. Clinical, endoscopic and histological outcomes were assessed at baseline and week 8 and colon biopsies were stained for JAK1-3, Tyrosine kinase 2 (TYK2) and Signal transducer and activator of transcription (STAT) 1-6 total protein expression using immunohistochemistry (IHC). Histological remission was defined as a Robarts Histopathology Index (RHI) ≤3 points without mucosal neutrophils and histological response as 50% decrease in RHI compared to baseline. Response was defined as histological remission and endoscopic Mayo score (EMS) ≤1 (histo-endoscopic mucosal improvement). Biopsies were scored by a blinded pathologist. Whole slide images with multiple biopsies per patients were stained using IHC, analyzed using automated cell detection (QuPath) and quantified in percentages by dividing the number of positive stained cells by the total number of cells on the slide. Outcomes were compared between responders and non-responders (*NR*).

Results: Out of 40 patients, 26 (65%) had severe endoscopic disease (EMS 3) with a median RHI of 14. Thirty-one patients (78%) had failed prior anti-Tumor Necrosis Factor (anti-TNF) agents and 18 (55%) failed vedolizumab. At week 8, 23 patients (58%) achieved histological remission, 34 (85%) histological response and 15 (38%) histo-endoscopic mucosal improvement. A significant decline in RHI compared to baseline was observed after 8 weeks both in responders (14 vs 0, $p<0.001$) and *NR* (15 vs 6, $p=0.002$). In the entire cohort, total STAT1 ($p<0.001$), STAT3 ($p=0.002$) and STAT5 ($p=0.026$) expression significantly decreased after 8 weeks treatment compared to baseline, which was not different between responders and NR (Table). However, responders to tofacitinib expressed significantly lower total STAT1 levels compared to NR at 8 weeks ($p<0.001$). Likewise, JAK2 ($p=0.008$) and total STAT2 expression ($p=0.004$) were significantly lower in responders compared to *NR* at 8 weeks, although no significant decrease compared to baseline was observed. A trend towards lower baseline JAK1, JAK2 and total STAT4 expression and higher total STAT6 expression was seen in responders compared to *NR*.

	Responders Baseline	NR Baseline	p-value Baseline Responders vs NR	Responders Week 8	NR Week 8	p-value Week 8 Responders vs NR
JAK1, *median % [IQR]*	6.2 [1.1-12.1]	13.7 [6.9-17.6]	0.113	8.4 [5.2-13.1]	9.7 [5.6-13.6]	0.811
JAK2, *median % [IQR]*	0.4 [0.1-2.1]	2.7 [0.1-7.7]	0.125	0.2 [0.1-1.7]	1.8 [0.6-8.6]	0.008
TYK2, *median % [IQR]*	13.3 [1.3-27.6]	10.0 [5.5-25.4]	0.761	11.9 [7.4-15.4]	17.5 [10.3-26.6]	0.156
STAT1, *median % [IQR]*	13.0 [5.2-24.9]	13.5 [7.5-22.0]	0.709	0.2 [0.1-1.8]*	4.3 [1.2-11.9**	<0.001
STAT2, *median % [IQR]*	0.3 [0.1-1.7]	0.7 [0.2-1.8]	0.393	0.3 [0.1-0.6]	0.8 [0.4-2.6]	0.004
STAT3, *median % [IQR]*	0.3 [0.0-6.7]	0.8 [0.1-6.6]	0.361	0.0 [0.0-0.2]	0.1 [0.0-1.0]**	0.106
STAT4, *median % [IQR]*	0.9 [0.3-2.4]	1.9 [0.4-3.3]	0.315	1.2 [0.5-3.2]	2.1 [1.4-3.9]	0.175
STAT5, *median % [IQR]*	0.1 [0.0-1.1]	0.2 [0.2-1.3]	0.235	0.0 [0.0-0.3]	0.2 [0.0-0.9	0.159
STAT6, *median % [IQR]*	23.6 [4.2-28.8]	17.4 [7.6-32.1]	0.455	14.1 [5.3-45.7]	22.1 [10.9-32.5]	0.472

*Table legend: IQR, interquartile range; * statistically significant decrease after 8 weeks compared to baseline in responders; ** statistically significant decrease after 8 weeks compared to baseline in NR.*

Conclusion: Tofacitinib resulted in histological response in the majority of UC patients and led to a substantial decline of total STAT1, STAT3 and STAT5 expression both in responders and *NR*. Yet, after 8 weeks significantly lower total STAT1 levels were observed in responders compared to *NR*. Responders tended to express lower JAK1, JAK2 and total STAT4 and higher total STAT6 levels at baseline.

Disclosure: This study was funded and supported by Pfizer.

PP0892

LONG-TERM UPREGULATION OF MIR-124 IN BLOOD AND RECTAL BIOPSIES OF PATIENTS WITH MODERATE-TO-SEVERE ULCERATIVE COLITIS RECEIVING OBEFAZIMOD 50 MG DAILY FOR 96-WEEKS

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Introduction: Obefazimod is an oral small molecule that has demonstrated long-term efficacy and safety in patients with moderate-to-severe ulcerative colitis (UC) (1,2). Obefazimod is known to modulate inflammation by upregulating a specific anti-inflammatory micro-RNA (miR-124) (3). We examined the long-term effects of obefazimod on miR-124 in blood and rectal biopsies of patients enrolled in a 96-week maintenance study.

Aims & Methods: Patients received placebo or obefazimod 25mg, 50mg or 100mg once daily (od) during a 16-week induction phase and, irrespective of their clinical response, could enter an open-label 96-week maintenance phase with obefazimod 50mg od. Absolute quantification (QuantaSoft Pro) of the miR-124 copy number was performed at baseline, weeks 48 and 96 by using droplet digital PCR technology on 115 whole blood samples and 508 rectal biopsy samples. An ANOVA was performed including treatment, time, the interaction between treatment and time, the baseline value as fixed factor and time as repeated effect.

Results: A daily treatment with obefazimod 50 mg significantly upregulated miR-124 over time in blood and rectal tissue at weeks 48 and 96 (p<0.001 vs. baseline). The miR-124 upregulation was observed in all patients, including those previously receiving placebo during the induction phase.

Treatment during the induction phase	*Time*	Rectal tissue *Median fold change from baseline*	Blood *Median fold change from baseline*
Obefazimod 100 mg	W48	4.8 †	128.2 †
	W96	7.4 †	188.3 †
Obefazimod 50 mg	W48	5.8 †	230.1 †
	W96	10.3 †	244.4 †
Obefazimod 25 mg	W48	4.5 †	308.8 †
	W96	8.5 †	128.5 †
Placebo	W48	4.8 †	237.0 †
	W96	7.5 †	396.8 †

†: p<0.001 vs. baseline ; each timepoint (W48 and W96) is compared to the baseline using a Dunnett adjustment.

Table: Upregulated miR-124 in rectal tissue and blood of patients receiving obefazimod 50 mg during the maintenance phase

Conclusion: The 96-week efficacy of obefazimod 50mg od in patients with moderate-to-severe UC is associated with a maintained increase in miR-124 expression in blood and rectal tissue.

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PP0893

ROLE OF EARLY IMMUNOMODULATOR OR BIOLOGIC THERAPY ON CLINICAL OUTCOMES IN INTESTINAL BEHÇET'S DISEASE

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Introduction: The role of early immunomodulator or biologic agent treatment on clinical outcomes in inflammatory bowel disease (IBD) has emerged in the era of precision medicine. We aimed to analyze the impact of early use of immunomodulator or biologic treatment on clinical outcomes of intestinal Behçet's disease (BD).

Aims & Methods: Of 780 patients with intestinal BD, 342 patients received immunomodulator and 114 patients received biologic treatments between 1997 and 2021 at Severance Hospital, Seoul, South Korea. We compared the cumulative rates of intestinal-BD related hospitalization, emergency room visit, biologics use, and surgery between early treatment group and late treatment group.

		Immunomodulator use		Biologics use	
		Late use (N=179)	Early use (N=163)	Late use (N=81)	Early use (N=33)
Hospitalization	Event	125 (69.8%)	109 (66.9%)	67 (82.7%)	25 (75.8%)
	Multivariable-adjusted HR (95% CI)[a]	Referent	2.029 (1.528-2.712)**	Referent	2.923 (1.754-4.870)**
Emergency room visit	Event	93 (52.0%)	84 (51.5%)	56 (69.1%)	22 (66.7%)
	Multivariable-adjusted HR (95% CI)[a]	Referent	2.018 (1.435-2.838)**	Referent	2.878 (1.674-4.948)**
Intestinal BD-related surgery	Event	88 (49.2%)	41 (25.2%)	48 (59.3%)	10 (30.3%)
	Multivariable-adjusted HR (95% CI)[a]	Referent	0.614 (0.416-0.904)**	Referent	0.775 (0.383-1.568)
Biologics use	Event	44 (24.6%)	49 (30.2%)		
	Multivariable-adjusted HR (95% CI)[a]	Referent	1.891 (1.182-3.027)**		

[a] Multivariable model adjusted for the age at diagnosis, sex, health insurance, smoking, appendectomy history, family history of IBD, marriage status, DAIBD score at diagnosis, systemic BD, number of ulcers, shape of ulcers, size of ulcer, depth of ulcers, type of ulcers, and laboratory findings at diagnosis.
*$p < 0.10$, **$p < 0.05$
HR, hazard ratio; CI, confidence interval; BD, Behçet's disease; IBD, inflammatory bowel disease; DAIBD, disease activity index for intestinal Behçet's disease.

Results: 179 patients (22.9%) received late immunomodulator therapy after 1 year from diagnosis, and 163 patients (20.9%) received early immunomodulator therapy within 1 year. Age, disease activity index for intestinal BD (DAIBD) score, systemic BD rate, C-reactive protein (CRP) at diagnosis were significantly higher in the early immunomodulatory group than in the late immunomodulatory group.

In a Cox regression multivariate analysis, the early immunomodulator group was positively associated with future hospitalization (HR: 2.029, 95% CI: 1.518-2.712, *p* value<0.001), emergency room visit (HR: 2.018, 95% CI 1.435-2.838, *p* value<0.001), biologics use (HR: 1.891, 95% CI: 1.182-3.027, *p* value=0.008), but was negatively associated with future surgery (HR: 0.614, 95% CI: 0.416-0.904, *p* value=0.014). 81 patients (10.4%) received late biologic agent therapy after 1 year from diagnosis, and 33 patients (4.2%) received early biologic agent therapy within 1 year. Systemic BD rate at diagnosis was significantly higher in the early biologics group than in the late biologics group. In a Cox regression multivariate analysis, the early biologics group was positively associated with future hospitalization (HR: 2.923, 95% CI: 1.754-4.870, *p* value<0.001), emergency room visit (HR: 2.878, 95% CI: 1.674-4.948, *p* value<0.001), but early biologic agent therapy was not associated with future surgery (HR: 0.775, 95% CI: 0.383-1.568, *p* value=0.479).

Conclusion: Intestinal BD patients who took immunomodulator or biological agents at an earlier time had severe disease activity at diagnosis, but were less likely to undergo future surgery, the most important prognostic index of this disease, than those who took later.

Disclosure: Nothing to disclose.

PP0894

EXAMINING THE ROLE OF FAECAL MICROBIOTA TRANSPLANTATION (FMT) TO INDUCE REMISSION IN RESISTANT ULCERATIVE PROCTITIS (UP)

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Introduction: Refractory ulcerative proctitis (UP) represents a clinical conundrum, often necessitating systemic therapy for localised disease. Faecal microbiota transplant (FMT) has proven efficacy for remission induction ulcerative colitis, yet has not been evaluated in UP.

Aims & Methods: Aims: To undertake a prospective open-label study examining the safety and efficacy of Faecal Microbiota Transplant (FMT) enema therapy for management of resistant ulcerative proctitis (UP).

Methods: Patients with mild-moderately active UP (total Mayo score 3-10 with endoscopic Mayo subscore ≥ 1) resistant to 5-Aminosalicylates (5-ASA) were prospectively enrolled. After an initial conditioning phase of vancomycin therapy and dietary education, participants received six anaerobically prepared single donor FMT retention enemas over an eight-week period. The primary end point was clinical and endoscopic remission (total Mayo score ≤2) at 8 weeks. Secondary endpoints included safety, histological remission and patient reported outcomes (Inflammatory Bowel Disease Questionnaire). Disease activity assessments including clinical, endoscopic, histological and quality of life measures were performed at week 0 and week 8 to assess response to FMT therapy. Systematic adverse event reporting was completed at each study visit.

Results: Among 30 participants enrolled (mean age 41 years, 17 (57%) women) , 26 completed the study protocol. Clinical and endoscopic remission was achieved in 10 patients (33.3%).

Serious adverse events necessitating study withdrawal occurred in 3 enrolled patients due to flare of UP (n=2) and *Clostridioides difficile (C. difficile)* colitis (n=1).

Conclusion: FMT enema therapy was well tolerated and demonstrated efficacy in inducing clinical and endoscopic remission in resistant UK. The role of antibiotic preconditioning of recipients and choice of antibiotic therapy remains unclear. Further controlled studies in this area are warranted.

References:

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fees, or research support from Ferring, Shire, Microbiotica and Janssen. RVB has received grant/research support/speaker fees (all paid to employer for research support): AbbVie, Ferring, Janssen, Shire, Takeda, Emerge Health. SPC and RVB are shareholders in BiomeBank.

PP0895

PATIENTS WITH FIBROSTENOTIC CROHN'S DISEASE CAN TOLERATE A HIGH-FIBER, LOW-FAT DIET AND EXPERIENCE AN IMPROVEMENT IN SYMPTOMS: RESULTS OF A CATERED DIET INTERVENTION STUDY

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Introduction: Crohn's disease (CD) can lead to inflammation of the intestinal tract and may be complicated by strictures[1]. Patients want diet-based approaches to therapy but relatively few prospective diet studies have been conducted with high rates of adherence.

Aims & Methods: We conducted a patient preference study NCT04213729 to test a high fiber(17gm/1000 calories for fiber), low fat(20-25% calories from fat) diet in CD patients. In the current study, we asked whether patients changed their symptoms following the catered diet intervention and whether the CD-related phenotype impacted the response to diet. Patients chose to receive diet counseling alone (group 1), catered food for 8 weeks (group 2), or catered food for a patient and a household member as well as participate in Dyadic Psychosocial Support (DPS)sessions (group 3).DPS sessions incorporated psychoeducational components that combined didactic and behavioral procedures. High fiber catered foods consisted of soluble and insoluble fibers as well as fermentable fibers such as fructans and galactooligosaccharides, etc. Detailed demographic, clinical, anthropomorphic, quality of life, biochemical and food knowledge data were collected at baseline and week 8. A total of 73 patients and 24 household controls were enrolled.

Results: At baseline,60-80%of CD patients were in remission based on PRO2 score (stool frequency≤ 1.5, abdominal pain ≤1)and Harvey Bradshaw index<5. On average, CD patients consumed a diet with less than 9gm/1000 calories of fiber and >40% fat at baseline. All three CD groups were well-matched at baseline with the household controls consuming also less fiber. Patients receiving the catered food had a high rate of adherence to the diet(80%)at week 8; patients receiving diet counseling alone had 5%adherence to a low-fat diet and 10%adherence to a high-fiber diet at week 8. Serum amyloid A(SSA), CRP, and fecal calprotectin were low at baseline and remained low. Catered meals improved values of fecal calprotectin or SAA in the subset of patients that had elevated levels of these biomarkers. Group 3 received DPS sessions for the CD patient and household control and had significantly improved nutrition literacy (score average:70.6,p=0.000636)while groups 1 and 2 averaged 57 and 57.1, respectively. Food-related quality of life(FRQoL 29)scores were significantly improved for those participants that received diet and DPS. FRQoL average increased from 82.1 to 107(p=0.000541).29% had B2 fibro-stenotic disease and received high-fiber catered food. This subset of patients had a decrease in stool frequency and no increase in abdominal pain symptoms. The mean number of bowel movements and pain scores improved or did not change.

Gender		Age at diagnosis (mean)	25 (9-58)	Inflammatory Outcomes	At screening	At week 8	General Nutrition Knowledge Questionnaire	At screening	At week 8
Male	53 (53%)	Years of Disease	11 (1-42)	Harvey Bradshaw Score (mean ± SD)	3.05 (sd 2.9)	2.38 (sd 2.2)	Group 1	55.6 (sd 13.5)	57.0 (sd 14.1)
Female	46 (47%)	Age (median)	49 (20-66)	Stool Frequency	3.7 (sd 5.4)	2.5 (sd 4.9)	Group 2	52.6 (sd 16.6)	57.1 (sd 13.6)
Ethnicity		Location of CD		Abdominal Pain	1 (range 0-3)	0.6 (sd 0.69)	Group 3	60.2 (sd 7.45)	70.6 (sd 5.77) *p=0.000636
Hispanic	37 (49%)	Upper	3 (4%)	Calprotectin (µg/g)	73.1 (sd 160)	55.9 (sd 90)	Food-related Quality of Life-29	At screening	At week 8
Non-Hispanic	37 (49%)	Ileum	25 (34%)	Serum Amyloid A1 (mg/L)	4.6.1 (sd 19)	2.8 (sd 7.3)	Group 1	89.3 (sd 25.6)	89.8 (sd 29.0)
Race		Ileum + colon	41 (56%)	CRP (mg/L)	3.5 (sd 7.8)	2.7 (sd 3.8)	Group 2	70.9 (sd 22.7)	87.5 (sd 28.8)
White	68 (90%)	Colon	4 (5%)	Fibrostenotic B2 Subgroup	At screening	At week 8	Group 3	82.1 (sd 23.8)	107 (sd 29.1) *p=0.000541
Black	1 (1.3%)	Current use of immuno-modulators	9 (12%)	Stool Frequency	4.9 (sd7.6)	4.8 (sd 8.6)			
History of G.I surgeries	29 (39%)	Current use of Biologics	61 (81%)	Abdominal Pain	1 (range 0-3)	0.6 (sd 0.7)			

Conclusion: CD patients even those in remission, have very low consumption of fruits and vegetables. We show that even patients with B2 phenotype CD can tolerate 8 weeks of high fiber, low-fat diet without worsening of symptoms. One time diet counseling was not able to change diet behavior. Catering meals offers an effective way to control dietary intake in CD clinical trials. Psychology interventions for the CD patient and household improved food-related quality of life and nutritional literacy.

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Disclosure: Nothing to disclose.

PP0896

STUDY OF ACTIVE SWITCHING FROM TOFACITINIB TO USTEKINUMAB IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Tofacitinib (TOF) is an effective treatment for ulcerative colitis (UC). However, compared with biologics, it is associated with a higher incidence of herpes zoster and malignant tumors, and it is contraindicated in pregnant women. Therefore, TOF is used in the second line or later for patients with UC in whom remission cannot be induced or maintained by biologics. However, patients might elect to discontinue TOF because of malignant disease or the desire to become pregnant.

However, the risk of UC recurrence is high if TOF is discontinued. TOF and ustekinumab (UST) have similar mechanisms of action involving the JAK pathway[1)]. The inflammatory cytokines suppressed by these drugs partially overlap[2)].

Aims & Methods: The aim of this study was to investigate the efficacy and safety of active switching to UST as an alternative to TOF withdrawal. Four patients were included, and the following patient information was recorded: age, gender, duration of disease, disease severity, steroid resistance/

dependence, duration of biologic and TOF use before the active switch, reason for the active switch, observation period after the active switch, remission therapy after the active switch, side effects of UST, and outcomes.
Results: Age at diagnosis (median)(months):35–64(49), Males/Females: 0/4, Disease duration(median)(months):85–227(150),Disease severity: severe/moderate: 0/4, Steroid : resistance/dependence: 0/4.

Duration of biologics and tofacitinib before active switch(months)	
case1	IFX(3)→TOF(24)
case2	IFX(53)→ADA(40)→GLM(2)→Seitai(herbal medicine)(25)→TOF(20)
case3	ADA(6)→GLM(22)→VED(4)→TOF(24)
case4	GLM(3)→TOF(22)
Reason for active switch	malignant disease (3) desire to become pregnant:1
Observation period after active switch(median) (months)	4-23(14)
Maintenence therapy :5ASA/AZA	4/0
Side effect of UST	none
Outcome: relapse/remission	0/4

IFX:infliximab, TOF:tofacitinib, ADA:adalimumab, GLM:golimumab, VED:vedlizumab

Table.

As illustrated in the Table, TOF was used in the second- to fifth-line setting approximately 2 years before an active switch to UST. Treatment with 5ASA alone to maintain remission was performed in all patients, and no cases of relapse, UST-related side effects, or treatment discontinuation were observed. The pregnant patient is currently progressing with her pregnancy smoothly, and she is scheduled to give birth in July 2023.
Conclusion: For patients who require TOF withdrawal, it is possible to safely and effectively maintain remission via an active switch to UST.
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Disclosure: Nothing to disclose.

PP0897

LIPIDOMIC ANALYSIS OF FAECES FROM PATIENTS WITH ULCERATIVE COLITIS UNDERGOING FAECAL MICROBIOTA TRANSPLANTATION PREDICTS TREATMENT RESPONSE

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Introduction: Faecal microbiota transplantation (FMT) may induce remission in patients with ulcerative colitis (UC), however the mechanisms through which this occurs are unknown. Lipids mediate inflammation and contribute to the pathophysiology of inflammatory bowel diseases. We therefore hypothesise that the faecal lipidome mediates treatment response in UC patients undergoing FMT.
Aims & Methods: We aimed to investigate the faecal lipidome using ambient mass spectrometry to identify metabolites that mediate treatment response. Patients were recruited from a single-centre, single-blinded randomised controlled trial consisting of 18 treatment-naïve UC patients (ISRCTN58082603). All patients were pre-treated with antibiotics and underwent bowel lavage. Patients were divided into three intervention groups: 1) A single FMT enema (n=7) 2), five consecutive FMTs enema's within five days (n=7) and 3) a control group given antibiotics and bowel lavage only (n=4). Fresh faecal samples were taken before and one-, four-, eight- and twelve weeks after FMT treatment. Response was evaluated as endoscopic remission or a drop of ≥2 points in the partial Mayo score. High-throughput laser assisted-rapid evaporative ionization mass spectrometry (LA-REIMS) set-up (Xevo G2-S QT of mass spectrometer (Waters Corporation)) as an approach for shotgun lipidomics was used. After pre-processing of the LA-REIMS data, univariate and multivariate statistics were performed using Metaboanalyst 5.0 and an in-house developed bioinformatic pipeline to build predictive models of response using leave-one-patient-out cross-validation.
Results: From 18 patients with a median age of 42 (range 18-70), male 7 (39%), 6/14 patients in the FMT intervention and 2 patients in the control group demonstrated an endoscopic response. The metabolic variance based on Partial Least-Squares Discriminant Analysis between FMT treatment and control group at baseline was not significant (R2=0.39, Q2=0.32 and diagnostic accuracy of 0.84). However, responders and non-responders demonstrated a different pre-treatment faecal lipidomic profile (R2=0.78, Q2=0.66 and diagnostic accuracy of 0.93). This persisted 12 weeks after FMT treatment (R2=0.96, Q2=0.92 and diagnostic accuracy of 1.0). Within group metabolic variances of the lipidome were also visible. For example, the pre- and post-intervention faecal lipidome discretely varied in those UC patients who responded to FMT (R2=0.63, Q2=0.52 and diagnostic accuracy of 0.92). Interestingly, a moderate variance was also seen in the control group before and after treatment with only antibiotics and bowel lavage (R2=0.87, Q2=0.78 and diagnostic accuracy of 0.98). Univariate analysis demonstrated fatty acids and glycerophospholipids explained much of this variance and they were statistically different between responders and non-responders to FMT treatment (FDR adjusted p<0.05). Tentative metabolite identification of the *m/z* values in statistical-

ly important metabolites suggested that cholesterol sulfate (465.304 *m/z*), pantothenic acid (218.102 *m/z*, vitamin B5) were statistically more likely to be excreted in patients who responded to an intervention, although they do not mediate inflammation per se.

Conclusion: FMT sustainably modifies the faecal lipidome in UC patients that respond to FMT, suggesting a role for the lipidome in driving remission. However, influenced by both donor and host's faecal lipid metabolism. Future and ongoing work involve time-series analyses of significant metabolites during different time points in the course of the treatment.

Disclosure: James Kinross is an advisor to Intus Biosciences

PP0898

USTEKINUMAB IS SUPERIOR IN TREATMENT PERSISTENCE AND COLECTOMY-FREE SURVIVAL AMONG SEQUENTIAL BIOLOGICAL THERAPIES IN MODERATE-TO-SEVERE ULCERATIVE COLITIS REFRACTORY TO ANTI-TNF – PRELIMINARY DATA OF A RETROSPECTIVE, MULTICENTRE STUDY

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Introduction: The development of anti-TNF agents has brought major advances in the treatment of ulcerative colitis (UC), however, many patients still require the use of 2nd-, 3rd-, or even 4th-line biologicals or small molecules.

Aims & Methods: We conducted a retrospective, multicentre study with the inclusion of UC patients who failed anti-TNF therapy due to primary non-response (PNR) or loss of response (LOR), and received sequential biological treatment for moderate-to-severe disease activity or for acute, severe exacerbation (ASUC).

The primary aim was to evaluate and compare the effectiveness of 2nd-, 3rd-, or 4th-line biological or small molecule therapies after anti-TNF failure. Treatment effectiveness was determined by persistence and colectomy-free survival. Logistic regression analysis was performed to identify the predictive value of demographic factors, clinical, endoscopic, and laboratory parameters for colectomy.

Results: To date, 454 UC patients have been included. The median follow-up time was 57.7 months (IQR: 92.9-33.3). The indication for the 1th-line anti-TNF therapy was chronic, refractory UC in 307(67.6%) and ASUC in 147(32.4%) patients. The rate of PNR, as reason for treatment discontinuation progressively increased in accordance with the lines of sequential treatment (23.1%/31.7%/36.2%/45.0%), however, the incidence of LOR did not show a definite tendency among the various therapeutic lines (50.0%/56.1%/58.0%/40.0%). A significant difference with treatment persistence was seen among the most frequently used biologicals and small molecules following anti-TNF failure *(Table 1.)*.

Ustekinumab (UST) had superior persistence compared to vedolizumab (VDZ) and tofacitinib (TOFA) at 3, 6, 12 and 24 months, regardless of the number of previous anti-TNFs. The overall colectomy rate was 15.6%, mostly due to chronic, refractory UC (61.9%). The probability of colectomy-free survival was 97.2%, 93.3% and 91.2% at 1, 2 and 3 years, respectively. Cyclosporine use during the course of the disease proved to be protective against colectomy (OR: 2.88, 95% CI: 1.447-5.733, *p*=0.0026). Pancolitis (OR: 3.24, 95% CI: 1.604-6.562, *p*=0.0012) appeared to be predictive for colectomy. Following anti-TNF failure, the incidence of colectomy was shown to be significantly lower with 2nd-line UST (n=3 (5.8%), *p*=0.0422) than with VDZ (n=57 (16.8%)) or TOFA (n=11 (20.4%)).

Treatment persistence after anti-TNF failure	n (%)	Median (Q1, Q3)	3 months (%)	6 months (%)	12 months (%)	24 months (%)	36 months (%)
VDZ	340 (76.2%)	30.5 (9.6, NA)	94.9%	86.8%	67.5%	52.5%	47.0%
UST	52 (11.7%)	26 (21.5, NA)	98.0%	95.9%	87.4%	79.9%	72.6%
TOFA	54 (12.1%)	20.8 (4.1, NA)	75.0%	70.6%	57.1%	49.7%	49.7%
Difference among treatments (logrank p-value)			<0.0001	0.0006	0.0068	0.0273	0.1105

Table 1. Treatment persistence among the most frequently used biologicals and small molecules following anti-TNF failure.

Conclusion: According to the preliminary results of this ongoing cohort, sequential therapy was effective in avoiding colectomy in 84.4% of the patients and even after multiple lines of treatment we could expect a relatively low rate of colectomy. UST, as a 2nd-line therapy after anti-TNF failure, was significantly superior, both in terms of persistence and colectomy-free survival, compared to VDZ or TOFA. Cyclosporine use reduced the risk of colectomy, while pancolitis was seen to be a predictive factor for surgery. Further analysis are being performed to identify factors that influence the efficacy of non-TNF agents and to clarify their role in the subsequent therapeutic lines.

Disclosure: Nothing to disclose.

PP0899

CLINICAL EFFICACY, THERAPEUTIC DRUG MONITORING AND NOCEBO EFFECT FOLLOWING NON-MEDICAL BIOSIMILAR SWITCH IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Current data suggests that biosimilar is safe and effective for patients with inflammatory bowel disease (IBD).[1-2] However, the drug discontinuation and nocebo effect after switching from originator to biosimilar have increased over time. [3]

Aims & Methods: We aimed to evaluate clinical efficacy, biomarkers activity, therapeutic drug monitoring (TDM) adverse events (AEs), and nocebo effect in IBD patients who underwent biosimilar switch. A prospective observational study of consecutive IBD patients who underwent non-medical biosimilar switch at McGill University Health Centre, Montreal, Canada, between April 1, 2022 – March 31, 2023. The patients were follow-up until 24 weeks following the switch. Disease activity, biomarkers, TDM and AEs including nocebo effect were captured at 8 weeks before switch, at time of the switch (baseline), 12 and 24 weeks after the switch.

Results: A total of 210 patients were included [81.4% were Crohn's disease (CD), median age at inclusion: 42 years (IQR 29-61)]. There was no significant difference in the rates of clinical remission at week 8 before the switch, baseline, week 12, and 24 after the switch; 89.0%, 93.4%, 86.3% and 90.8%, p=0.129. The rates of sustained clinical remission at week 12 and week 24 after switching were 79.4% and 69.6% respectively. The proportion of patients remaining in biomarkers remission was not significantly different at week 8 before the switch, baseline, week 12, and 24 after the switch; CRP: 81.3%/ 74.7%/ 81.2%/ 73.0%, p=0.343; Fecal calprotectin: 78.3%/ 74.5%/ 71.7%/ 76.3%, p=0.829. The rates of maintaining in therapeutic level (84.7%/ 83.9%/ 83.0%/ 85.3%, p=0.597) and prevalence of positive anti-drug antibodies remained unchanged before and after the switch. Nocebo effect was observed in 13.3% and 4.3% of patients discontinued biosimilar therapy. Main results of the study outcomes in IBD patients following Biosimilar switch is shown in Table 1.

Outcomes monitoring, n (%)	8 weeks before the switch	At switch (baseline)	Week 12 after switch	Week 24 after switch	p-value
Clinical remission	187/210 (89.0%)	184/197 (93.4%)	164/190 (86.3%)	167/184 (90.8%)	0.129
Steroid-free clinical remission	185/210 (88.1%)	181/197 (91.8%)	163/190 (85.8%)	166/184 (90.2%)	0.113
IBD flare	NA	6/184 (3.3%)	14/167 (8.4%)	10/161 (6.2%)	0.121
CRP remission	113/139 (81.3%)	59/79 (74.7%)	69/85 (81.2%)	73/100 (73.0%)	0.343
Fecal calprotectin remission	65/83 (78.3%)	41/55 (74.5%)	43/60 (71.7%)	58/76 (76.3%)	0.829
Maintaining in therapeutic level	72/85 (84.7%)	47/56 (83.9%)	88/106 (83.0%)	99/116 (85.3%)	0.597
Adalimumab anti-drug Ab positive	0/44 (0%)	0/28 (0%)	2/49 (4.1%)	2/50 (4.0%)	0.345
Infliximab anti-drug Ab positive	1/41 (2.4%)	0/28 (0%)	1/57 (1.8%)	2/66 (3.0%)	0.616
Nocebo effect	NA	9 (4.3%)	13 (6.4%)	6 (3.0%)	NS

Table 1.

Conclusion: Despite a significant number of early nocebo complaints within the first 6 months after the biosimilar switch, no significant changes were found in clinical efficacy, biomarkers, therapeutic drug level, and anti-drug antibodies.

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Disclosure: Nothing to disclose.

PP0900

FISTULIZING CROHN'S DISEASE (EXCLUDING ANO-PEINEAL LESIONS): MEDICAL OR SURGICAL TREATMENT

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Introduction: Crohn's disease is an inflammatory enterocolitis, characterised by chronic transmural involvement that can be complicated by enterocutaneous, intestinal, enterovesical and rectovaginal fistulae. Diagnosis is relatively easy thanks to the development of imaging examinations, particularly entero-MRI. However, the therapeutic management of fistulising forms of Crohn's disease, although most often involving surgery, remains controversial in the literature.

Aims & Methods: In this study we report on the clinical, radiological, therapeutic and evolutionary aspects of fistulising Crohn's disease.

This is a retrospective descriptive and analytical study, spanning 10 years from January 2012 to July 2022, including 740 patients with proven Crohn's disease. Factors studied were age, sex, type of fistula, medical and surgical treatment, evolution and follow-up. Patients with fistulising Crohn's disease with ano-perineal lesions were excluded from this study. SPSS 20.0 software was used for statistical analysis, the Chi-square test was used to compare categorical variables.

Results: Of a total of 740 cases of Crohn's disease, 108 patients had a fistulising form excluding ano-perineal lesions, a rate of 14.6%. 19% (n=141) had a fistulising form with ano-perineal lesions, 42.1% (n=311) had a stenosing form and 24.2% (n=179) had an inflammatory form. The mean age of our patients was 37.7 years +/- 11.3. Sex ratio was 1.34 with a female predominance. The location of the fistulas was dominated by intestinal fistulas in 59% (n=64) of cases, followed by enterocutaneous fistulas in 29.6% (n=32), then enterovesical fistulas in 10% (n=11) and rectovaginal fistulas in 0.9% (n=1). Medical treatment with immunosuppressants was initiated in 20 cases (18.5%) of intestinal fistulas, 5 cases (4.6%) of enterocutaneous fistulas and 1 case (0.9%) of rectovaginal fistulas. 6.5% of patients (n=7) were put on biotherapy. Surgical treatment was indicated immediately in 52% of cases (n=56) and after failure of medical treatment in 14.8% (n=16) of cases.

Fistula closure after medical treatment was observed in two patients with an ileal location of the disease (14.3%), in one patient (9.1%) with a colonic location, and in 5 patients (7.5%) with an ileocolic location: this difference was statistically significant $p < 0.001$.

In the case of internal fistulas, 39 (32%) patients closed after treatment, while external fistulas closed in 22 (1.8%) patients and only 9 (0.7%) patients with both internal and external fistulas had fistula closure, a difference that was statistically significant $p<0.001$.

Fistulas closed in 4 (57.1%) patients after initiation of biotherapy versus 3 patients on immunosuppressants and did not close in any patient in whom no therapy was initiated, this difference was statistically significant $p<0.0001$.

Conclusion: Fistulizing Crohn's disease poses a problem of medical-surgical management. In this study, we note that surgical treatment is ultimately indicated in the majority of cases of Crohn's fistulas. Anti-TNF drugs can lead to fistula closure; however, this treatment is not yet readily available to patients due to lack of resources.

Disclosure: none conflict of interest

PP0901

PRA023 IMPROVED HEALTH-RELATED QUALITY OF LIFE AS MEASURED BY IBDQ-32 IN A PHASE 2 TRIAL FROM PATIENTS WITH MODERATELY TO SEVERELY ACTIVE ULCERATIVE COLITIS

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Introduction: PRA023 is a humanized monoclonal antibody against tumor necrosis factor–like cytokine 1A (TL1A), a key pro-inflammatory cytokine and pro-fibrosis regulator, in development for inflammatory bowel diseases. In a phase 2 double-blind, placebo-controlled study (ARTEMIS-UC) assessing the efficacy and safety of PRA023 induction treatment in adults with moderately to severely active ulcerative colitis (UC), a significantly greater proportion of patients who received PRA023 achieved the primary endpoint of clinical remission after 12 weeks. This post hoc analysis assessed the impact of PRA023 on health-related quality of life using the Inflammatory Bowel Disease Questionnaire (IBDQ-32).

Aims & Methods: Adults with a modified Mayo score of 4 to 9, centrally read endoscopy subscore of ≥2, rectal bleeding subscore of ≥1, and history of insufficient response, loss of response, and/or intolerance to conventional and/or advanced therapies (≤4 advanced agents from ≤3 classes allowed) were stratified by prior biologic exposure and genetic-based diagnostic status and randomized 1:1 to placebo or intravenous PRA023 (1000 mg on day 1, and 500 mg at weeks 2, 6, and 10). IBDQ outcomes measures include: IBDQ response (score of ≥16-point from baseline), IBDQ remission (total score ≥170), and mean change from baseline in total and domain scores after 12 weeks of induction therapy. Score changes from baseline were compared among treatment groups, and the impact of prior advanced therapy exposure on IBDQ remission was assessed. Higher scores represent better quality of life.

Results: Of the 135 patients in the study, 60/67 (89.6%) in the placebo arm and 68/68 (100%) in the PRA023 arm completed the 12-week induction period. Baseline characteristics were similar between the treatment groups. Significantly greater proportions of patients in the PRA023 group achieved IBDQ response (82.4% PRA023 vs 49.3% placebo, Δ33.1%, p<0.0001) and IBDQ remission (51.5% PRA023 vs 19.4% placebo, Δ32.1%, p=0.0001) at week 12. Prior advanced therapy use did not affect the placebo-adjusted proportion of patients experiencing IBDQ remission in those who received PRA023 (Δ34.4% vs Δ30.0%, respectively, for prior and no prior advanced therapy). The total IBDQ score and all IBDQ domain subscores (bowel symptoms, systemic symptoms, emotional function, and social function) were significantly improved after 12 weeks of PRA023 induction treatment compared to placebo (Table 1).

IBDQ outcomes	Placebo	PRA023	% Difference vs placebo (95% CI)	P value
IBDQ response (%, n/N)†‡	49.3 (33/67)	82.4 (56/68)	33.1 (17.2–46.8)	<0.0001
IBDQ remission (%, n/N)‡	19.4 (13/67)	51.5 (35/68)	32.1 (16.0–45.9)	0.0001
-Prior advanced therapy	18.8 (6/32)	53.1 (17/32)	34.4 (10.9–53.1)	-
-No prior advanced therapy	20.0 (7/35)	50.0 (18/36)	30.0 (7.8–48.4)	-
Change in IBDQ scores from BL, mean±SD				
-Total score	20.8±37.59	48.6±34.85	26.8 (14.6–38.9)	<0.0001
-Bowel symptoms subscore	7.1±12.27	17.2±11.79	9.4 (5.3–13.4)	<0.0001
-Systemic symptoms subscore	3.0±5.97	7.0±6.56	4.0 (2.0–6.0)	0.0002
-Emotional function subscore	6.6±14.59	16.1±13.25	8.9 (4.3–13.5)	0.0002
-Social function subscore	4.1±7.74	8.2±7.38	4.4 (2.0–6.8)	0.0004

†Prespecified secondary endpoint.
‡Nonresponder imputation was applied to response and remission endpoints.
Abbreviations: BL, baseline; IBDQ, Inflammatory Bowel Disease Questionnaire.
P values are nominal except IBDQ response.

Table 1. Inflammatory Bowel Disease Questionnaire (IBDQ) Outcomes with PRA023 Induction Therapy.

Conclusion: PRA023 significantly improved quality-of-life measures in patients with moderately to severely active UC, regardless of prior advanced therapy use. The greatest benefits were reported in the bowel symptoms and emotional function domains.

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TER has been a speaker for Takeda Pharmaceuticals, Janssen, Pfizer, Bristol Myers Squibb, and Abbvie; has served on advisory boards for AbbVie, Ardelyx, Arena, Boehringer Ingelheim, Bristol Myers Squibb/Celgene, Eli Lilly and Company, Ferring, Genentech/Roche, Gilead, Intercept, Iterative Scopes, Janssen, Pfizer, Prometheus Biosciences, Sanofi, and Takeda; and has been a shareholder for Iterative Scopes.

RP has been a consultant for Abbott, AbbVie, Abivax, Alimentiv (formerly Robarts), Amgen, Arena, AstraZeneca, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Celltrion Healthcare, Cosmos Pharmaceuticals, Eisai, Elan, Eli Lilly and Company, Ferring, Galapagos, Fresenius Kabi, Genentech, Gilead Sciences, GSK, BIOJAMP, Janssen, Merck, Mylan, Novartis, Oppilan Pharma, Organon, Pandion, Pendopharm, Pfizer, Progenity, Prometheus Biosciences, Protagonist Therapeutics, Roche, Sandoz, Satisfai Health, Shire, Sublimity Therapeutics, Takeda, Theravance Biopharma, Trellus, Viatris, Ventyx, and UCB; has received speakers fees from AbbVie, Amgen, Arena, Bristol Myers Squibb, Celgene, Eli Lilly and Company, Ferring, Fresenius Kabi, Gilead Sciences, Janssen, Merck, Organon, Pfizer, Roche, Sandoz, Shire, and Takeda; and has served on advisory boards for AbbVie, Alimentiv (formerly Robarts), Amgen, Arena, AstraZeneca, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Eli Lilly and Company, Ferring, Fresenius Kabi, Genentech, Gilead Sciences, GSK, BIOJAMP, Janssen, Merck, Mylan, Novartis, Oppilan Pharma, Organon, Pandion Pharma, Pfizer, Progenity, Protagonist Therapeutics, Roche, Sandoz, Shire, Sublimity Therapeutics, Takeda, and Ventyx.

PP0902

EFFECTIVENESS AND SAFETY OF SWITCHING FROM INTRAVENOUS TO SUBCUTANEOUS VEDOLIZUMAB FORMULATION IN INFLAMMATORY BOWEL DISEASE PATIENTS IN CLINICAL REMISSION: A SINGLE CENTRE REAL WORLD EXPERIENCE

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Introduction: Recently, subcutaneous vedolizumab formulation has been approved for the treatment of Inflammatory Bowel Disease. Data from randomized controlled trials on Crohn disease and ulcerative colitis report that subcutaneous vedolizumab formulation efficacy and safety were comparable to intravenous one.

Aims & Methods: The aim of our study was thus to evaluate the safety and the effectiveness of switching from intravenous to subcutaneous vedolizumab in inflammatory bowel disease patients in clinical remission.

In this prospective cohort study, we collected data on patients afferent to our center from September 2021 to April 2022. Baseline demographic characteristics, 12- and 24-weeks follow-up clinical activity and C-reactive protein levels, and adverse events were recorded. The primary endpoint was to assess combined steroid-free clinical remission plus biochemical remission at week 24.

Results: 93 patients (43 Crohn disease, 50 ulcerative colitis) switched from intravenous to subcutaneous vedolizumab therapy after a median duration of intravenous treatment of 36 months [IQR 16-52]. Of note, 53.7% were previously anti-TNFα exposed and 41.9% were naive to biologics and immunosuppressors. Most of patients (94.6%) were on every 8-weeks maintenance therapy. At baseline, 80 patients (86%) were in combined remission; 93.5% of patients and 91,4% of patients reached the 12-weeks and 24-weeks follow up visit respectively. At week 24, 89.2% (n=74) patients maintained combined steroid-free clinical remission plus biochemical remission from baseline. Overall, 25 adverse events out of 23 patients were reported, mostly SARS-CoV-2 infections and injection site reactions, with further 4 recurrence episodes. Twelve patients (12.9%) discontinued subcutaneous and restarted intravenous vedolizumab.

Conclusion: Switching from intravenous to subcutaneous vedolizumab can be considered a reasonably safe and effective treatment in maintaining remission in inflammatory bowel disease patients at a 24-weeks

follow-up. Additionally, this might slash healthcare costs. However, larger scale real-life studies with long-term follow-ups are needed.

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PP0903

RISK FOR BACTERIAL INFECTIONS AMONG INFLAMMATORY BOWEL DISEASE PATIENTS TREATED WITH BIOLOGICAL AGENTS

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Introduction: Infections are one of the main side effects faced by patients treated with biological agents.

Aims & Methods: Objective: We aimed to determine the rates of bacterial infections among Inflammatory Bowel Disease (IBD) patients treated with biological agents in a real-life setting.

Methods: Retrospective study based on the Clalit healthcare nationwide database, which included all patients diagnosed with IBD between 1999 and 2022. Data on bacterial infections were collected for patients treated with a biologic agent (Anti_TNF, Vedolizumab and Ustekinumab) and were compared to all other IBD patients during the corresponding timeframe.

Data regarding demographics, bacterial infection events, and mortality were collected. Data were collected using the MdClone platform from the largest Health Maintenance Organization, "Clalit" in Israel.

Results: 5523 IBD patients treated with Anti-TNF were compared to 29,598 patients not treated with Anti-TNF. Patients treated with Anti-TNF were younger, age 35.62±14.29 compared to 47.06±19.49 years. Anti-TNF patients had higher rates of respiratory tract infection (36.2% vs 31.2%), genitourinary system infection, 26.7% vs 23.7%, gastrointestinal tract infection (31.8% vs 21.6%), skin infection (22.5% vs 14.3%) and Ear, Nose, throat infection (31.5% vs 24.2%).

2220 patients treated with Vedolizumab compared to 35,100 not treated with Vedolizumab, patients treated with Vedolizumab had higher rates of bacterial infections, respiratory tract infection (13.5 vs 5.1%, p<0.001), genitourinary system infection, (9.7% vs 3.8%, p<0.001) gastrointestinal tract infection (12.6% vs 3.5%, p<0.001), skin infection (8.4% vs 3%, p<0.001) and Ear, Nose, throat infection (11% vs 4.4%, p<0.001).

In addition, risk of bacterial infection was higher among 940 patients treated with Ustekinumab than those not treated with Ustekinumab.

Conclusion: Significantly increased risk found among IBD patients treated with biologic agents; clinicians should consider the increased susceptibility to bacterial infections when deciding which biological agent to prescribe to their asthma patients

Disclosure: Nothing to disclose.

PP0904

PROACTIVE THERAPEUTIC DRUG MONITORING FOR INFLIXIMAB MAY REDUCE STEROID EXPOSURE IN IBD

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Introduction: Therapeutic Drug Monitoring (TDM), measuring serum drug levels (DL) and antibodies, is an established tool to optimise the efficacy of anti-TNF medicines in the treatment of patients with inflammatory bowel disease (IBD) via adaptation of drug frequency and dose. TDM is generally performed in proactive (pTDM) or reactive (rTDM) strategies. In rTDM, DLs are performed when disease relapses or flare occurs. In pTDM, DLs are measured routinely as part of ongoing clinical review to enable manipulation of drug dosing to achieve DLs within specified therapeutic ranges.[1,2,3] While TDM testing is recommended in clinical practice guidelines, there is a lack of data demonstrating the impact of TDM on clinically meaningful outcomes and it is unclear whether the type of testing strategy employed is important . Reducing excessive steroid exposure for these patients remains an important clinical outcome in the UK .[4]

Aims & Methods: The aim of this study was to assess the impact of pTDM and rTDM on steroid exposure for our local, Infliximab (IFX) treated, IBD population.

Patient data was identified using the West of Scotland NHS Safe Haven. Patients with IBD, treated with IFX, and undergoing TDM were included and allocated to a pTDM or rTDM group based on the clinical indication of first TDM test. DL and prednisolone exposure data were extracted and reviewed from January 2018-December 2019. Annual steroid excess was defined as 2 or more steroid prescriptions in 12 months.[1] SPSS was used to perform a Chi-squared and Mann-Whitney U tests.

Results: 197 patients were included (pTDM:172, rTDM:25). 210 corresponding DLs were available. The median pTDM DL was 5.35ug/ml, and 5.25ug/ml in the rTDM group. No difference was seen in DLs between the 2 groups (p=0.828). 91/197 (46.2%) were exposed to steroids in the 2 year period, 63/197 (31.9%) in excess. 17/25 (68%) of rTDM patients were exposed to steroid compared to 74/172 (43%) in the pTDM group (p=0.19). 14/25 (56%) of rTDM patients were exposed to steroid in excess compared to 49/172 (28.5%) in the pTDM group (p=0.006).

Conclusion: In this retrospective cohort steroid exposure and excess was lower in patients undergoing pTDM compared to rTDM. Further work exploring the factors influencing this observation, in larger, prospective studies is required to fully understand the impact of TDM on patient care. The relationship between TDM and other clinical outcomes, including hospital admissions, is underway in this cohort.

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Disclosure: Nothing to disclose.

PP0905

WHAT IS THE REAL IMPACT OF THE HLA-DQA1*05 POLYMORPHISM ON INFLIXIMAB TREATMENT IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE?

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Introduction: Anti-TNF drugs are highly effective for treating Inflammatory Bowel Disease (IBD) but have a high chance of loss of response, particularly due to immunogenicity. Using immunomodulators (IMM) can partly overcome this. The HLA-DQA105 polymorphism was identified as a predictor of anti-infliximab antibodies (AIA).

However, the impact of this polymorphism in real-world studies and its association with other factors related to the development of immunogenicity needs to be established.

Aims & Methods: We aim to study the association of the polymorphism HLA-DQA1*05 with the development of AIA in a real-life cohort of patients with IBD.

We conducted a retrospective cohort study including adult patients with Crohn's Disease (CD) and Ulcerative Colitis (UC) who were or have been taking infliximab (IFX) with a minimum follow-up of 6 months. DNA amplification and sequencing by Sanger methodology were used to identify the presence of the HLA-DQA1*05 polymorphism. The presence of AIA was evaluated through ELISA, and IFX trough levels (IFX TL) were assessed by a point-of-care methodology.

A Cox regression analysis was performed to assess the impact of the polymorphism on the time until the development of AIA and its association with other relevant factors (use of concomitant IMM, body mass index, gender, IFX TL, baseline albumin and type of disease - CD vs UC).

Results: We included 115 patients (76% CD and 24% UC) of whom 60% were male with a median age at diagnosis of 30 years old (IQR 20-42). Almost half of the patients (52%) started combination therapy with IMM. Thirty patients (26%) developed AIA, with no significant difference between patients with CD and UC (23% vs 36%, p=0.2). The median time until the development of AIA was 8 (IQR 5-16) months. During follow-up, 34% had a primary or secondary loss of response; 37% stopped IFX and 21% had adverse effects.

The prevalence of the polymorphism was 70.4%. Among patients who developed AIA, there was no difference between HLA-DQA1*05 carriers and non-carriers (21% vs 38%, p=0.06). However, there was a significant difference in the concomitant use of IMM, which was lower in the group of patients who developed AIA (13% vs 40%, p<0.01). Half of the patients needed to optimize IFX dosing and there were no differences among polymorphism carriers and non-carriers (48% vs 53%p=0.6). Patients who developed AIA had significantly lower median IFX TL when compared to patients without AIA (0.4, IQR 0.35-1.4 vs 7.4, IQR 3.4-13.5, p<0.001).

There was no difference in the median IFX TL according to the presence of the polymorphism (p=0.8). The risk of developing AIA was similar between HLA-DQA1*05 carriers and non-carriers (HR 0.8, 95%CI 0.4-1.6, p=0.4) even after adjusting for the other risk factors associated with immunogenicity (HR 0.5, 95%CI 0.1-1.9, p=0.3). No differences were found according to the type of disease. Patients with the HLA-DQA1*05 polymorphism and who were using a concomitant IMM had the lowest risk of developing AIA, which was significantly lower when compared to patients who carried the polymorphism and were not taking the IMM (HR 0.2, 95%CI 0.04-0.9, p=0.03).

Conclusion: In this Portuguese cohort of IBD patients, the HLA-DQA105 polymorphism was highly prevalent and did not influence the development of AIA. Further real-world studies with larger sample sizes are needed to determine the utility of this polymorphism as a predictor of AIA.

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Disclosure: Nothing to disclose.

PP0906

USTEKINUMAB TREATMENT IN CROHN'S DISEASE AND ULCERATIVE COLITIS: A REAL-WORLD COMPARISON BETWEEN ITS EFFECTIVENESS AND SAFETY IN THIS TWO POPULATIONS

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Introduction: Ustekinumab is an effective treatment for patients with Crohn's disease (CD) and Ulcerative Colitis (UC). Real-world effectiveness and safety studies are warranted especially in the bio-experienced inflammatory bowel disease (IBD) population and in patients with UC vs CD, where the evidence is still limited.

Aims & Methods: The aim of our study was to assess clinical, biochemical and endoscopic remission as well as the safety profile of Ustekinumab at week 52. All consecutive moderate-to-severe IBD patients who started Ustekinumab from 01/01/2019 to 01/12/2022 were included. We collected demographic and clinical data, including disease location and behavior, previous treatments, previous surgery, concomitant medications. In addition, data on partial Mayo (p-Mayo) Score, Harvey-Bradshaw Index (HBI), C Reactive Protein, fecal calprotectin were collected. Serious infections and adverse events were defined as those requiring hospitalization or treatment discontinuation. Continuous and categorical variables were expressed as mean with standard deviation (SD) and frequency with percentages respectively. Comparisons among variables were conducted using one-way ANOVA and Chi-square. Overall 1-year persistence on Ustekinumab was estimated using the Kaplan-Meier method. All data analyses were performed with SPSS Version 29.0 statistic software package.

Results: Overall, 131 IBD (84 with CD and 47 with UC) adult patients were enrolled. Among the patients included, all CD patients and 89.4% (42/47) UC patients were bio-experienced; most of them had previous anti-TNF therapy (98% CD patients; 83% UC patients). Forty-one CD patients (49%) had undergone bowel resective surgery. At week 52, 53% of CD patients and 50% of UC patients obtained a clinical response (p=0,000); 37.3% of CD patients and 16.6% UC were in steroid-free clinical remission (p=0,02). In addition, 51.6% CD patients and 20% of UC patients reached biochemical remission (p=0,28), while 29.5% CD patients and 20% UC patients obtained an endoscopic remission (p=0,000). A total of 15 adverse events occurred during follow-up in both groups, of which the majority were infectious (9/15) and 4 were classified as serious adverse events. At 12 months, treatment persistence with Ustekinumab was 84.5% in CD patients and 87.2% in UC.

Conclusion: Ustekinumab was an effective therapy in both patients with CD and UC. However UC patients had better clinical, endoscopic and biochemical outcomes. Ustekinumab is safe and well-tolerated. Infections were the most frequent adverse events.
Disclosure: Nothing to disclose.

PP0907

ENDOSCOPIC BALLOON DILATATION ASSOCIATED WITH BIOLOGICAL THERAPY IN CROHN'S DISEASE STRICTURES: A SINGLE CENTER EXPERIENCE

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Introduction: In Crohn's disease (CD) a symptomatic luminal stricture occurs in up to 20% of patients at the diagnosis and in more than 50% during lifetime (1,2). Endoscopic balloon dilatation (EBD) or surgical procedures are the currently available treatments (3,4). However, a considerable percentage of patients often require further surgery for post-operative CD recurrence (5). A consequent increased burden of short bowel syndrome is warranted. The combination of biological therapy with EBD could potentially reduce this risk.
Aims & Methods: The aim of our study was to evaluate the efficacy of EBD combined with biologic therapy in symptomatic gastrointestinal strictures in CD's patients. We conducted a retrospective study including consecutive CD patients who underwent EBD for low bowel strictures from December 2015 until November 2022 at our tertiary IBD Center. Clinical strictures recurrence, needs for steroids and for surgery due to CD stenosis relapse were the primary outcomes evaluated during a follow-up period of six and twelve months. Chi-square and univariate statistical analyses were used when appropriate.
Results: A total of 52 patients treated with EBD with an overall number of 55 strictures were included. In the study population, 14 patients (27%) were smoker, the mean age was of 46,8 (18-77) years; the median of disease duration was 9 (0-42) years. Thirty-nine patients (75%) were in active treatment with biologic therapy at the moment of EBD. Twenty-three patients (44%) underwent EBD for anastomotic stricture, 8 (15%) for ileal stricture, 11 (21%) for ileocecal valve stricture, 5 (6%) for anal stricture and 4 (8%) for colic stricture. Three patients (6%) underwent EBD for multifocal bowel stenosis. Twenty-two (42%) patients had increased CRP value, 40 patients (77%) had evidence of moderate or severe endoscopic disease activity and 42 (81%) patients showed ulcerative lesions at stricture site. EBD was performed by 8-10, 12-15 or 15-18 mm dilation balloon. Technical success was reported in 60% of procedures and no adverse events were registered.
After 6 months from EBD, at univariate analysis, active smoke resulted a risk factor for clinical stricture recurrence (OR 10,25; IC 1,350 to 135,4; p value = 0,022) and for subsequent surgery (OR 10,25; IC 1,350 to 135,4; p value = 0,022). Moreover, increased CRP at the time of dilatation resulted a risk factor for need of steroids (OR 14,63; IC 2,69 to 71,50; p value = 0,0006). Concomitant biologic therapy and presence of ulcerative lesions did not show significative correlation with considered outcomes.
After 12 months from EBD, concomitant biologic therapy resulted a protective factor for prevention of surgery (OR 0,061; IC 0,005 to 0,502; p value = 0,0047), while anastomotic strictures were associated with a lower risk of sub-occlusion events than ileal stenosis (OR 0,07; IC 0,005 to 0,651; p value = 0,015). Increased CRP at the time of EBD, ulcerative lesions at the stricture site and active smoke were not significantly correlated with the considered outcome.
Conclusion: Our results suggest that in patients with CD undergoing EBD for bowel CD stricture, concomitant biological therapy reduces the risk of surgery for CD stenosis recurrence. Further prospective and controlled studies are underway to confirm these observations.
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PP0908

THIOPURINES IN CROHN'S DISEASE: DO THEY STILL HAVE A PLACE AS MONOTHERAPY IN REAL LIFE?

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Introduction: Thiopurines (TP) (azathioprine AZA, and 6 mercaptopurine 6MP) are immunosuppressive drugs (IS) used in the treatment of chronic inflammatory bowel diseases (IBD), particularly Crohn's disease (CD). The aim of our work is to see if they still have an indication in monotherapy, in the era of biotherapies and small molecules.
Aims & Methods: This is a retrospective analytical study conducted at the Hepato-Gastroenterology and Proctology Department "Medicine B" from January 2012 to July 2022. 740 patients were followed for CD during this

period. 407 patients were put on TP. Age, sex, different characteristics of CD, indication for and type of TP treatment, and course of treatment were collected from all patients. SPSS 20.0 software was used for statistical analysis. The khi-2 test was used to compare categorical variables. The binary logistic regression model was used for multivariate analysis.

Results: There were 375 patients followed up for CD on TP monotherapy (92.13%) and 32 on combination therapy (7.86%). The sex ratio was F/H=1.5. The average age was 39.8 years (15-72). The location was ileal in 69 patients (16.95%), colonic in 78 patients (19.16%), ileocolic in 257 patients (63.14%), 6 patients (1.47%) had upper gastrointestinal tract involvement of CD and 3 patients (0.73%) had anal CD. 99 patients (24.32%) had anoperineal lesions (APL).

The phenotype was stenosing in 47 cases (11.54%), fistulizing in 159 cases (39%), stenosing and fistulizing in 60 cases (14.74%) and inflammatory in 141 cases (34.64%). The type of TP used was AZA in 299 patients (73.46%) and 6MP in 108 patients (26.53%). TP was indicated as maintenance treatment in 270 cases (66.33%), as monotherapy in the absence of biotherapy (which was not available before 2016) in fistulizing forms in 105 cases (25.8%), and in case of cortico-dependency in 32 cases (7.86%).

Clinical remission was obtained with monotherapy in 326 cases (86.93%) and with combotherapy in 24 cases (75%), this difference is statistically non-significant *p=0.08*. Mucosal healing was noted with monotherapy in 124 cases (33%) in patients who performed a control endoscopy, and with combotherapy in 15 cases (46.87%), this difference is statistically not significant *p=0.07*.

CRP was negatived in monotherapy in 149 patients (39.73%) and in combination therapy in 27 patients (84.37%), this difference is statistically significant *p<0.001*. Fecal calprotectin was not always available. Among the patients who had it performed (65: 15.97%), it was negative in 18 cases (41.86%) in monotherapy and 3 cases (13.63%) in combination therapy. This difference is statistically significant *p=0.015*.

Metabolite dosing was also rarely available. In cases where this was done (43 cases: 10.56%), 6-TGN was in the therapeutic range only in 14 cases (32.55%) and in 36 cases (83.72%) for 6-MMP, requiring therapeutic adjustment.

In multivariate analysis and adjusting for the different confounding parameters, it was found that only the combination therapy was a predictive factor for mucosal healing [OR=1.8; [0.8 - 3.9]; *p=0.01*].

Conclusion: The results of this study show that TPs still have a place in the therapeutic arsenal of CD, but that their combination with biotherapy allows more clinical and biological remission and especially mucosal healing.

Disclosure: Nothing to disclose.

PP0909

EFFICACY AND SAFETY OF SWITCHING FROM INTRAVENOUS VEDOLIZUMAB TO SUBCUTANEOUS APPLICATION IN PATIENTS WITH IBD IN CLINICAL REMISSION

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Introduction: The subcutaneous use of vedolizumab (VDZ) has been approved for the treatment of inflammatory bowel diseases for a few years and is becoming increasingly established. Regarding the safety and effectiveness of the switch to subcutaneous application, only few real-world data is available so far.

Aims & Methods: The study investigates the efficacy and safety after switching to the subcutaneous administration in direct comparison with continuation of the intravenous administration of VDZ.

The work retrospectively analyzes the data of patients of a tertiary care center in Germany who were treated with VDZ in the period 01/2020-06/2021. Two groups were compared: group 1 (sc-group) represents patients who were switched to subcutaneous application, group 2 (iv-group) patients who continued intravenous use. Patients who had received at least four intravenous doses of VDZ and were in clinical remission at baseline were included. Efficacy and safety were compared at 3-6 months and at 9-12 months. The primary endpoint was the presence of clinical remission, as measured by the Partial Mayo Score (remission < 2) for ulcerative colitis (UC) and the Short Crohn's Disease Activity Index (remission < 150) for Crohn's disease (CD).

Results: A total of 78 patients were retrospectively analyzed, including 37 patients in the sc-group (66.7% UC; 33.3% CD) and 41 patients in the iv-group (72.5% UC; 27.5% CD).

After 3-6 months 85.4% were in remission in the iv-group and 81.1% in the sc-group, and after 9-12 months 82.9% in the iv-group and 74.2% in the sc-group. Non-inferiority of subcutaneous administration could not be demonstrated with a pre-defined non-inferiority margin of +-10% and a 95% confidence interval.

Discontinuation of therapy occurred in 6 patients (16.2%) in the sc-group and in 2 patients (5%) in the iv-group. In 3 patients (8.1%) of the sc-group, therapy was discontinued due to the local reaction at the injection site. Beyond that, there were no differences between the two groups in terms of safety and tolerability.

Conclusion: In this cohort of patients in clinical remission under intravenous VDZ, the switch to subcutaneous application of VDZ could not meet the criteria of non-inferiority in terms of efficacy compared with continued intravenous use. Further studies are needed to evaluate the long-term effectiveness and safety of subcutaneous VDZ therapy.

Disclosure: Nothing to disclose.

PP0910

MANAGEMENT OF METASTATIC CUTANEOUS CROHN'S DISEASE USING USTEKINUMAB: A SINGLE CENTRE STUDY

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Introduction: Metastatic Crohn's disease (MCD), also known as cutaneous Crohn's disease is one of the rarest cutaneous lesions in IBD. It is defined by granulomatous lesions infiltrating the skin that are discontinuous from the affected GI tract. In most occasions, MCD occurs parallel to the course of a well-establish GI disease, but occasionally it can precede the GI manifestations from months to years. Studies addressing the therapeutic approach to MCD are limited. Ustekinumab is licenced for Crohn`s disease and also for skin disorders including psoriasis. We report our experience in managing MCD in a tertiary IBD centre.

Aims & Methods: This is a single centre retrospective review of biopsy proven cutaneous Crohn's disease. Patient details obtained from patient records included demographic data, previous failure to biologics and/or IMS, response and time to response to Ustekinumab and therapeutic drug monitoring.

Results: A retrospective review of patients with cutaneous Crohn's disease was performed. All patients had undergone a skin biopsy for histologically confirmation. Ten patients were included (Males: Females 5:5). Median age was 53 years (IQR 24-67). The most common location was the perianal area often preceded by a surgical wound from a proctectomy and 2 patients had peristomal skin affected. Ninety- percent of patients had failed antiTNF therapy and 6 out of 10 had failed to both Infliximab and

Adalimumab, one of them had also lost response to Vedolizumab. All patients received ustekinumab with median follow up since initiation of 45 months (IQR 27-60). All patients noticed improvement since initiation of Ustekinumab with a median time to response of 10 weeks (IQR 4-28). Four out of 10 patients achieved a complete healing of the skin lesions while rest of patients reported a partial response. Most patients had therapeutic or supratherapeutic Ustekinumab level ranging from 2 to 6 mg/L. Dose escalation was done in 8 patients.

Conclusion: Metastatic Crohn's disease is a rather uncommon entity with different clinical manifestations. Our series report satisfactory response to ustekinumab in MCD. Larger studies are required to confirm these findings.

Disclosure: Nothing to disclose.

PP0911

EFFECTIVENESS, SAFETY AND INCREMENTAL COSTS OF PROACTIVE THERAPEUTIC DRUG MONITORING OF INFLIXIMAB IN A REAL-LIFE COHORT OF INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction: The use of infliximab (IFX) is limited by low treatment persistence. Proactive therapeutic drug monitoring (pTDM) has been shown to increase the treatment persistence in inflammatory bowel disease (IBD) patients but the real-life data evaluating effectiveness, safety and costs of this approach are scarce.

Aims & Methods: The aim of this study was to assess survival on treatment, safety and costs of pTDM of IFX in the treatment IBD.

IBD patients who started IFX in a referral centre using pTDM between January 2018 and March 2021 were included. The main outcomes were treatment persistence, adverse events and incremental costs of pTDM.

IFX trough levels were assessed in the week 14 and subsequently every six months by commercially available ELISA kit (Ridascreen R-Biopharm) and the intensification of treatment the cut-off of 3µg/ml was used.

Costs related to the measurements of levels and the costs of intensified treatment were calculated. The costs of pTDM were compared costs of a modelled cohort using reactive TDM (rTDM) based on the data from the same cohort. The model used arbitrarily determined intensification regimen to 5mg/kg of IFX every 4 weeks in pharmacokinetically determined clinical or endoscopic loss of response. The calculation was performed for the first year of treatment.

Results: Overall, 99 patients with IBD were included (58 men – 59%; mean age 39,96 years, minimum-maximum, 20-73 years; 64% patients with Crohn´disease; mean disease duration 103 months, minimum – maximum, 8-402 months).

The treatment was intensified in 57 patients (58%). Overall treatment survival with pTDM was 87% at 6 months, 77% at one year, 66% at two years and 60% at both, the third and fourth year of treatment. There were no differences between patients on conventional regimen vs. intensified regimen with regards to adverse events.

The costs related to pTDM in this cohort of 99 patients were € 90 306,56 while the costs of the modelled cohort using rTDM were € 24 846,30. The overall incremental costs were thus € 65 460,26 with mean costs per patient for the first year of treatment of € 661,21.

Conclusion: Proactive TDM of IFX results in a steady 60% treatment persistence beyond the second year of treatment with no impact on the safety. In the context of this solid treatment persistence, the incremental costs related to proactive TDM seem negligible when considering the costs of alternative biologicals used in case of loss of response to IFX.

Disclosure: Nothing to disclose.

PP0912

NOVEL DIGITAL HEALTH TOOLS IMPROVE CLINICAL OUTCOMES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE: PRELIMINARY RESULTS

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Introduction: Inflammatory bowel disease (IBD) management faces significant care gaps, particularly in areas such as diet and mental health support. Digital health applications provide remote support to patients with IBD to improve health, however few digital applications have published evidence of efficacy.

Aims & Methods: The purpose of this randomized controlled trial (RCT) was to identify if use of the LyfeMD digital health platform results in significant changes in health behaviours among patients in remission with Crohn's Disease (CD) and Ulcerative Colitis (UC). LyfeMD is an integrated digital and human platform designed to improve physical and mental health. Patients over the age of 18 with UC or CD in remission were recruited in Calgary, Alberta. Participants were randomly assigned to the LyfeMD intervention (n=10) or the standard care control (n=10) group. The intervention group was given access to the LyfeMD mobile app for 8 weeks and assigned a health coach. Self-reported validated measures were collected at baseline and week 8 including demographics, leisure-time physical activity (LTPA), stress score (SS), depression and anxiety risk, sleep, screen-time outside of work, and sitting time. Diet intake was collected using 2 consecutive 24-hour recalls (ASA-24) at baseline and week 12. Intake data was used to calculate the healthy eating index (HEI). Independent and paired sample t-tests were used to identify significant differences between and within groups.

Results: Twenty people were recruited for this study (N=10 per group); 65% were female, with a mean age of 45.3 years (standard deviation) [SD] =9.9). Mean body mass index was 28.1kg/m2 (7.0) and 80% of the participants had CD. After 8 weeks the intervention group showed significant improvements in risk of anxiety (mean = -1.9/21 [2.3]) screen time (mean = -7.2/168 hours/week [11.3]), sitting hours (-10.6/168 hours/week, [12.9], and overall well-being (mean = +12.5/100 [21.2]) ($p<0.05$). At week 12 the intervention group also showed significant improvements in both overall diet quality (mean = +12.2/100 [16.6]) and moderation scores (mean= +5.6/50 [5.0]). Between the groups we see significant differences for both sitting time and for the moderation component of the HEI ($p<0.05$).

Conclusion: The LyfeMD digital health platform is a safe option for patients with IBD, providing accessible lifestyle therapy thus, reducing current gaps in the healthcare system. Future studies should focus on an increased sample size and targeting remote populations where this program may be even more valuable to healthcare providers and patients.

Disclosure: Lorian Taylor, Puneeta Tandon and Maitreyi Raman are co-founders of LyfeMD. Vidya Rajagopalan at the time of this study worked for the University of Calgary and presently works for LyfeMD.

PP0913

REAL-WORLD COMPARISON OF EFFECTIVENESS BETWEEN USTEKINUMAB AND A SECOND ANTI-TNF AGENT IN PATIENTS WITH SYMPTOMATIC STENOSING CROHN'S DISEASE AFTER FAILURE OF A FIRST ANTI-TNF AGENT: RESULTS OF THE USTEKNOSIS STUDY

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Introduction: While surgery was considered as the reference for stricturing Crohn's disease (CD), anti-TNF agents are now the first-line treatment thanks to the CREOLE study. However, there is no data about efficacy after anti-TNF failure.

Aims & Methods: We aimed to compare the effectiveness of ustekinumab and a second anti-TNF agent after failure of a first anti-TNF in symptomatic stricturing Crohn's disease (CD).

In this multicenter study, we retrospectively included all adult patients with CD treated with ustekinumab or anti-TNF for symptomatic stricture (confirmed on imaging or endoscopy) after prior exposure ≥ one anti-TNF for the current stricture, without surgery between the failure of the last anti-TNF and the study.

The primary endpoint was clinical remission (composite endpoint) at 6 months defined as no pain, no vomiting, no food restriction, no sub-occlusive episode, no steroid, no surgery or discontinuation of treatment.

The long-term endpoints were discontinuation of treatment for failure, bowel damage progression and surgery. The comparisons were performed after using propensity score analysis adjusted on potential confounders.

Results: Overall, 70 patients were analyzed, including 34 in the ustekinumab group and 36 in the anti-TNF group (29 on infliximab and 7 on adalimumab). The two groups were similar for age (38.5 vs 37.6 years), CD duration (12.2 vs 13.5 years), female gender (41.2% vs 51.8%), CD location (p=0.43) and CD phenotype (p=0.38).

Concomitant immunosuppressant was observed in 63.9% with an anti-TNF versus 8.8% with ustekinumab. The number (p=0.56) and the length (p=0.10) of stricture were also similar. The proportion of patients ≥ 2 prior biologics was higher in the ustekinumab group (41.2% vs 8.3%; p=0.001). The rate of primary failure to anti-TNF agent was comparable (16.7% vs 20.6%).

After adjustment based on propensity scores, the rate of clinical remission at 6 months was 73.9% and 42.7% (p = 0.24), under ustekinumab and anti-TNF, respectively. The predictive factors of remission in patients receiving ustekinumab were prior bowel resection (p=0.001) and length of stricture < 12 cm (p=0.042), while no predictor was found in those treated with anti-TNF agent.

The risk of treatment discontinuation for failure (HR =2.86 [1.33-6.15]; p=0.008) or bowel damage progression (HR=3.90 [1.64-9.24]; p=0.003) were significantly greater in patients receiving another anti-TNF agent compared to those on ustekinumab.

We did not observe any significant difference concerning the risk of surgery (HR=2.60 [0.70-9.61]; p=0.15).

Conclusion: Ustekinumab seems to be more effective than a 2nd anti-TNF to treat symptomatic stricturing CD after failure of a first anti-TNF. However, these data need to be confirmed by independent prospective data.

Disclosure: Anthony BUISSON: Consulting fees for Abbvie, Amgen, Arena, Biogen, Celtrion, CTMA, Fresenius-Kabi, Galapagos, Janssen, MSD, Nexbiome, Pfizer, Roche, Takeda and Tillotts. Lecture fees for Abbvie, Amgen, Biogen, Fresenius-Kabi Galapagos, Janssen, Mayoli-Spindler, MSD, Norgine, Pfizer, Roche, Takeda, Tillotts and Vifor Pharma. Research grants from Abbvie, Celltrion, Janssen, Pfizer, Takeda.
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Other authors : none

PP0914

SWITCHING FROM INTRA-VENOUS TO SC INFLIXIMAB IS SAFE AND FEASIBLE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE SUFFERING FROM OBESITY: A POST-HOC ANALYSIS OF THE REMSWITCH STUDY

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Introduction: The REMSWITCH study recently demonstrated that switching from IV to SC IFX is feasible and well-accepted leading to a low risk of relapse in patients with IBD. Because the doses of IV infliximab depend on the weight of the patients contrary to SC infliximab, whether the switch is also feasible in IBD patients suffering from obesity remains questionable.

Aims & Methods: We assessed the clinical and pharmacological evolution after switching from IV to SC IFX in IBD patients suffering from obesity to evaluate the feasibility of the switch in this specific population.

During the REMSWITCH study, all IBD patients in clinical remission (CDAI < 150 or partial Mayo score ≤ 2) were consecutively included in 3 IBD centers and were switched to SC IFX 120mg/2 weeks (wk) (regardless of IV dose) at the theoretical day of IV infusion (visit 0 = V0) and were followed every 4 to 8 weeks according to the initial IV regimen for 6 months. Obesity was defined as a body mass index (BMI) > 30 kg/m^2.

Results: Among the 130 patients enrolled in the REMSWITCH study, 21 suffered from obesity including 6 patients (28.6%) with BMI > 35 kg/m^2. Among them, 8 patients (38.1%), 8 patients (38.1%), 4 patients (19.0%) and one patient (4.8%) were treated with IV infliximab at a dose of 5mg/kg/8wk, 10 mg/kg/8wk, 10mg/kg/6 wk and 10mg/kg/4 wk, respectively.

The rate of clinical relapse leading to therapeutic escalation was 14.3% (3/21) in patients suffering from obesity including 16.7% (1/6) in those with BMI > 35 kg/m^2 compared to 17.4 % (19/109) in patients with BMI < 30 kg/m^2 (p = 0.92).

In 109 patients with BMI < 30 kg/m^2, clinical relapse leading to therapeutic escalation was observed in 17.4% including 12.2%, 6.3%, 14.3% and 64.3% in patients treated with 5mg/kg/8wk, 10 mg/kg/8wk, 10mg/kg/6 wk and 10mg/kg/4 wk, respectively. Dose increase (240 mg/2 wk) induced clinical remission in 77.7% of relapsers.

Among the 21 patients suffering from obesity, clinical relapse leading to therapeutic escalation was observed in 14.3% including 0.0%, 12.5%, 25.0% and 100.0% in patients treated with 5mg/kg/8wk, 10 mg/kg/8wk, 10mg/kg/6 wk and 10mg/kg/4 wk, respectively (p= 0.05). Dose increase (240 mg/2 wk) induced clinical remission in 100.0% of relapsers.

Among the subgroup of IBD patients suffering from obesity, infliximab trough levels (TL) were significantly higher after switching from IV to SC IFX: 6.8 ±4.6 vs 12.4 ±4.8 (p=0.011). TL increased in patients receiving 5 mg/kg/8 wk (3.6 ± 2.1 vs 14.7 ±5.7; p<0.0001) or 10 mg/kg/8 wk (7.8 ±4.2 vs 10.8 ±3.1; p=0.042) but remained stable in those treated with 10 mg/kg/6 wk or 10 mg/kg/4 wk (10.7 ±5.7 vs 9.7±2.7; p=1.0). No patient suffering from obesity developed anti-IFX antibodies. In multivariable analysis, contrary to 10 mg/kg every 4 weeks regimen (odds ratio, 12.4; 95% confidence interval, 1.6–98.4; P [.017) and fecal calprotectin >250 mg/g at baseline (odds ratio, 5.4; 95% confidence interval, 1.1–27.6; p = 0.042), obesity did not influence the risk of relapse.

Obese patients' acceptability was better with SC injections compared to IV infusions (10pts-acceptability numerical scale = 8.6 ±1.5 vs 7.3 ±1.7; p<0.05).

Conclusion: Switching from IV to SC IFX is feasible and well-accepted leading to a low risk of relapse in patients with IBD suffering from obesity.

References: Buisson et al. Clin Gastroenterol Hepatol 2022

Disclosure: Conflicts of Interest

These authors disclose the following: Anthony BUISSON has received consulting fees from AbbVie, Amgen, Arena, Biogen, Celltrion Healthcare, CTMA, Galapagos, Janssen, MSD, Nexbiome, Pfizer, Roche, Takeda, and Tillotts; and lecture fees from AbbVie, Amgen, Biogen, Galapagos, Janssen, Mayoli-Spindler, MSD, Norgine, Pfizer, Roche, Takeda, Tillotts, and Vifor Pharma.

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PP0915

INFLUENCE OF GENOTYPING OF *NUDT15* ON DOSE INTENSITY OF THIOPURINE ADMINISTRATION AND LONG-TERM CLINICAL OUTCOMES (HOSPITALIZATION AND SURGERY)

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Introduction: Thiopurines are one of the major drugs for inflammatory bowel disease. In Asian individuals, the SNP p.Arg139Cys in exon 3 of *NUDT15* is associated with leucopenia and hair loss.

Aims & Methods: The aims of this study are to evaluate the long-term effects of *NUDT15* on clinical outcomes.

The patients (ulcerative colitis130, Crohn's disease 55 cases) were divided into the mutant and the wild group of *NUDT15*, and the daily dosage of thiopurines and the effect of the mutation on hospitalization and surgery were investigated.

Results: Compared to the mutant group (n = 48), the daily thiopurine dosage increased in the wild group (n = 137)(p = 0.024). The time to dose reduction and discontinuation of thiopurine was significantly shorter in the mutant group, respectively (p < 0.001, p = 0.039). The mutant group tended to have more hospitalizations (p = 0.067), and surgeries were significantly more frequent (p = 0.028). In ulcerative colitis, thiopurine discontinuation was associated with hospitalization and surgery, respectively (p = 0.003, HR 2.87, 95% CI 1.44 - 5.71, p = 0.036, HR 5.45, 95% CI 1.12 - 26.5). In Crohn's disease, the presence of SNPs was associated with hospitalization (p = 0.019, HR 3.68, 95% CI 1.24-10.97) and surgery (p = 0.036, HR 6.81, 95% CI 1.14 - 40.86).

Conclusion: In ulcerative colitis, it is important to continue thiopurine with fine-tuning of the dosage to avoid hospitalization and surgery. In Crohn's disease, a direct association between the *NUDT15* SNP and hospitalization and surgery was demonstrated.

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PP0916

COMBINATION OF GRANULOCYTE–MONOCYTE APHERESIS AND TOFACITINIB: MULTICENTRE AND RETROSPECTIVE STUDY

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Introduction: Granulocyte–monocyte apheresis (GMA) selectively removes activated leukocytes and immune mediators, and it has shown to be safe and effective in treating ulcerative colitis (UC). Previous reports have also described its combination with biologics.

Aims & Methods: The aim of our study was to evaluate the efficacy and safety of combining GMA after primary non-response (PNR) or loss of response (LOR) to tofacitinib (TOFA) in patients with UC. A retrospective, multicentre study was performed in 7 IBD Units, including all patients with refractory UC who received combined plus GMA and TOFA. The number of GMA sessions, its frequency, filtered blood volume and length of each session were compiled, along with the clinical data. Efficacy was assessed 1 and 6 months after finishing GMA by partial Mayo score, CRP and faecal calprotectin. Data regarding TOFA intensification, need for new immunomodulators/biologics and colectomy were also compiled. Descriptive statistics and non-parametric tests were used in the statistical analysis.

Results: Twelve patients with UC were included (median 46 years [IQR, 37-58]; 67% female; 67% E3; 75% non-smokers). Patients were receiving TOFA 10 mg bid (75%), 5 mg bid (16%), or 15 mg bid (8%), with 33% receiving steroids at baseline. All patients had prior exposure to anti-TNF agents, 42% to vedolizumab and 8% ustekinumab. Median baseline Mayo score was 7 (IQR, 5-7), median CRP of 11 mg/L (IQR, 5-32) and faecal calprotectin 800 mg/kg (IQ, 715-2,094). GMA was started mostly after PNR (73%), and the median number of GMA sessions was 11 (IQR, 3-20) and 50% received maintenance GMA. Partial Mayo score significantly decreased 1 month after the last GMA session (p=0.027). Four patients (36%) were switched to a new therapy and no patient required colectomy during follow-up. All patients under steroids at baseline were able to stop them. No patient reported adverse events related to the combination therapy.
Conclusion: Combination of GMA with TOFA can be an effective and safe therapy in selected cases of UC after PNR or LOR to this drug.
Disclosure: Nothing to disclose.

PP0917

PREDICTIVE FACTORS FOR POSTOPERATIVE MORBIDITY IN SURGICAL FORMS OF CROHN'S DISEASE

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Introduction: Although significant progress has been made in medical treatments for Crohn's disease, most patients still require surgery, with about 70% undergoing surgery at least once in their lifetime. Therefore, postoperative management presents a major challenge.
Aims & Methods: This study aimed to identify predictive factors for postoperative morbidity in surgical cases of Crohn's disease. We performed a retrospective study on patients with Crohn's disease who underwent intestinal resection in the general surgery and gastroenterology department of our Hospital. Cases with surgeries indicated for perianal lesions of Crohn's disease were excluded. The study collected cases over a 7-year period, from January 2011 to December 2017.
Postoperative morbidity was defined by the occurrence of specific and/or nonspecific complications after surgery, with early morbidity defined as within 1 month after surgery and late morbidity beyond this period. We analyzed the data using SPSS software version 22, with significance set at $p < 0.05$.
Results: Fifty-five patients with Crohn's disease were included, with a mean age of 34.3 years (range 17-68 years). Thirty-four patients were men (61.8%) and 21 were women (38.2%), resulting in a male-to-female ratio of 1.61. Active smoking was reported in 11 patients (20%). Surgery was performed as an emergency admission in 21 patients (38.2%) for acute appendicitis syndrome, intestinal obstruction, intra-abdominal collection with septic shock, or ileal perforation in 7 (33.3%), 10 (47.6%), 2 (9.5%), and 2 (9.5%) cases, respectively.
Among the remaining 34 patients, elective surgery was performed after failure of medical treatment (n = 20), contraindication to immunosuppressive treatment (n = 10), or for an enterovesical or enterocutaneous fistula (n = 7). The surgical approach was classical in 38 patients (69.1%) and laparoscopic in 17 patients (30.9%). Ileocecal resection was the most common operative procedure (n = 40). The mean follow-up period was 45 months (range 16-72 months). Early postoperative morbidity occurred in six patients (10.9%) with anastomotic leak in three cases complicated by septic shock and fatal outcome, right iliac fossa abscess in two cases, and cutaneous fistula in one case, with a mean delay of 18 days. Thirteen patients (23.63%) developed late complications, including incisional hernia in one case, intestinal occlusion on scarred flanges in one case, and recurrent disease symptoms in eleven cases after a mean delay of 9 months. In multivariate analysis, age >40 years (p = 0.01 OR = 4.6), ASA score >1 (p = 0.02 OR = 3), emergency surgery (p = 0.001; OR = 11), discovery of an abscess during surgery (p = 0.02 OR = 4.7), and classical surgical approach (p = 0.04 OR = 2) were found to be predictive factors for postoperative morbidity.
Conclusion: Surgery-related morbidity is a significant concern in the management of Crohn's disease and is influenced by several factors, including patient characteristics, timing and approach of surgery, and disease progression. Understanding these factors is essential for improving the management of patients with Crohn's disease who are frequently operated.
Disclosure: Nothing to disclose.

PP0918

LOW CROHN'S DISEASE POST-OPERATIVE ENDOSCOPIC RECURRENCE RATES AT 1 YEAR: A 20-YEAR EXPERIENCE IN SINGAPORE

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Introduction: Despite significant advances in medical treatment options for patients with Crohn's disease (CD), up to 30% still require bowel surgery within the first decade after diagnosis[1].
Endoscopic post-operative recurrence is not uncommon with rates up to 70% recurrence at 1 year.[2,3,4]
Most studies regarding endoscopic recurrence (ER) in CD were performed with non-Asians. We aimed to describe our cohort of CD patients to ascertain the number of patients who had ER within 1 year after index bowel resection and assess the factors associated with ER.
Aims & Methods: We performed a retrospective cohort study across 2 tertiary hospitals in Singapore. We identified adult patients with CD who had undergone an index bowel resection for CD between January 2000 to December 2021 with subsequent endoscopy within 6-12 months of surgery. Patients were stratified as high risk; defined as ≥1 of the following – active smoking, penetrating disease at index surgery or perianal disease. Data on disease characteristics, prior treatment, indication and type of surgery, and post operative prophylaxis was collected. ER was defined by Rutgeerts score of ≥i2. Analysis was done with SPSS v23.0.
Results: After screening 41 patients, we identified 26 patients who met the inclusion criteria. The baseline characteristics are detailed in Table 1. The majority were male (77%), with a median age of 31 years and had ileocolonic disease (L3) (69%). 9 (35%) had penetrating disease (B3). 11 (42%) patients were biologic experienced, indicating an overall therapy-refractory population. The most common indications for resection were stricturing CD (38%) and persistent inflammation (27%). Median disease duration to surgery was 553 days. 58% were classified as high risk with this group representing a more treatment experienced group with nearly half exposed to biologics prior to resection. 42% of patients received post-operative prophylaxis of either an immunomodulator or a biologic. A higher proportion of patients in the high-risk group received biologics as post-operative prophylaxis compared to the low-risk group (20% vs 9%).
The overall ER rate was 15%. Significantly, no patients on prophylaxis in either the high or low-risk groups developed recurrence. In patients without prophylaxis, the overall ER rate was 27%. This occurred in 33% in the high-risk group and 17% in the low-risk group.

		Median (IQR), n (%) Total (n=26)
Age (yr)		31 (34-39)
Gender	Male	20 (77)
	Female	6 (23)
Disease Location	L1, Ileal	5 (19)
	L2, Colonic	3 (12)
	L3, Ileocolonic	18 (69)
Disease Behaviour	B1, Non-stricturing, non-penetrating	7 (27)
	B2, Stricturing	10 (38)
	B3, Penetrating	9 (35)
	Perianal Disease	4 (15)
Treatment Prior to Surgery	Immunomodulator	15 (58)
	Biologic	11 (42)
Indication for Surgery	Stricture	10 (38)
	Abscess	3 (12)
	Perforation	2 (8)
	Inflammation	7 (27)
	Others	4 (15)
Postoperative Recurrence Risk Stratification	High	15 (58)
	Low	11 (42)
Postoperative Prophylaxis	EITHER Biologic or Immunomodulator	11 (42)
Postoperative Endoscopic Recurrence	All	4 (15)
	Patients who received postoperative prophylaxis (n=11)	0
	Patients who did not receive post operative prophylaxis (n=15)	4 (27)

Table 1: Baseline Characteristics and Endoscopic Recurrence

Conclusion: Postoperative ER within 1 year in patients without postoperative prophylaxis was 27% in our cohort. Postoperative prophylaxis with either immunomodulators or biologics shows a trend towards preventing postoperative ER within 1 year in both high and low risk patients.

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PP0919

AURICULAR TRANSCUTANEOUS STIMULATION AS AN EXPLORATORY PREOPERATIVE SCREENING TEST FOR CLINICAL RESPONSE TO VAGUS NERVE STIMULATION IN DRUG-RESISTANT CROHN'S DISEASE

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Introduction: Electrical stimulation of the cervical vagus nerve (VNS) activates the inflammatory reflex to reduce inflammation and ameliorate disease in subjects with therapy-refractoryCrohn's disease (CD) (D'Haens et.al., under review). Considering the surgical implantation of a neurostimulator, we hypothesized that using a transcutaneous device to stimulate the auricular cutaneous branch of the vagus nerve (taVNS), could be used as a preoperative screening test. Should taVNS activate the inflammatory reflex, the blood cytokine response to an ex vivo endotoxin challenge would decrease (Koopman et.al., PNAS 2016; 113(29): 8284). The objective was to explore whether a noninvasive taVNS procedure could be used preoperatively to identify which patients would ultimately respond clinically to VNS administered via an implanted device.

Aims & Methods: This describes an exploratory substudy within an open label study of patients with moderately to highly active CD. The patients (17 enrolled, 13 male, 35 years [range 21-62], CDAI±SEM= 306±15) previously failed biological treatment (i.e TNF antagonists, vedolizumab). At screening, a baseline blood sample was drawn and incubated (37 °C, 24 hours) in a standardized and validated culture system containing endotoxin (TruCulture, RBM). A taVNS device (Cerbomed), approved for the treatment of epilepsy, depression, and pain, was fitted to the left ear and stimulated for 5 minutes at an intensity that provided sensation that was "noticeable but not painful." Additional blood samples were drawn at 1 and 4 hours post-stimulation and incubated, as described above. Plasma cytokine levels (TNF, IL-1b, IL-6) were quantitated (MSD). Following successful screening, implantation of a VNS device (Cyberonics) was performed. Daily VNS treatment was initiated after 2-weeks postoperative recovery and continued to week 16. Change from baseline levels of bioassay cytokines was compared between those patients who achieved a CDAI-100 response (responders) and patients who did not achieve a CDAI-100 response at week 16 (non-responders). Differences between groups were assessed by t-test.

Results: 13 patients consented and took part in the exploratory sub-study. Of these, 8 patients were responders to VNS therapy at week 16 and 5 were non-responders. Of the responders, approximately half had decreased or no change in bioassay cytokine levels at both 1 and 4 hours and approximately half had increased or minimal change in cytokine levels. Similarly, of the non-responders, approximately half had decreased or no change in bioassay cytokine levels at both 1 and 4 hours and approximately half

had increased or minimal change in cytokine levels. There was no significant difference at 1 or 4 hours between the change from baseline bioassay levels of TNF, IL-1b, or IL-6 in the responders compared to the non-responders (p>0.4).

Conclusion: No differences were observed in bioassay cytokines following taVNS that can be predictive of an individual patient's clinical response to VNS at week 16. This may be due to the taVNS device not consistently activating the correct nerve fibers, a disconnect between the ability of taVNS and VNS to activate the inflammatory reflex and affect inflammation in CD patients, or the relatively high concentration of endotoxin used within the validated bioassay. Use of a noninvasive test to predict clinical response to an implanted vagus nerve stimulation device would be useful. However, data using taVNS have not yet validated the clinical utility of this screening approach.

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PP0920

DISEASE COURSE OF CROHN'S DISEASE PATIENTS UNDERGOING PRIMARY BOWEL RESECTION; AN INDIVIDUAL PATIENT LEVEL DATA POPULATION-BASED STUDY

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Introduction: Resection rates for patients with Crohn's disease (CD) have decreased over the past decades. Despite this trend, studies indicate that the rates of re-resections remain close to 30% over a 20-year period (1). There are still several unresolved questions related to risk factors, disease progression, treatment response and monitoring.

Aims & Methods: We aimed to investigate the association of clinical risk factors, disease course related to intestinal resection and risk of re-resection. Using surgical procedure and diagnosis codes within the electronic health record system and the Danish National Patient Register, we established a population-based cohort with all CD patients who underwent a primary intestinal resection between 2010 and 2020 in a region of Denmark with a background population of 2.730.000 (46% of the Danish population). Individual patient data with clinical characteristics, disease course, medical treatments, type of surgical procedures and complications as well as imaging and endoscopies were collected in a REDcap database. To characterize the cohort, we used nonparametric statistics including median, interquartile range (IQR), and percentages.

Results: A total of 939 patients had a resection performed within the study period of which 633 received a primary resection with a follow-up of 118 months (IQR: 69-170). Of those, 617 (97,5%) had a full dataset available for analysis (Table 1). Median age at diagnosis was 28 years (IQR: 21-44), and 222 (36%) were smokers.

Distribution of disease location at diagnosis were L1 ileal 271 (44%), L2 colonic 70 (11%), L3 ileocolonic 264 (43%), L4 upper GI 10 (2%), with disease phenotype B1 non-stricturing/penetrating 172 (28%), B2 stricturing 317 (51%), B3 penetrating 79 (13%), and perianal 23 (4%). A total of 317 (51%) received corticosteroids within the first year of diagnosis. Prior to the first resection 329 (53%) patients received immunomodulators and 300 (49%) biologics. Postoperative readmission-rate within 30 days was 19% across the cohort.

A total of 2019 colonoscopies (SES-CD and Rutgeerts score) and 3217 imaging examinations were registered. Median number of months from first to second, second to third, and third to fourth resection were 12 (IQR: 6-41), 22 (IQR: 7-49), and 28 (IQR 7.5-53.5) respectively.

	Resection 1 n (%)	Resection 2 n (%)	Resection 3 n (%)	Resection 4 n (%)
Number of resections	617	149 (25)	31 (5)	5(1)
Corticosteroids use after resection	168 (27)	42 (28)	6 (19)	0
Immunomodulators started post-resection	354 (57)	64 (43)	16 (52)	3 (60)
Biologics started post-resection	245 (40)	76 (51)	22 (70)	3 (60)
Acute resection (< 24h)	75 (12)	22 (15)	2 (6)	1 (20)
CD-surgery related readmission (≤30 d)	120 (19)	21 (14)	3 (10)	4 (80)
Laparoscopic resection	343 (56)	67 (45)	10 (32)	2 (40)
Primary anastomosis	470 (76)	114 (77)	18 (58)	3 (60)
Anastomotic leak	22 (5)	10 (9)	1 (6)	0

Table 1. Basic characteristics for primary and re-resections including medical and surgical specifications.

Conclusion: The initial analysis of this population-based cohort demonstrates that despite high biological therapy exposure before first resection and onwards, one fourth of patients will need additional resections within ten years. Despite their young age, patients undergoing intestinal resections have a high risk of complications, with one in five needing readmissions within 30 days. We are currently analyzing the role of prophylactic vs. on-demand biologics, post-surgery imaging results, and other factors for risk of flare/resection and risk-factors of post-surgery morbidity in this cohort.

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PP0921

SACRAL NERVE STIMULATION INHIBITS THE MAPK/NF-KB SIGNALING PATHWAY AND PROMOTES TREG -TH1/TH17 CELL BALANCE AND SELF-RENEWAL OF ENTERIC NERVOUS SYSTEM IN TNBS-INDUCED INFLAMMATION IN RATS

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Introduction: 2,4,6-trinitrobenzene sulfonic acid (TNBS) is known to induce inflammation through triggering the MAPK/NF-κB pathway and activation of T helper cells. Sacral nerve stimulation (SNS) was reported to exert an anti-inflammatory effect on TNBS-induced colitis.
The aim was to investigate whether the SNS anti-inflammatory effect was mediated via the MAPK/NF-κB pathway and/or balancing Th1/17-Treg cells. We also explored if SNS could alter self-renewal of neurons in myenteric plexus.

Aims & Methods: Forty male SD rats were implanted wire electrodes unilaterally at sacral nerve (S3). 7 days later, the rats were administrated with TNBS intra-rectally. 5 days later, 20 of them were treated with SNS 1 hour daily for 10 days and the other 20 rats were treated with sham-SNS (same setting but SNS at 0mA). Additional 20 rats were injected with saline(as controls). Various inflammatory proteins and cells were assessed.

Results: 1) compared to sham-SNS, SNS significantly decreased DAI (area under the curve: 64.3±3.8 vs. 49.5±3.2, P<0.01), macroscopic scores (5.85±0.9 vs. 2.55±0.6, P=0.03) and microscopic scores (4.6±1.1 vs. 2.7±0.8, P=0.04) and normalized the colon length;
2) in colon tissues, compared with sham-SNS, SNS reduced the percentage of Th1 cells (8.87%±2.32% to 5.40%±1.39%, P=0.04) and Th17 cells (12.35%±1.61% to 9.75%±1.17%, P=0.04) but increased Treg cells (15.73%±2.81% to 20.15%±2.24%,P=0.03);
3) SNS reduced the phosphorylation of MAPKs compared to Sham-SNS (p-ERK/ERK: 22.5%, P=0.03; p-JNK/JNK: 25.6%, P=0.04) and prevented the nuclear translocation of NF-κB p65 by 40.7% (P=0.02);
4) choline acetyltransferase (ChAT) neurons were decreased by TNBS but reversed by SNS (19.06% ± 2.07% to 25.68%±3.56%, P=0.02). Nitric oxide synthase (NOS) neurons was increased by TNBS but decreased by SNS (17.21% ±1.27% to 13.34%±1.63%, P=0.03).

Conclusion: SNS is effective in inhibiting colon inflammation through the inhibition of the MAPK/NF-κB pathway, balancing of Th1/Th17-Treg cells, and also improving the LMMP neuronal self-renewal and regeneration.

Disclosure: Nothing.

PP0922

EFFECTIVENESS OF EXTENDED MESENTERIC EXCISION IN PREVENTING POSTOPERATIVE CROHN'S DISEASE RECURRENCE: SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Crohn's disease (CD) is characterized by recurrent flares of intestinal inflammation that can affect any segment of the digestive tract. Frequently, transmural inflammation can lead to serious intraabdominal complications that may eventually require surgical intervention. Surgery in CD is not curative and almost 25% of patients will need multiple interventions. The mesentery might be involved in CD pathogenesis by modulating local hormonal and immunologic processes, which is why surgical techniques involving the mesentery have recently drawn attention. Certain studies reported that removing the mesentery during intestinal resection might improve the postoperative outcome, but the results are controversial.

Aims & Methods: Our main aim was to evaluate the effectiveness of performing extended mesenteric excision (EME) in preventing postoperative CD recurrence (POR) compared with limited mesenteric excision (LME). Second, we investigated the role of EME on overall postoperative complications, as compared to LME. We conducted our study according to a pre-registered protocol in PROSPERO (CRD42022371789). Studies that reported short- and long-term outcomes of CD patients who underwent intestinal resection with EME compared with LME were considered eligible. A systematic search was performed in five databases (Pubmed, Embase, Cochrane, Scopus, Web of Science) from inception until 9th November 2022. Pooled odds ratios (ORs) with a 95% confidence interval (CI) were calculated using the random-effects model. The risk of bias was assessed with the Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I) tool. We evaluated the certainty of evidence according to the recommendations proposed by the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) Working Group.

Results: During the systematic search, 7201 records were retrieved. After the duplicate removal and selection process, we included six papers that reported data from five studies. The meta-analysis was performed with data pooled from three retrospective cohort studies, of which two included patients with ileocolic resections and one with colorectal resections. These studies analyzed 516 patients, of which 304 underwent EME and 212 LME.

Our results showed a non-significant lower rate of surgical recurrence in the EME group compared with LME (OR 0.3; 95% CI: 0.02-3.73). Regarding overall postoperative complications, performing EME was also associated with non-significant lower odds (OR 0.78; 95% CI: 0.33-1.82). The certainty of the evidence for the meta-analysis outcomes was very low and low, respectively. Concerns were raised by the moderate level of bias and, more importantly, by the inconsistency and imprecision of the results.

Conclusion: Our meta-analysis indicated a trend towards lower rates of POR in patients who underwent intestinal resections with EME compared with LME. However, results are to be interpreted cautiously due to the statistical non-significance and the low quality of evidence. Considering overall postoperative complication rates, performing intestinal resections with EME appears to be a safe procedure compared with LME. Results from ongoing randomized controlled trials and further high-quality studies are needed to determine the role of mesentery resections in CD surgery.

Disclosure: Nothing to disclose.

PP0923

ADHERENCE TO GUIDELINES AFTER ILEOCOLONIC RESECTION FOR CROHN'S DISEASE: AN AUSTRALIAN EXPERIENCE

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Introduction: In recent years Ileo-colic resection (ICR) has emerged as an effective treatment option for patients with ileal or ileo-caecal Crohn's disease (CD). Prophylactic treatment, including thiopurines and TNF-alpha inhibitors, have demonstrated efficacy in altering the disease course and reducing postoperative recurrence (POR). Consequently, the European Crohn's and Colitis Organization (ECCO) published guidelines in 2016 and 2018 with consensus statements regarding postoperative care, and recommends risk-stratification for POR and prescription of prophylactic treatment to high-risk individuals. Existing data indicate suboptimal adherence to these guidelines, potentially leading to increased healthcare costs.

Aims & Methods: There is a scarcity of data on post-operative care patterns from Australia and this study aimed to evaluate guideline adherence in an Australian tertiary centre. Patients who underwent an ileocolonic resection and primary anastomosis for CD between 2017 and 2021 were retrospectively analysed. Patients with 12-month follow-up data available were included. Adherence to three specific guideline aspects: (1) prophylactic therapy prescription in high-risk patients, (2) colonoscopy within 12 months of ICR, and (3) documentation of a Rutgeerts' score at colonoscopy, were evaluated. High-risk patients were defined as those with one or more of the following risk factors for recurrence: postoperative smoking, prior CD-related intestinal resection, presence of penetrating or perianal disease, or presence of granulomas in the resection specimen.

Results: A total of 59 patients met inclusion criteria. Patient demographic data and risk factors for POR are shown in table 1. 36 (61%) underwent colonoscopy within 12 months, and 54 (92%) had a colonoscopy during the follow-up period (median 248 days, range 61 – 1764 days). A Rutgeerts' score was documented in 26/54 (48%) patients who underwent colonoscopy. Of the 50 patients with at least one risk factor for recurrence, 38 (76%) received appropriate prophylactic therapy. Risk factors for the 12 patients not appropriately prescribed prophylactic therapy included granulomata (n = 7), penetrating disease (n = 4), smoking (n = 3), prior resection (n = 2) and perianal disease (n = 1). Five of these patients had two risk factors for recurrence. In only 11 of 59 patients (19%) were all three guideline criteria satisfied.

Age - median (IQR)	45 (23)
Presence of risk factors for recurrence - n (%)	
Prior intestinal resection	18 (31)
Postoperative smoking	19 (17)
Presence of penetrating disease	26 (44)
Presence of granulomata in resection specimen	23 (39)
Perianal disease	9 (15)
Extensive involvement (> 50cm)	3 (5)
Any risk factor for recurrence	50 (85)

Table 1. Patient characteristics and risk factors for recurrence

Conclusion: This study revealed suboptimal adherence to the ECCO guidelines in the studied Australian cohort, particularly in documenting Rutgeerts' score and performing colonoscopy within 12 months. It also suggests that the presence of granulomata in the resection specimen is an underrecognized risk factor for POR. The findings highlight a need for quality improvement initiatives to enhance guideline awareness and adherence among gastroenterologists.

Disclosure: Nothing to disclose.

PP0924

THE TREATMENT AND TREATMENT OUTCOMES OF POUCHITIS IN PATIENTS WITH ULCERATIVE COLITIS FOLLOWING IPAA – A DANISH POPULATION-BASED COHORT STUDY

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Introduction: Ulcerative colitis (UC), a chronic inflammatory bowel disease, may require surgical intervention such as colectomy. Post-colectomy, an ileal pouch-anal anastomosis (IPAA) offers an alternative to a permanent ostomy. However, up to 50% of patients with an IPAA will experience pouchitis, which can cause symptoms similar to UC. More robust data is needed to establish effective treatments and assess their real-world effectiveness, especially in population-based cohorts.

Aims & Methods: The aim was to investigate the choice of treatments for pouchitis, their effectiveness, and pouch failure rates in UC patients who underwent IPAA at Copenhagen University Hospital Hvidovre between 11th November 1993 and 26th April 2021. Patients were screened through electronic medical records. Antibiotic treatment responses were defined as antibiotic dependent (needing 4+ courses/year), antibiotic refractory (courses of antibiotics lasting >28 days), and antibiotic responsive (not meeting the other criteria). Continuous or pro necessitate treatments were considered refractory (29 days), while courses without a stop date and no new symptoms were deemed responsive (14 days).

Results: A total of 239 UC patients underwent IPAA. After excluding 6 patients who did not receive ileostomy reversal, 233 were analysed with a median follow-up of 8.36 (IQR: 4.33–11.16) years. 529 pouchitis treatment courses were prescribed to 118 (50.64%) of the UC patients, with 474 (89.6%) being antibiotics. Ciprofloxacin and metronidazole were the most common prescribed antibiotics, while adalimumab and infliximab were the most common used biologics. The median duration of antibiotic treatment was 11 (IQR: 9-19 days) days.

Two-thirds of antibiotic courses were responsive, while one-third were refractory or dependent. This corresponded to, 46.4% of the 233 patients being antibiotic responsive, 14.6% dependent, and 16.3% refractory.

Survival rates for responsive, refractory, and dependent pouchitis treatments were as follows:

For responsive treatments, survival rates were 0.84 at 6 months, 0.77 at 12 months, 0.65 at 24 months, 0.56 at 60 months, and 0.49 at 120 months.

For refractory treatments, survival rates were 0.98 at 6 months, 0.97 at 12 months, 0.95 at 24 months, 0.89 at 60 months, and 0.80 at 120 months.

For dependent treatments, survival rates were 0.97 at 6 months, 0.94 at 12 months, 0.91 at 24 months, 0.86 at 60 months, and 0.83 at 120 months.

Pouch failure occurred in 13.8% (32) of patients. These patients experienced 36 pouch failures, where 12 (33.33%) were due to acute and chronic sepsis, 19 (52.78%) were caused by poor function for mechanical or functional reasons, 3 (8.33%) resulted from mucosal inflammation (pouchitis), and 2 (5.56%) were attributed to neoplastic transformation. Prior to pouch failure, 50.8% of the 32 patients had at least 1 responsive episode of pouchitis, 21.9% had dependent pouchitis, and 18.8% had refractory pouchitis.

Conclusion: This study provides insights into pouchitis treatment strategies, their effectiveness, and failure rates in UC patients who undergoes IPAA. The majority of pouchitis treatments were antibiotics, with ciprofloxacin and metronidazole being the most common. Antibiotic responsiveness varied among patients, with pouch failure observed in 13.8% of cases. These findings contribute to a better understanding of pouchitis management in real-world settings, emphasizing the need for further research to optimize treatment strategies and improve patient outcomes.

Disclosure: This study was supported by Takeda Pharma A/S.

PP0925

INCIDENCE AND DISEASE COURSE OF POUCHITIS IN PATIENTS WITH ULCERATIVE COLITIS AND AN ILEAL POUCH-ANAL ANASTOMOSIS (IPAA)– A DANISH POPULATION-BASED COHORT STUDY

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory bowel disease affecting the colon and rectum. In some cases, surgical intervention such as colectomy may be necessary. Following colectomy, the creation of an ileal pouch-anal anastomosis (IPAA) provides an alternative to permanent ostomy. However, pouchitis is a well-recognized complication of IPAA, causing inflammation and symptoms similar to those of ulcerative colitis. Despite its frequency, there remains a paucity of reliable data on the incidence and long-term disease course of pouchitis, especially from population-based cohorts

Aims & Methods: We aim to investigate the incidence and disease course pouchitis in UC patients who've underwent an IPAA between 11th November 1993 and 26th April 2021 at Copenhagen University Hospital Hvidovre, Gastrounit. Due to centralization of IPAA, the department covers approx. 46 % of the Danish population. All patients were manually screened through their electronic medical record. All events of pouchitis and the duration was registered.

Results: In total, 239 UC patients had ileal pouch-anal anastomosis (IPAA) performed between 11th November 1993 and 26th April 2021. However, 6 patients did not have their relieving ileostomy put back and their constructed pouch taken into usage and were therefore excluded from the analysis. The median follow-up time was 8.36 years (IQR: 4.33 – 11.16) for the 233 patients. During the observation period, a total of 122 (52.36 %)

UC patients, experienced 421 events of pouchitis ranging from 1-25 episodes per patient. Of the 421 events, 329 (78.15 %) were defined as acute (≤ 28 days) and 92 (21.85 %) as chronic pouchitis (>28 days). Looking at the frequency of the flares, 311 (73.87 %) of these could be categorised as episodic pouchitis (<3 episodes per year) and 110 (26.13 %) as relapsing pouchitis (≥3 episodes per year). The episodes of relapsing pouchitis were distributed among 31 patients (26.19 %). The mean time from IPAA construction to the first episode of pouchtitis was 27.24 (SD: 36.20) months. The mean length of each episode of pouchitis until remission was 25.69 (SD: 59.70) days. While the time between each pouchitis episode was a mean of 373.53 (SD: 620.14) days.

The survival rate, referring to time to pouchitis, at 6 months, 1,2,5, and 10 years are shown in table 1.

	0	6	12	24	60	120
Episodic	100%	88%	76%	64%	52%	44%
Relapsing	100%	100%	96%	92%	90%	86%

Conclusion: This study highlights the high incidence of pouchitis in UC patients who have undergone an IPAA. Approximately half of the patients experienced at least one episode of pouchitis. The time from IPAA construction to the first episode of pouchitis was around 2 years, with a mean duration of each episode being around 3 weeks. The frequency of relapsing pouchitis was seen in a quarter of the patients. These findings emphasize the importance of identifying preventive and therapeutic strategies for pouchitis in this patient population to improve long-term outcomes.

Disclosure: This study was supported by Takeda Pharma A/S.

PP0926

PROPHYLAXIS OF POST-OPERATIVE RELAPSE IN PATIENTS WITH CROHN'S DISEASE; INDICATIONS AND PRACTICE

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Introduction: Lifetime risk of surgery in Crohn's disease (CD) is substantial. In order to reduce risk of recurrence after surgery, initiation of medical prophylaxis based on assessment of risk of relapse is generally recommended (1) although specific criteria for risk assessment is debatable (2).

Aims & Methods: Aims: The objectives were to assess adherence to guideline recommendations as regards post-operative prophylaxis and to evaluate efficacy of profylaxis.

Methods: Population-based, single-center prospective study of all CD patients undergoing intestinal resection between February 1st, 2017, and January 31st, 2022. Based on medical records,patients were classified as either high or low risk of relapse. Treatment received and outcome of treatment was registered and correlated to known prognostic factors such as smoking status, age, previous surgical resection.

Results: A total of 216 patients were included in the study, out of which 104 and 112 were in the high and low-risk groups, respectively. Only 61% of the patients in the high-risk group received post-operative prophylaxis (POP). There was no significant difference in relapse rates between those who received POP and those who did not. Forty-two out of 63 patients (67%, CI: 55-78) who received post-operative prophylaxis, experienced either clinical, endoscopic and/or MR-relapse while the numbers were 22/41 (53%, CI: 38-69, *p=0.218*) for those who did not receive any.

Seventy-four out of 112 (66%) of patients in the low risk group received POP in spite of being low risk. Also in this group, there was no significant difference in relapse rates between patients receiving POP (66%, CI: 55-77) and those not receiving POP (47%, CI: 31-63, p=*0.067).*

Relapse risk in patients not receiving POP was only numerically but non-significantly smaller for low risk patients (47%) compared to high risk patients (54%).

Conclusion: Adherence to recommendations for POP in CD was relatively low. In patients not receiving POP, risk of relapse was not statistically significantly higher in high risk patients compared to low risk patients. Compared to patients not receiving POP, patients who received POP (irrespective of low or high presumed risk) did not seem to benefit in terms of reduced risk of relapse. These finding question the clinical usefulness and predictive capacity of the current risk stratification as well as currently used medications for POP

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PP0927

ULCERATIVE COLITIS – CROHN´S DISEASE CONVERSION RATE IN THE COHORT OF PATIENTS WITH ULCERATIVE COLITIS UNDERGOING COLECTOMY

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Introduction: Despite new therapeutic strategies, substantial proportion of patients with ulcerative colitis (UC) undergo colectomy at some point. Restorative proctocolectomy with ileal pouch ano anastomosis (IPAA) is regarded as intervention of choice in these patients. However, the disease conversion to Crohn's disease (CD) is reported in up to one third of these patients who necessitate immune suppressive treatment after IPAA. Considering the life-long need for immune suppressive therapy in these patients, ileo-rectal anastomosis (IRA) would represent a good alternative to IPAA in this specific group of patients. Todate, no data are available to predict the UC-CD conversion. One of the possibility to reduce the risk of performing IPAA in patients developing CD in pouch is to use the modified two-stage proctocolectomy approach and identify patients who develop CD endoscopically between colectomy and the restoration of continuity.

Aims & Methods: The aim of the present study was to assess the UC-CD conversion rate identified prior IPAA via ileoscopy.

All patients with UC operated in one tertiary IBD center between 2016 and 2021 were identified in medical records. The main outcome was CD detected at ileoscopy between the first stage operation, i.e. total colectomy with terminal ileostomy and the restoration of continuity either via IPAA or IRA. The ileoscopy was performed between three to six months after colectomy. The secondary outcome was the rate of conversion to CD after IPAA or IRA.

Results: Sixty patients underwent total colectomy (mean age 41 years, range 22-77; 62% were men); seven patients were lost to follow-up, finally the data from 53 patients were analysed. The majority of these patients (36 - 68%) underwent colectomy for therapy resistent chronically active UC, 9 (17%) patients for acute severe UC, 2 patients had benign colonic stenosis, 5 had high-grade dysplasia or colorectal cancer detected at surveillance colonoscopy and one patient had extensive pseudopolyposis.

All resection specimen were reviewed and no histopathological features of CD were found. Three out of the 53 (6%) ileoscopically assessed patients prior IPAA or IRA were diagnosed with CD in prestomal terminal ileum. During the further follow-up, additional 4 patients developped CD, two after IPAA, one with definitive ileostomy in prestomal ileum and one in neoterminal ileum after IRA.

In total 7 out of 53 patients in this cohort developped CD (13%). Using the two stage approach with ileoscopy between colectomy and restoration of continuity, three out of these seven patients with CD convertion in this cohort were detected prior the decision on the type of second-stage operation.

Conclusion: The conversion from ulcerative colitis to Crohn`s disease occurs in a significant proportion of IBD patients after colectomy. Ileoscopy performed between the two stages of restorative proctolectomy is helpfull in detecting these patients and guiding the decision on the type of surgical intervention to restore continuity.

Disclosure: Nothing to disclose.

PP0928

TRANSANAL VERSUS CONVENTIONAL ILEAL POUCH-ANAL ANASTOMOSIS IN ULCERATIVE COLITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF COMPARATIVE STUDIES

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory bowel disease affecting the colon and rectum. Surgical intervention is often required in cases of medically refractory disease, dysplasia, or colorectal cancer. Restorative proctocolectomy with ileal pouch-anal anastomosis (IPAA) is the preferred surgical procedure for these patients. The transanal approach to IPAA has emerged as a minimally invasive alternative to conventional surgery. However, the safety, efficacy, and long-term outcomes of transanal IPAA remain unclear.

Aims & Methods: This systematic review and meta-analysis aimed to assess the safety, efficacy, and long-term outcomes of transanal ileal pouch-anal anastomosis in adult patients with ulcerative colitis and compare it with the conventional approach. A comprehensive literature search was conducted using PubMed, EMBASE, and the Cochrane Library from inception to October 2022. Comparative studies were included for adult patients with UC who underwent transanal IPAA versus conventional IPAA. Outcomes analyzed included anastomotic leak, major and minor complications, using relative risk (RR). Meta-analysis was performed using R 4.0.3 and its packages metafor and meta.

Results: Our search identified 4 comparative studies, including a total of 858 patients (338 transanal and 520 conventional IPAA). The meta-analysis showed no significant differences in anastomotic leak (pooled RR 1.72, 95% confidence interval [CI] 0.77-3.79, I2=3%), minor complications (pooled RR 0.97, 95% CI 0.68-1.37, I2=75%), or major complications (pooled RR 0.81, 95% CI 0.52-1.27, I2=56%) between the two groups.

Conclusion: This systematic review and meta-analysis suggest that transanal ileal pouch-anal anastomosis is a safe and effective alternative to conventional IPAA for patients with ulcerative colitis, with similar rates of complications. More high-quality RCTs are needed to confirm these findings and to further evaluate the long-term outcomes of this procedure.

Disclosure: Nothing to disclose.

PP0929

AESTHETIC BENEFIT OF ILEO-CAECAL RESECTION FOR CROHN'S DISEASE BY SINGLE TROCAR VERSUS CONVENTIONAL LAPAROSCOPY

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Introduction: Studies evaluating the single incision laparoscopy (SIL) found an identical rate of postoperative complications and duration of hospitalization, with a probable aesthetic benefit compared to multi-trocar laparoscopy (MTL). The difference of a peri-umbilical or trans-umbilical incision has not been assessed in this young population.

Aims & Methods: The aim of this study was to compare the aesthetic result after ileocecal resection (ICR) for Crohn's by SIL or MTL.

All ileocecal resection with anastomosis (2012-2020) were retrospectively included. The aesthetic result was evaluated by the Body Image Questionnaire. A case-control study was carried out by matching on: age, sex, BMI, smoking, surgical history, surgical indication, corticosteroid therapy and associated procedure.

Results: 206 patients (SIL=65; MTL=141) were included. Overall morbidity was 37.4% (severe morbidity=5.3%), with no difference between the groups. 124 patients (71%) responded to the questionnaire (mean follow-up: 4.7 years).

Body image was identical in both groups but the aesthetic scale was better in the SIL group (21.1 vs. 18.4, p<0.001). In the SIL group, body image was better in patients who had a trans-umbilical versus periumbilical incision (5.2 versus 6.4, p=0.04), the aesthetic scale was identical regardless of the incision.

After matching (SIL=37; MTL=37), body image remained identical in the two groups and the aesthetic scale remained better in the SIL group (21.1 vs. 19.3, p=0.03). The factors associated with a very good aesthetic result were the SIL and the absence of a history of abdominal surgery in univariate and in multivariate the SIL (OR=2.30[1.01-5.28], p=0.05).

Conclusion: The SIL for an ICR for Crohn's allows a better aesthetic result compared to the MTL, especially after trans-umbilical incision.

Disclosure: Nothing to disclose.

PP0930

ISOLATED ANASTOMOTIC LINE ULCERATIONS ARE ASSOCIATED WITH A HIGHER RISK OF POSTOPERATIVE RECURRENCE IN PATIENTS WITH CROHN'S DISEASE UNDERGOING ILEOCECAL RESECTION AND A DIFFERENTIAL MUCOSA-ASSOCIATED MICROBIOME COMPOSITION

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Introduction: Anastomotic ulcers are a common finding in Crohn's disease (CD) patients undergoing ileocolonic resection (ICR). The clinical significance of these lesions remains debated, as some studies have suggested that they may be associated with a higher risk of postoperative recurrence (POR), while others have not found a significant association. Also, the pathogenesis of anastomotic ulcers is poorly understood.

Aims & Methods: We aimed to assess the risk of CD postoperative recurrence (POR) after ICR in patients with and without isolated anastomotic ulcers among those with otherwise healthy neo-terminal ileum (TI). Also, we aimed to assess the mucosa-associated microbiome composition on either side of the anastomosis.

CD patients undergoing ICR were prospectively recruited as part of the multicenter NIDDK Inflammatory Bowel Disease Genetics Consortium CD Ileal Post-Op Study. In this analysis, we included subjects recruited at Mount Sinai Hospital Toronto without any ulcerations in the neo-TI (simple endoscopic score for CD ≤2) at the first postoperative colonoscopy (FC). Patients with ulcerations limited to the anastomotic line were classified as modified Rutgeerts score (mRS) i2a, whereas those without any ulceration as i0. Biopsies were taken on both sides of the anastomosis at FC, and the mucosa-associated microbiome was assessed by sequencing the 16S rRNA gene. POR was retrospectively defined as a composite of clinical recurrence (symptomatic worsening with objective evidence of inflammation within 6 months of symptom onset), change in CD-related therapy, endoscopic balloon dilation, or intestinal resection. We used Cox proportional hazards models to assess the risk of POR since FC. Alpha and beta diversity were analyzed at the ileal and colonic sides of the anastomosis using the *phyloseq* package. Differential abundance analysis between groups was performed employing *MaAsLin2*. False discovery rate of q<0.2 was considered significant.

Results: Sixty patients were included. Median age was 32.5 years [IQR 26-40.5], 53.3% were female, median disease duration was 9 years [IQR 2-15.5], median time from surgery to FC was 198 days [IQR 172-262], median follow-up was 4.2 years [IRQ 2.6-6.6]. 34 (56.7%) were mRS i0 group, and 26 (43.3%) were mRS i2a group. There were no significant differences in Montreal classification, smoking status, previous resection, biologic or non-biologic medication use at FC.

In multivariate analysis, mRS i2a was associated with a higher risk of POR after adjusting for previous surgical resection, penetrating behavior, and biologic use at FC (adjusted HR 5.15, 95% CI 2.24-11.87, p= 0.00012).

There were no differences in alpha or beta diversity on either side of the anastomosis. In the neo-TI, after adjusting for age, sex, and biologic use at FC, the genera *Lachnospiraceae NK4A136* (p=0.004, q=0.17) and *Klebsiella* (p=0.005, q=0.17) were more abundant in i0 and i2a, respectively. On the colonic side, the genera *Fusobacterium* (p=0.0012, q=0.038) and *Lachnospira* (p=0.01, q=0.15) were more abundant in i2a.

Conclusion: In CD patients with otherwise healthy neo-TI, we found a significantly higher risk of POR in those with anastomotic ulcerations. We found a differential microbiome composition on both sides of the anastomosis, suggesting putative taxa to be related to these lesions.

Disclosure: Nothing to disclose.

Poster presentations
Lower GI

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PP0931

PROGNOSTIC SIGNIFICANCE OF TUMOR-INFILTRATING PLASMA CELLS IN COLORECTAL ADENOCARCINOMAS

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Introduction: Although the prognostic significance of cellular components of the immune system has been investigated in several solid neoplasms and is well established, the role of plasma cells in the tumor microenvironment has been neglected and only recently these cells are increasingly being appreciated as key players in the tumor microenvironment.

Aims & Methods: The purpose of our study is to explore the contribution of plasma cells to the immune microenvironment of colorectal adenocarcinomas and describe their correlation with prognosis.

In our study, a total of 108 patients with colorectal adenocarcinoma were included [68 men/40 women, median age (IQR): 70 (64-76) years, I-IV stage (AJCC/TNM 8th edition)] who underwent surgical resection between January 2004 to May 2008. Histological slides and paraffin blocks were retrieved from the archives of the Department of Pathology, Attikon University Hospital.

Tissue microarrays (TMAs) of 2 mm diameter were constructed with representative areas from the center and periphery of the tumor. Immunohistochemical stains were performed on TMAs to detect the presence of plasma cells (CD138) and cells of adaptive immunity (CD3, CD4, CD8, CD20). Tertiary lymphoid structures (TLS) were assessed on hematoxylin-eosin-stained slides.

Depending on the number of plasma cells, the cases were classified into the following categories: absence of plasma cells or presence of rare single cells, presence of rare small aggregates (>5 cells/aggregation), presence of frequent aggregates, presence of large aggregates or sheets of plasma cells. Clinical and pathologic information was acquired from hospital medical records including patient's outcome and survival.

Results: Increased number of plasma cells (presence of frequent aggregates, presence of large aggregates or sheets of plasma cells) was observed in 70 cases (65%), while absence or rare aggregates of plasma cells was demonstrated 38 cases (35 %). The presence of large aggregates or sheets of plasma cells in the tumor was significantly associated with the presence of TLS (p=0.004) and tumor infiltration by increased numbers of CD3$^+$, CD8$^+$ T, and CD20$^+$ B lymphocytes compared with the absence of plasma cells or the presence of rare single plasma cells (p=0.025, p=0.012, p=0.001, respectively).

Moreover, it was reported that the presence of an increased number of plasma cells compared with the absence of plasma cells in the center of the tumor is significantly correlated to a more favorable prognosis (77 vs 47 months; p=0.047; p<0.05).

Conclusion: In patients with colorectal adenocarcinoma, the presence of high densities of plasma cells in the tumor bed may be associated with increased adaptive immune cell populations in the tumor environment, as well as with longer patient's survival. Consequently, a careful evaluation of plasma cells and a better understanding of their role in the tumor microenvironment of colorectal cancer seems to be crucial in order to design efficient immunotherapeutic strategies.

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Disclosure: Nothing to disclose.

PP0932

IMMUNOHISTOCHEMICAL STUDY OF MYC ONCOGENE EXPRESSION IN COLORECTAL ADENOCARCINOMAS AND CORRELATION WITH CELLULAR COMPONENTS OF ADAPTIVE IMMUNITY IN THE TUMOR MICROENVIRONMENT

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Introduction: The *MYC* oncogene plays a pivotal role in variable cellular functions including proliferation, differentiation, metabolism, protein synthesis, survival and apoptosis, while it is also considered a crucial regulator of tumor immune microenvironment.

Aims & Methods: The purpose of our research is the evaluation of the immunohistochemical expression of MYC protein in primary colorectal adenocarcinomas and its correlation with prognosis, as well as with the qualitative and quantitative characteristics of the immune microenvironment.

In our study, a total of 94 patients with colorectal adenocarcinoma were included [59 men/35 women, median age (IQR): 71 (44-88) years, I-IV stage (AJCC/TNM 8th edition)] who underwent surgical resection between January 2004 to May 2008. Histological slides and paraffin blocks were retrieved from the archives of the Department of Pathology, Attikon University Hospital. Tissue microarrays (TMAs) of 2 mm diameter were constructed with representative areas from the center and the periphery of the tumor. Immunohistochemical stains were performed on TMAs to detect the expression of MYC and Ki67 (proliferation index) by neoplastic cells and the presence of adaptive immunity (CD3, CD4, CD8, CD20) cells. MYC immunostaining in >20% of neoplastic cells was scored as positive (over-expressed). Clinical and pathologic information was acquired from hospital medical records including patient's outcome and survival.

Results: MYC over-expression (>20%) in the center and periphery of the tumor was observed in 59 patients (63%) and is significantly associated with tumor infiltration by increased number of CD3+, CD4+, CD8+ T and CD20+ B lymphocytes as well as with an increased index of cell proliferation Ki-

67 (p<0.001). In addition, positive MYC expression in the tumor periphery is significantly correlated with longer overall survival compared to cases with weak MYC expression (70 vs 48,5 months; p=0.046; p<0.05).

Conclusion: In patients with colorectal adenocarcinoma, increased MYC expression by neoplastic cells is associated with increased densities of adaptive immune cells in the tumor microenvironment. In addition, it is associated with a favorable prognosis, possibly through a more effective antitumor immune response. Consequently, the expression of MYC might be a useful predicting indicator of anti-tumor immunity status and patient's prognosis.

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Disclosure: Nothing to disclose.

PP0933

SYSTEMIC PROTEOMIC PROFILING OF PATIENTS WITH SYSTEMIC MASTOCYTOSIS AND LINKAGE TO THEIR GASTROINTESTINAL SYMPTOMS

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Introduction: Mastocytosis is a heterogeneous disorder characterized by abnormal mast cell proliferation in one or more organs that induces cutaneous and/or systemic symptoms. While gastrointestinal (GI) symptoms are frequently reported (prevalence ~60%), no surrogate markers have been investigated yet.

Aims & Methods: This study aimed to explore disease-specific markers and their link to gastrointestinal symptoms in mastocytosis. Plasma samples were collected from patients with mastocytosis, including patients with cutaneous mastocytosis (CM), indolent systemic mastocytosis (ISM), and Advanced SM (AdvSM). The presence of GI symptoms was registered. Patients with polycythemia vera (PCV), a stem cell disorder characterized by sludging of blood, were included as controls. In total, 276 systemic proteins were analyzed by Proximity Extension Assay using the OLINK Target 96 Cardiovascular II and III, and Immune response panels. Relative protein concentrations, expressed in NPX ($\log_2$ Normalized Protein eXpression), were analyzed using Principal Component Analysis (PCA), linear regression of protein adjusted values (for age and sex) and the Boruta algorithm (based on random forest) in R. Mann-Whitney U test, false discovery rate and Spearman correlation were applied for univariate analyses (GraphPad Prism 9).

Results: A PCA based on the systemic proteomic profile (SProtP, n=275 detected proteins) of mastocytosis patients revealed 1 cluster of CM (n=15) and ISM (n=81) patients that separated away from AdvSM (n=12) patients. A separate PCA confirmed the ISM and AdvSM centroid distance (p<0.001). Feature selection with boruta confirmed 29 markers to be relevant for the outcome ISM (vs AdvSM), the majority found in low levels such as the Interleukin 1 Receptor Type 1 (IL-1RT1) (FDR-adjusted p value (q)<0.001), and inhibitory receptor Lymphocyte Activating 3 (LAG3) (q<0.01). Both ISM and AdvSM groups showed a distinct SProtP against PCV patients, respectively, in separate PCAs (p<0.001). For the outcome ISM (vs PCV), high levels of the mast cell mediator Tryptase α/β 1 (TPSAB1) (q<0.0001) and Mast Cell Immunoglobulin Like Receptor 1 (MILR1) (q<0.0001) and low levels of Fibroblast Growth Factor 2 (FGF2) (q<0.0001) were confirmed among the 27 relevant markers. For the outcome AdvSM (vs PCV), 25 relevant markers were found in high levels, including MILR1 (q<0.001), IL-1RT1 (q<0.0001), and Granulin Precursor (GRN) (q<0.0001).

Upper and/or lower GI manifestations were often reported within the mastocytosis group: 53.3% (n=8) CM, 73.1% (n=57) ISM, and 58.3% (n=7) AdvSM. ISM patients that reported GI manifestations (/GI+) showed higher levels of MILR1 (4.3 (3.9-5.0) vs 4.07 (3.4-4.3), p<0.01) and Transferrin Receptor protein 1 (TR) (4.9 (4.3-5.3) vs 4.36 (4.0-4.9), p<0.05) than patients without GI symptoms (GR-). In contrast, AdvSM/GI+ patients weakly tended to show higher NPX values than patients GI- manifestations (p>0.05). In addition, plasma TPSAB1 levels of ISM/GI+ patients correlated with MILR1 levels (r=0.45; 95%CI (0.2-0.6), p<0.001), while in patients with ISM/GI- TPSAB1 correlated moderately with FGF2 (r=0.6; 95%CI (0.2-0.8), p<0.01). No correlations were found between the top confirmed markers and TPSAB1 in AdvSM, regardless of the presence of GI symptoms.

Conclusion: Distinct systemic proteomic profiles, and specific plasma markers, of ISM and AdvSM patients support different disease mechanisms. While some of these markers might be associated with the presence of GI symptoms, further investigations are needed.

Disclosure: Nothing to disclose.

PP0934

FECAL CALPROTECTIN AMONG OTHER PREDICTORS IN EVALUATION OF PATIENTS WITH FAMILIAL MEDITERRANEAN FEVER

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Introduction: Familial Mediterranean fever (FMF) is auto-inflammatory disease presented by repeated episodes of fever and serositis. intestinal inflammation is a sub-clinical process occur during FMF attacks[1]. Fecal calprotectin is a simple tool for assessment of the intestinal inflammation[2].

Aims & Methods: The aim was to assess the fecal calprotectin as new marker of FMF and predictor of response to colchicine.

Methods: We included patients diagnosed with FMF according to the Yalçınkaya criteria and confirmed by PCR for the gene in our outpatient clinic at Kafrelsheikh University Hospital between May 2020 and May 2022. Patients subjected to history taking, clinical and laboratory evaluation. We excluded patients with other causes of raised FC such as those who took NSAID or known to have IBD. The fecal Calprotectin was measured and level more than 50 µg/g were considered abnormal.

Results: we included 158 patients. Among them 102 patients were females, and 56 were males. Largest number of patients was diagnosed at age of twenties. Only 5 patients were diagnosed at fifties. 72 (45.57%) patients had more than 6 attacks. Attacks last in 73.42% of patients for less than 48 hours. About 60.76% patients had negative parent consanguinity and 18.99% patients had history of abdominal surgery. 130 patients had heterozygous mutation; 28 patients had homozygous mutations confirmed by PCR. Fecal calprotectin level at time of diagnosis between the two groups. Heterozygous group level was 69.92 ± 30.92 while Homozygous was 158.21 ± 47.33. the cut off value of Calprotectin level was 100 pg/ml had 96.40% sensitivity and 96.60% Specificity Calprotectin level have negative correlation with Colchicine dose needed.

Conclusion: Our result suggests faecal Calprotectin can by used among as predictors of FMF attacks and indictor for adequate colchicine response. fecal calprotectin levels may be used to screen severity intestinal inflammation in Homozygous and heterozygous.

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Disclosure: Nothing to disclose.

PP0935

TISSUE-NONSPECIFIC ALKALINE PHOSPHATASE (TNAP) ALTERS SYSTEMIC INFLAMMATION IN CECAL SLURRY-INDUCED SEPSIS

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Introduction: Sepsis is defined as organic dysfunction related to a disordered response to infection. Alkaline phosphatases catalyze the hydrolysis of phosphate groups from different substrates, such as bacterial lipopolysaccharide (LPS), an important mediator in the pathophysiology of sepsis (1). Different studies have confirmed that intestinal alkaline phosphatase (IAP) reduces intestinal permeability, intestinal inflammation, bacterial translocation and, as a consequence, systemic inflammation (2, 3). However, several studies have demonstrated the importance of the tissue-nonspecific alkaline phosphatase (TNAP) isoenzyme in inflammatory processes (4).

Aims & Methods: We aimed to investigate the effect of TNAP in polymicrobial sepsis induced by cecal slurry (CS) injection using TNAP heterozygous mice ($TNAP^{+/-}$) and an inhibitor of TNAP (SBI-425). Mice underwent intraperitoneal injection of 1 mg CS/kg and were sacrificed after 24 h. Body weight loss and mice behavioral outcomes were determined. LPS level in plasma was determined. In addition, permeability to oral fluorescein isothiocyanate-dextran 4 kD (FITC) was assessed. Finally, RNA extraction and RT-qPCR were carried out for gene expression analysis.

Results: CS-induced sepsis resulted in dramatic weight loss and a significant impact on mice behavioral outcomes, with no differences between groups. The polymicrobial infection was associated to high presence of LPS in septic mice plasma, which triggered a systemic inflammatory response. Namely, sepsis caused intestinal barrier defect (higher concentration of FITC-dextran in plasma) and increased inflammatory cytokines in the colon. In this context, TNAP haplodeficiency or inhibition diminished the expression of certain inflammatory markers (*S100a8* and *Cxcl1*, the latter only in heterozygous mice). The same dampening of inflammatory marker expression was observed in the liver, kidney and particularly in the lung (*Cxcl1*, *Cxcl2*, *Il6* and *Il10*). SBI-425 had a less pronounced effect at this level.

Conclusion: These preliminary results show that TNAP haplodeficiency or inhibition modulate CS-induced sepsis, resulting in attenuated inflammatory response.

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Disclosure: Nothing to disclose.

PP0936

TRANILAST TREATMENT PREVENTS CHRONIC RADIATION-INDUCED COLITIS IN RATS BY INHIBITING MAST CELLS INFILTRATION

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Introduction: Mast cells are the primary cells that cause acute and chronic colitis due to irradiation causing radiation-induced colitis (RIC). Herein, we investigated whether pre-treatment with tranilast, mast cell inhibitor, could alleviate RIC.

Aims & Methods: A total of 23 Sprague Dawley (SD) rats were randomly divided into three groups control (n=5, C), irradiation group (n=9, RG), and tranilast pre-treated irradiation group (n=9, TG). Tranilast (100 mg/kg) was administered with meal for 10 d to TG, then Gamma ray (20 gray single dose) was irradiated to the pelvis of RG and TG. Ten weeks after irradiation, the rats were euthanized. Rectal tissue samples were stained and the total inflammation score (TIS) and mast cell count were assessed histopathologically. Expression of MUC2, MUC5AC and matrix metalloproteinase (MMP)-9 were also assessed immunohistochemically

Results: Either TIS or some components of TIS including epithelial atypia, vascular sclerosis and colitis cystica profunda, were significantly higher in RG than in TG (p=0.02, 0.038, 0.025, 0.01, respectively). The median number of infiltrating mast cells was significantly higher in the RG (27.5±18.40)) than in TG (6.0±6.02) (P=0.034). Quantitatively, the number of MMP-9-positive cells was significantly higher in the RG (23.67±19.00) than in the TG (10.25±8.45) ($p<0.05$).

Conclusion: TIS and MMP9 exhibited strong associations (correlation coefficient r=0.6, $p<0.05$) Immunohistochemically, mucin-lake of CCP showed MUC2 positivity only but was negative for MUC5AC. Conclusively, tranilast pretreatment in RIC shows an anti-inflammatory effect on the RIC with reducing mast cell infiltration and MMP expression

Disclosure: Nothing to disclose.

PP0937

GLUCOCORTICOID RECEPTOR INTESTINAL EPITHELIAL KNOCKOUT MICE SHOW ATTENUATED COLONIC INFLAMMATORY RESPONSE BUT UNAFFECTED PERMEABILITY IN EARLY EXPERIMENTAL SEPSIS

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Introduction: Sepsis is defined as an organic dysfunction that threatens the life of patients due to an abnormally regulated response to infection [1]. The initial phase of sepsis is dominated by an increased production of proinflammatory cytokines, which leads to augmented capillary permeability, extravasation, hypercoagulability and myelopoiesis. One of the main sources of infection in sepsis is believed to be the intestinal microbiota via traslocation through the mucosa to the bloodstream. Systemic inflammation weakens intestinal barrier function (IBF) in animal models, resulting in increased bacterial traslocation [2].

Even if the management of sepsis has advanced in the last decades, mortality is still high and there is room for improvement. Thus, the search for effective treatments is clearly justified. Glucocorticoids (GC) constitute a therapeutic modality in sepsis, but they have only shown moderate benefit. This may be accounted for by the harmful effects of GCs on IBF, which may facilitate translocation of luminal microorganisms and molecules. Besides, GC treatment impairs epithelial healing in experimental colitis in mice [3]. Previous results of our research group have shown that mice with induced deletion of the GC receptor (GR) in intestinal epithelial cells (i.e. NR3C1$^{\Delta IEC}$ mice) are protected against dextran sulphate sodium (DSS)-induced colitis [4].

Aims & Methods: Our aim is to understand the role of the intestinal epithelial GR and its involvement in IBF regulation in experimental sepsis, with the ultimate goal of improving the management of sepsis with GCs.

The cecal ligation and puncture (CLP) model of sepsis was applied to WT C57BL/6J and NR3C1$^{\Delta IEC}$ mice. Caecum-exposed mice were used as control (sham). Mice were sacrificed 24 hours after surgery. Four hours before sacrifice, mice were administered 4 kD FITC-dextran, a fluorescent marker of permeability. Colon, jejunum, adrenes, kidney and liver RT-qPCRs were performed as well as determination of corticosterone plasma levels.

Results: After 24 h, CLP mice exhibited hypoglycemia and splenomegaly with elevated corticosterone plasma levels, which were associated to increased *Cyp11a1* in the adrenes. Of note, both parameters were less pronounced in KO mice. Intestinal barrier function was weakened, as indicated by downregulation of *Tjp1* and increased FITC-dextran plasma levels, which were similar in WT and KO mice. A modest increase in inflammatory markers was noted in the colon and jejunum. However, KO mice exhibited dampened inflammatory response in the colon, with lower expression of inflammatory markers such as *S100a8* and *S100a9*, but not in the jejunum. Similarly, the colonic expression of *Cyp11a1* and *Lrh1*, involved in local steroidogenesis, was lower in CLP mice, regardless of genotype. WT but not KO mice showed an increased in of tissue non-specific alkaline phosphatase (TNAP) in liver, an enzyme involved in detoxification of phosphorylated molecules such as bacterial lipopolysaccharide, but lower expression of *Tsc22d3,* whose role is described to be protective against sepsis [5]. Inflammation markers were also augmented in the lung and kidney.

Conclusion: In the early stages of the CLP model of sepsis the colon and jejunum are inflamed, and epithelial deletion of the glucocorticoid receptor appears to modulate colonic inflammation, but not barrier function or systemic status.

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Disclosure: Nothing to disclose.

PP0938

DEPLETION OF BUTYRATE-PRODUCING MICROBES OF THE FIRMICUTES PREDICTS NONRESPONSE TO FMT THERAPY IN PATIENTS WITH RECURRENT *CLOSTRIDIUM DIFFICILE* INFECTION

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Introduction: Nearly 10% of *Clostridium difficile* infection (CDI) patients do not respond to fecal microbiota transplantation (FMT) treatment. Conducting clinical FMT studies to reveal microbiome characteristics of FMT-refractory patients is crucial for devising precise treatments for CDI, especially recurrent CDI (rCDI).

Aims & Methods: Twenty-three rCDI patients with parallel clinical baselines were recruited for FMT. Ten FMT donors meeting strict health standards were screened out from thousands of healthy people, and 171 stool samples were collected as healthy controls. Fecal samples were collected from 4 donors continuously for 25 weeks to evaluate the impact of microbiota fluctuation on FMT application.

Results: Seven of 23 patients didn't respond to FMT treatment. The microbiome characteristics of non-remission patients showed significantly reduced α-diversity indexes. Butyrate-producing bacteria of the Firmicutes, including *Bifidobacterium*, *Christensenellaceae_R_7_group*, *Ruminococcaceae_unclassified*, *Veillonella*, *Coprococcus_2*, *Fusicatenibacter*, *Oscillospira*, and *Roseburia*, were almost completely depleted before treatment. *Burkholderiales_unclassified*, *Coprococcus_2*, and *Oscillospira* failed to colonize patient guts before and after treatment. Patients with good prognosis were characterized by a high relative abundance of *Veillonella* before treatment relative to its general depletion in patients with poor prognosis. Genera interactions in lower effectiveness FMT donors were more similar to those in non-remission patients, and *Burkholderiales_unclassified*, *Coprococcus_2*, and *Oscillospira* were frequently depleted in these donors. Older patients were not conducive to the colonization of *Veillonella*, consistent with their poor prognosis after FMT. rCDI patients with Crohn's disease were only found in the non-remission group.

Conclusion: rCDI patients with poor prognosis from FMT have characteristics unfavorable to Firmicutes butyrate-producing microbe colonization.

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PP0939

ASSOCIATION OF FECAL SHORT-CHAIN FATTY ACID LEVELS WITH CONSTIPATION SEVERITY IN SLOW TRANSIT CONSTIPATION

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Introduction: Intestinal short-chain fatty acids (SCFAs) are significantly reduced in patients with constipation, and changes in distal colon transport function are related to fecal SCFAs content.

Aims & Methods: We aimed to identify the content of microbial metabolites SCFAs in feces of patients with slow transit constipation (STC), and its relationship with the severity of constipation and the quality of life. All Participants (patients with STC and controls) were included in the Gastroenterology outpatient Department and physical examination Center of First Affiliated Hospital of Nanjing Medical University from August 2021 to January 2022. Fecal samples of the two groups were collected and fecal supernatant was isolated. The nature and concentration of SCFAs in feces of the two groups were determined by gas chromatography-mass spectrometry (GC-MS), the differences of SCFAs and its diagnostic value for STC were analyzed. Questionnaires were conducted in patients with STC, including Constipation Scoring System (CSS), Patient Assessment of Constipation Symptoms questionnaire (PAC-SYM), and Patient Assessment of Constipation Quality of Life questionnaire (PAC-QOL), to analyze the correlation between fecal SCFAs level and the severity of constipation or the quality of life in patients with STC.

Results: A total of 32 patients were included (STC group[n=16], control group[n=16]). The total SCFAs content in STC group was lower than that in healthy control group (475.85±251.68 vs 639.77±213.97, P=0.056). The contents of acetic acid and propionic acid were significantly decreased (149.06±88.54 vs 261.33±109.75, 100.60±60.62 vs 157.34±66.37, P <0.05). Isobutyric acid and isovaleric acid increased (27.21±15.06 vs 18.16±8.65, 31.78±18.81 vs 16.90±10.05, P<0.05). Acetic acid and propionic acid were the main components of SCFAs, and there were significant differences between STC group and healthy control group. The ROC curve showed that the AUC of acetic acid and propionic acid were 0.79 and 0.74, respectively. At acetic acid concentrations of 252.21 ug/ml, the specificity and sensitivity to distinguish heathy people from STC was 93.7% and 56.3%. Total SCFAs, acetic acid, and propionic acid concentrations in STC patients' fecal supervenient were negatively correlated with CSS (r=-0.751,-0.618, all P<0.05), but not with PAC-SYM scores and PAC-QOL scores.

Conclusion: The content of SCFAs in fecal supernatant of STC patients was decreased, and the content of acetic acid and propionic acid was significantly decreased. The contents of acetic acid and propionic acid were negatively correlated with the severity of constipation, and could be used as an indicator to evaluate the diagnosis and severity of constipation. Distinguishing patients with STC with SCFAs alteration may guide the individualized treatment of STC.

Disclosure: Nothing to disclose.

PP0940

COMPOSITION OF THE GUT MICROBIOME IN INDIVIDUALS WITH CARDIOVASCULAR RISK PROFILES AND PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION

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Introduction: Despite advancements in treatment strategies, cardiovascular diseases continue to be a leading cause of death worldwide and persist as a major public health concern. Therefore, it is important to seek new potential therapeutic targets. The gut microbiome is suggested to play a role in the development of coronary artery disease (CAD). Studies have shown different microbiome compositions in patients with CAD (Gao, Kwun), however, it is not yet completely understood whether these dysbiosis signatures are causative for CAD or are a consequence of the disease.

Aims & Methods: In this study, we aimed to investigate whether dysbiosis signatures of CAD are already present in individuals at risk. We conducted a cross-sectional study using shotgun metagenomic sequencing to analyze 411 fecal samples from individuals with low (n=130), intermediate (n=130), and high (n=125) cardiovascular risk, as well as those with ST-elevation myocardial infarction (STEMI) (n=26). Cardiovascular risk was calculated by using the Framingham score. We analyzed alpha and beta diversity in the gut microbiome, as well as the differential abundance of species and functional pathways among the groups.

Results: We identified 8 species and 49 pathways to be differently abundant among the different groups. These findings included an increase of *Collinsella stercoris* abundance with increasing cardiovascular risk (STEMI vs risk groups; coefficient = 1.75, FDR = 0.005), and reduced abundance of *Bacteroides vulgatus* and *Bacteroides uniformis* in the STEMI group compared to the risk groups (respectively; coefficient = -2.28, FDR = 0.013 and coefficient = -1.35, FDR = 0.019). Differential abundance analysis of the pathways identified four upregulated pathways linked to starch biosynthesis and phenolic compound degradation in the STEMI group compared to groups with lower risk. All other differently abundant pathways were decreased in the STEMI group in contrast to other groups. These pathways were associated with many processes such as nucleotide biosynthesis, fatty acid and lipid biosynthesis, and carbohydrate biosynthesis. We did not find significant trends in Shannon diversity and beta diversity.

Conclusion: Our study revealed that specific species and pathways were differently abundant in STEMI patients compared to groups with varying cardiovascular risk. These species are promising candidates for further investigation to improve our understanding of their role in CAD. Our study underscores the need for experimental studies, using culturomics and intervention trials, to gain further insights into the directional and causal relationships of specific gut microbial species in CAD.

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Disclosure: Nothing to disclose.

PP0941

NINJURIN1 ACTS AS AN IMPORTANT FACTOR IN THE DEVELOPMENT OF COLITIS-ASSOCIATE COLORECTAL CANCER IN MALE MICE RATHER THAN FEMALES

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Introduction: Ninjurin1 (Ninj1), a transmembrane protein, has been implicated in exhibiting dual roles, both pro-inflammatory and anti-inflammatory, in the pathogenesis of inflammatory diseases.

Aims & Methods: The objective of this study was to examine the involvement of Ninj1 in the development of colitis-associated colon tumor, as well as its potential association with sex hormones. Male and female mice, both wild-type (WT) and Ninj1 knockout (KO), that were treated with azoxymethane (AOM) and dextran sulfate sodium (DSS), were sacrificed at week 2 and 13 after AOM injection, with or without additional treatment of 17β-estradiol (E2) or testosterone propionate (TP). Clinical symptoms, histological severity of colitis, the levels of inflammatory mediators, and tumor number in the colon from the mice were evaluated.

Results: In male mice, the scores of disease activity index (DAI) and colonic epithelial damage and the ELISA levels of IL-6 and IL-1β increased by AOM/DSS treatment were significantly decreased by E2 treatment in WT group (Table). Compared to WT, the scores and the ELISA levels increased by AOM/DSS treatment were lower in the Ninj1 KO group, and the inhibitory effect of E2 was also attenuated in the Ninj1 KO group.

Interestingly, a large tumor number exceeding 2 mm in size generated from a distal colon was also significantly lower in the Ninj1 KO group than in the WT group, and the inhibitory effect of E2 was also attenuated in Ninj1 KO group (Table). In female mice, DAI and damage scores increased by AOM/DSS treatment were lower in Ninj1 KO group than in WTs (Table). However, the effect of TP supplementation only showed a tendency to increase scores in both the WT and Ninj1 KO groups. In female mice, there was no difference in the larger tumor number generated by AOM/DSS treatment between WT and Ninj1 KO, but the tumor promoting effect of TP was significantly increased in the Ninj1 KO group (Table).

Interestingly, the tumor-promoting effect of TP showed a significant increase in the KO group than in the WT in proximal colon in female mice.

		Proximal colon	Distal colon	Whole colon
WT male	Con. *vs.* AOM/DSS	-	* (increase)	* (increase)
	AOM/DSS *vs.* AOM/DSS+E2	-	* (decrease)	* (decrease)
Ninj1 KO male	Con. *vs.* AOM/DSS	* (increase)	* (increase)	* (increase)
	AOM/DSS *vs.* AOM/DSS+E2	-	-	* (decrease)
WT female	Con. *vs.* AOM/DSS	* (increase)	* (increase)	* (increase)
	AOM/DSS *vs.* AOM/DSS+TP	-	-	-
Ninj1 KO female	Con. *vs.* AOM/DSS	* (increase)	* (increase)	* (increase)
	AOM/DSS *vs.* AOM/DSS+TP	* (increase)	* (increase)	* (increase)

*, $P < 0.05$; WT, wild-type; Ninj1, ninjurin1; KO, knockout; Con., control; AOM/DSS, azoxymethane/dextran sulfate sodium; E2, 17β-estradiol; TP, testosterone propionate.

Table. Summary of occurrence tumors by colon location.

Conclusion: In terms of inflammation or tumor development, the effect of Ninj1 KO was stronger in males than in females. In particular, the suppressive effect of E2 was weakened in the Ninj1 KO group, while the promoting effect of TP was strengthened in the Ninj1 KO group.

Taken together Ninj1 look like to promote colorectal tumorigenesis in in males, which was opposite to that of estrogen. Investigation of its underlying mechanism of Ninj1 is undergoing by molecular experiments.

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Disclosure: Nothing to disclose.

PP0942

EFFECT OF PROBIOTIC (VIVOMIXX) ON GUT MICROBIOME AND SHORT CHAIN FATTY ACIDS IN HEALTHY ASIAN VOLUNTEERS - A PILOT EXPLORATORY RANDOMIZED CONTROLLED TRIAL

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Introduction: Gut dysbiosis is implicated in various gastrointestinal and metabolic diseases. Probiotics is known to have favorable effects on gut microbiota and the production of essential short chain fatty acids (SCFA), albeit with inconsistent findings. The effects of bowel cleansing on the intestinal microbiota have been characterized, however the impact of administering probiotics following a colonic lavage on the intestinal microbiota has not been studied. Rifaximin has also been shown inconsistently in studies to affect the gut microbiome. In addition, treatment with probiotic for a duration of 4 weeks was demonstrated to modulate intestinal bacterial taxa in healthy adults.

This pilot study examined the effects of a probiotic (vivomixx), with and without pre-treatment with colonic lavage or rifaximin, on the gut microbiome, SCFA and its recovery.

Aims & Methods: This is a single centre, exploratory randomized controlled study on healthy Asian adult volunteers. Participants were randomized equally to four study groups: (A) Colonic lavage using polyethylene glycol (PEG), followed by 4 weeks of vivomixx; (B) Colonic lavage, followed by 4 weeks of placebo; (C) 4 weeks of vivomixx; and (D) 2 weeks of rifaximin, followed by 4 weeks of vivomixx. Stool samples were collected at baseline, 4 weeks and 8 weeks after the administration of vivomixx or placebo.

Additionally, Group A, B and D had stools collected before and after administration of PEG (Group A, B) or rifaximin (Group D). All stools were subjected to 16S rRNA sequencing for microbiome and SCFA analysis by gas chromatography mass spectrometry.

Results: A total of 32 participants were recruited, 1 in Group C dropped out after the first visit, leaving 31 in the final analysis. All three exposure elements – PEG, rifaximin and vivomixx resulted in large microbiome composition changes. Exposure of PEG also resulted in significant changes to SCFA concentrations. Pre-treatment with colonic lavage deterred engraftment as evidenced by the smaller increase in abundance of *Bifidobacterium* in Group A and B as compared to those without PEG (Group C). There was apparent selective engraftment of *Lactobacillus* after rifaximin treatment (Group D) and this was also shown in the SCFA analysis where the concentrations of Acetic, Butyric and Propionic acids, which are byproducts of *Lactobacillus* increased after Rifaximin treatment prior to vivomixx. This increase seems sustained at 8 weeks. There was also a trend of sustained vivomixx effects on gut microbiome at 4 weeks after stopping the probiotic.

Conclusion: Vivomixx demonstrated favorable impact on gut microbiome composition but its impact on SCFA in this study was minimal. Rifaximin however, has been shown to increase SCFA concentrations and this increase was sustained 8 weeks after probiotics was given. The data provide valuable insights for designing future trials. The modulation of gut microbiome and SCFA is a potential treatment target in diseases associated with gut dysbiosis.

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Disclosure: Nothing to disclose.

PP0943

EFFECT OF ORAL *BIFIDOBACTERIUM BREVE* ON FACIAL SKIN: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY

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Introduction: Gut microbiome is supposed to influence on both digestive and distant organs including brain, muscle and skin. Skin, the largest organ of our body parts, protects our inner body as a physical barrier; thus, it is important to maintain its better condition and to prevent various skin diseases.

The influence of gut microbiota on skin has been of great interest in public, yet the mechanism remains unclear in science, supposedly under the complex interaction between skin microbiome, inner body condition including gut microbiome, and outer environment. Today, some positive functions of oral probiotics on skin condition are reported such as skin hydration and anti-inflammation, although the effects have been studied only recently. Among them, Bifidobacterium is one of the most studied bacteria on skin function and its anti-inflammatory and/or photoprotective effects are suggested in both mice and humans.

Aims & Methods: In this study, we aim to investigate the effect of oral *B. breve* M-16V on the facial skin surface in human.

In a randomized double-blind placebo-controlled trial, 120 adult east Asian women aged 30-79 years with no undergoing clinical treatment on face skin were enrolled. Participants received *Bifidobacterium breve* M-16V ($1´10^{10}$ CFU) or placebo twice daily for 12 weeks. Facial skin condition was evaluated objectively by dermatologist and Canfield VISIA evolution, at baseline, 4 weeks, 8 weeks and 12 weeks.

The condition was also rated subjectively by participants themselves at each check point. Daily lifestyle including diet, sleep and exercise was stated on questionnaire and participants were asked not to change their lifestyle during the study. The primary outcome was the total VISIA score at each check point. All the objective and subjective skin scores were also analysed.

Results: The data of 120 participants (59 probiotic, 61 placebo) were collected from September 2021 to January 2022 in Tokyo, Japan. The absolute count of brown spots significantly decreased at week4 in probiotic group (p=0.011) while it worsened in placebo group at week12 (p=0.001). The count from the baseline showed statistical improvement in probiotic group than placebo at week4 (p=0.008) and week 8 (p=0.030). The feature score of brown spots also showed improvement in probiotic group at week4 (p=0.001) and week8 (p=0.05), and the change from the baseline at week4 was better than placebo (p=0.011). The feature score of wrinkles worsened in both groups throughout the study. The subjective evaluation of skin moisture, wrinkles and bowel movement improved in probiotic group at week12.

Subjective evaluation of overall skin condition improved in both groups. The mean total VISIA score was tended small in probiotic group at week12 (-0.025) but did not show statistical difference (p=0.38). Adverse events were seen in 37.3% of the participants.

There were no serious adverse events during the trial. The major adverse events were dermatological problems such as folliculitis (13.6% in probiotics and 11.5% in placebo), the common cold symptoms (10.2% in probiotics and 11.5% in placebo) and digestive symptoms including diarrhea (10.2% in probiotics and 9.8% in placebo). The frequency of adverse events was not statistically different between both groups.

Conclusion: Oral intake of *B. breve* M-16V appears to benefit skin condition by improving facial skin brown spots and bowel movement. It may also improve facial wrinkles and moisture.

Disclosure: Nothing to disclose.

PP0944 WITHDRAWN

PP0945

THE CLINICAL SYMPTOMS AND INTESTINAL FLORA OF TIBET PATIENTS DIFFERS FROM HAN WITH IBS

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Introduction: Irritable bowel syndrome (IBS) is characterized by abdominal pain or distension with the disorder of bowel habit and stool. It is believed that the changes of gut microbiota may play a major role in the occurrence and development of IBS. T

o date, few studies have focused on the clinical features and intestinal flora of IBS in the Tibetan population.

Aims & Methods: In this study, we aimed to compared the difference between the Tibets and Hans of IBS patients. This prospective single-center randomized controlled trial was designed and conducted in the Department of Gastroenterology, Hospital of Chengdu Office of People's Government of Tibetan Autonomous Region, PR China. The study was approved by the Medical Ethics Committee (approval number: (2018) study No. 20). Patients meeting inclusion and exclusion criteria were grouped by their race to the Tibet group and the Han group. All enrolled patients were received conventional management. Besides, a simplified GSRS-based questionnaire, including five dimensions of IBS-related symptoms, was used to assess the severity of IBS. The stool samples of all participants were collected for the analysis of gut microbiota by the 16sRNA Illumina sequencing analysis.

Results: From August 2018 to January 2019, a total of 45 patients with IBS admitted to the were recruited in this study, including 20 Han and 25 Tibetan, aged from 27 to 74 years old. The baseline data for the two groups were comparable. No significant difference was found in the total symptom score of the simplified GSRS-based questionnaire between the Han and Tibetan groups. But the symptom components varied in each dimension. According to symptom questionnaire, there was no significant difference in pain-related symptoms such as abdominal pain (13.93% *vs* 13.64%), pain frequency (13.43% *vs* 12.88%) and defecation pain (12.94% *vs* 11.36%) between the Tibetan and Han patients. However, it should be noted that Tibetans with IBS are more likely to suffer from bloating, and the proportion is significantly higher than that of the Han population(17.41% *vs* 9.09%, $p<0.001$).

Moreover, shift of gut microbiota were showed between two groups. At the phylum level, the Tibet group had a significantly higher proportion of Bacteroidetes than the Han group (38.16±28.15% *vs* 17.28±13.72%, $p=0.015$). In total, 20 taxa were significantly different between the Tibet and the Han group and the top-10 representative taxa. There was a significant negative correlation between genus Blautia and bloating scores (*Pearson* r = -0.33, $p=0.025$).

Conclusion: The characteristics of Tibet patients differs from Han with IBS, not only in the clinical symptoms, but also in the characteristics of intestinal flora. Tibetans with IBS are more prone to bloating, which might due to the gut microbiota. The genus Blautia might play a role in this mechanism.

Disclosure: Nothing to disclose.

PP0946 WITHDRAWN

PP0947

THE CHARACTERISTICS OF *STRONGYLOIDES STERCORALIS* INFECTION: A SINGLE-CENTER EXPERIENCE IN VIETNAM

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Introduction: *Strongyloides stercoralis*, a soil-transmitted nematode, is one of the most overlooked tropical diseases. The infection is known to cause a potentially fatal syndrome in immunosuppressed individuals. Despite increased global awareness of Strongyloidiasis, data on this infectious disease is still lacking in Vietnam.

Aims & Methods: This retrospective study was carried out to describe the clinical and laboratory characteristics of strongyloidiasis cases in University Medical Center Ho Chi Minh City to aid in early diagnosis.

The data of patients who were admitted to the Gastroenterology Department of University Medical Center Ho Chi Minh City from January 2018 to December 2022 were examined. The diagnosis of Strongyloidiasis relies on identifying larvae in stool and/or the positive of the serologic test without prior treatment. The following information was collected: clinical manifestation, laboratory test, abdominal imaging, treatment course, and follow-up.

Results: A total of 163 patients who satisfied the inclusion criteria were retrospectively reviewed. Their median age was 68 (23-97) and male was predominant (73%). Abdominal pain (63.2%), nausea (50.3%), diarrhea (46%), and fatigue (76.7%) were the four most common symptoms. The immunocompromised state appears to be the risk factor for strongyloidiasis, with 64.4% of cases. Of which, long-term steroids use was the most prominent (23.3%). More than half of the cases (50.% and 57.1%, respectively) had hypereosinophilia and hypoalbuminemia. Severe hyponatremia is also a notable feature, accounting for nearly one-fifth of all cases (17.3%). In terms of imaging, signs and symptoms are nonspecific, including ascites, bowel dilation, or obstruction. Larvae were found in the stool in two-thirds of the cases (66%) and the serologic test was positive in 74.7% of the cases. Chronic strongyloidiasis accounted for the vast majority of cases (92.6%), with hyperinfection syndrome and disseminated strongyloidiasis accounting for a minor proportion (1.2% and 6.2%, respectively). A significant decrease in the eosinophil counts from baseline to one week after treatment (22.9% of cases), when median values were within the normal range. Except in 17 out of 163 cases (10.4%), the response to ivermectin was excellent.

Conclusion: Strongyloidiasis should be suspected in patients who are immunocompromised, have multiple chronic diseases, have gastrointestinal symptoms, eosinophilia and/or hypoalbuminemia.

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PP0948

FECAL MICROBIOME: IMPROVING STOOL SAMPLE PRESERVATION, NUCLEIC ACID EXTRACTION AND QUANTIFICATION

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Introduction: The gut microbiome plays a significant role in the development, progression, and treatment of various gastrointestinal (GI) diseases. However, analyzing the microbiome remains a time-consuming challenge, mainly due to the lack of validated methodologies that can extract DNA and RNA simultaneously. This study aimed to determine the impact of storage conditions and nucleic acid extraction protocols on the recovery and integrity of microbial genetic material from stool samples.

Aims & Methods: Stool samples from seven healthy individuals were stored under different conditions: in conventional stool collection tubes at room temperature (condition A); or in collection tubes with DNA stabilizer (INVITEK) at room temperature (condition B), at -20°C (condition C), or at -80°C (condition D). For DNA and RNA extraction, the Chemagic DNA Stool Extraction kit (Perkin Elmer) was used.

Although this kit was only validated for DNA extraction, modifications to the standard protocol were made to achieve RNA extraction. The yield and purity of both DNA and RNA were evaluated using the Nanodrop2000. The applicability of the kit for RNA extraction was ultimately assessed using 16s rRNA sequencing and whole viral genome sequencing (Illumina MiSeq).

Results: Collecting stool samples in tubes containing DNA stabilizer and keeping them frozen allowed for higher yields (mean DNA and RNA concentrations of 70±52 and 51±42ng/µl, respectively, for samples at -80°C vs. 61±41 and 50±45ng/µl at -20°C), with good purity. Conversely, significantly lower concentrations were obtained for samples at room temperature, particularly if tubes without stabilizer were used. Perkin Elmer's extraction kit successfully extracted DNA and RNA independently of RNase treatment, although higher yields were obtained without RNase (mean RNA concentrations of 150±123 vs. 51±42ng/µl). Whole genome sequencing confirmed the ability to extract and categorize viral material.

Nucleic acid	Condition	Nucleic acid	A260	A280	A260/280	A260/230
DNA	A	19.70 ± 9.15 ng/µl	0.81 ± 0.30	0.45 ± 0.16	1.54 ± 0.21	2.01 ± 0.55
	B	46.30 ± 20.17 ng/µl	1.12 ± 0.27	0.55 ± 0.16	1.84 ± 0.11	2.31 ± 0.69
	C	61.30 ± 41.10 ng/µl	1.47 ± 0.93	0.80 ± 0.41	1.78 ± 0.08	2.62 ± 0.62
	D	70.10 ± 52.30 ng/µl	1.42 ± 0.85	0.78 ± 0.36	1.79 ± 0.07	3.34 ± 0.94
RNA	A	23.89 ± 10.15 ng/µl	0.78 ± 0.39	0.44 ± 0.21	2.01 ± 0.09	33.40 ± 10.38
	B	32.36 ± 15.94 ng/µl	0.89 ± 0.39	0.40 ± 0.21	2.10 ± 0.09	41.40 ± 14.38
	C	49.94 ± 44.60 ng/µl	1.30 ± 0.97	0.71 ± 0.50	2.10 ± 0.19	30.20 ± 1.59
	D	50.98 ± 41.63 ng/µl	1.30 ± 0.95	0.70 ± 0.53	2.10 ± 0.16	40.44 ± 8.05

Table 1. DNA and RNA concentrations in samples stored under different conditions.

Conclusion: The simultaneous extraction of DNA and RNA using Perkin Elmer's kit is feasible and accurate, optimizing time and resources. The application of these protocols to samples from patients with GI conditions, particularly those with inflammatory bowel disease, is underway.
Disclosure: Nothing to disclose.

PP0949

TARGETING THE INTESTINAL ECOSYSTEM THROUGH A GUT MICROBIOME TESTING TO TREAT RECURRENT URINARY-TRACT INFECTIONS FROM GUT PATHOBIONTS: A PILOT STUDY

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Introduction: Recurrent urinary tract infections (rUTIs) affect up to 25% of women worldwide[1], with risk of antibiotic-related side effects and multidrug resistance. Several gut pathobionts, mainly Enterobacteriaceae, are responsible for nearly 90% of all UTIs, and gut microbiome imbalance has recently appeared as a main pathogenic pathway of UTIs[2]. Untargeted probiotics have provided conflicting results in this setting,[3-5] and current evidence does not support their use.[6] Gut microbiome testing are emerging as a promising diagnostic tool to target microbiome and offer a personalized therapeutic strategy, but their real value is unknown.
Aims & Methods: Our aim is to evaluate whether targeting gut microbiome is an effective strategy to prevent rUTIs derived from gut pathobionts.
In this pilot study, we included consecutive patients with rUTIs derived from gut pathobionts referring at our outpatient microbiome clinic in 2022. All patients underwent a commercially available stool microbiome testing (XMICROGem from XBIOGem) based on 16S rRNA analysis, performed as already described[7]. Then, patients received a targeted therapy based on results of the gut microbiome testing, with the aim of restoring a balanced microbiota. Non-adsorbable antibiotics were used to downregulate pathobionts' abundance, while prebiotics and probiotics were given to boost the abundance of specific taxa and/or to compete with pathobionts. Patients were followed up at least 12 weeks after the end of therapy.
We collected the following data of patients: age, gender, presence of gastrointestinal (GI) symptoms (assessed with GSRS), taxa responsible of UTIs; specific characteristics of gut microbiome (alpha diversity, abundance of Enterobacteriaceae, Escherichia, Klebsiella, Bifidobacteria, Akkermansia, and short-chain fatty acid producers including Lachnospiraceae, Faecalibacterium, Roseburia, Butyrivibrio); specific therapies given after testing, including non-adsorbable antibiotics, prebiotics, and probiotic strains. The primary outcome was the recurrence of UTIs, and the secondary outcome was gastrointestinal symptoms, at 12-week follow-up.
Results: Twelve patients were enrolled in the study period (n= 11 females, mean age 40 years). Of them, 11 (92%) presented with GI symptoms (67% with bloating, 50% with constipation, 50% with abdominal pain, 42% with dyspepsia, 17% with diarrhea). rUTIs were caused by *E. coli* in 11 patients and *E. faecalis* in one patient. The gut microbiome testing showed a decrease of alpha diversity in two patients (17%), of Akkermansia in eight patients (67%) and of SCFA-producers in seven patients (58%), as well as increased Proteobacteria in seven patients (58%). Moreover, Bacteroidetes were increased in four patients (33%) while Firmicutes were decreased in two patients (17%). Ten patients underwent rifaximin (83%) and two paromomycin (17%). *E. coli Nissle 1917* was used in seven patients (58%), five in combination with an *Enterococcus faecium-based* strain,one in combination with *Lactobacillus crispatus* M247, and one in combination with both. Multi-strains probiotics were used in 7 patients (58%). Prebiotics were administered in seven patients. At 12-week follow-up, nine patients (75%) were free from new episodes of UTIs, and eight patients (73%) experienced an improvement of GI symptoms.
Conclusion: A precision medicine strategy based on gut microbiome testing may be a promising approach to treat rUTIs and ameliorate associated GI symptoms. Well designed, randomized and larger studies are needed to confirm our preliminary findings.
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PP0950

A MICROBIOME TESTING-BASED PRECISION MEDICINE APPROACH TO TREAT POST-INFECTIOUS IRRITABLE BOWEL SYNDROME: A PILOT STUDY

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Introduction: Gut microbiome alterations are known to be one of the pathogenic pathways of irritable bowel syndrome (IBS), mainly in its post-infectious form (PI-IBS) [1]. To date, untargeted therapeutic approaches have obtained conflicting results in patients with PI-IBS [2,3]

Gut microbiome testing are emerging as a promising diagnostic tool to target microbiota and offer a personalized therapeutic strategy, but their real value is still unknown.

Aims & Methods: Our aim is to evaluate whether a personalized approach based on gut microbiome testing is an effective strategy for PI-IBS.

In this pilot study, we included consecutive patients with PI-IBS, diagnosed according to the Rome IV guidelines[4], referring at our outpatient microbiome clinic in 2022.

All patients underwent a commercially available stool microbiome testing (XMICROGem from XBIOGem) based on 16S rRNA analysis and performed as already described[5]. Then, patients received a targeted therapy based on results of the gut microbiome testing, with the aim of restoring balance among the bacterial subpopulations of the gut microbiota. Non-adsorbable antibiotics were used to downregulate the abundance of pathobionts, while prebiotics and probiotics were given to boost the abundance of specific taxa and/or to compete with gut pathobionts. Patients were followed up to 12 weeks after the end of therapy.

We collected the following data of patients: age, gender, presence of gastrointestinal (GI) symptoms (assessed with the GSRS); specific characteristics of gut microbiome (alpha diversity, abundance of Proteobacteria, Firmicutes, Bacteroidetes, Bifidobacteria, Lactobacilli, Akkermansia, and short-chain fatty acid producers including Lachnospiraceae, Faecalibacterium, Roseburia, Butyrivibrio); specific therapy given after testing, including non-adsorbable antibiotics, prebiotics, and probiotic strains. The primary outcome was the resolution of at list one symptom, while secondary outcomes were the resolution of more than one (if present) and all of them at 12 weeks.

Results: Thirteen patients were enrolled in the study period (8 males, 5 females, mean age 31 years-old). Of them, 9 (69%) had IBS-D and 4 (31%) IBS-C. Nine patients (69%) had bloating, and 10 (71%) had abdominal pain at baseline. At gut microbiome testing: three (23%) patients presented with low alpha diversity, three (23%) with high abundance of Proteobacteria, five (38%) of Firmicutes. Seven (54%) patients presented with low abundance of SCFA-producing bacteria, eight (62%) of Akkermansia and nine (69%) of Bifidobacteria.

Patients were treated with the following non-adsorbable antibiotics: rifaximin in nine (69%) patients, and paromomicin in four (31%) patients. The following prebiotics and probiotic strains were used after antibiotics: multispecies probiotics in five patients (38%), Bifidobacterium-based probiotics in five patients (38%), Lactobacillus-based probiotics in eight patients (54%), and *Escherichia coli* Nissle 1917 in 2 (15%) patients; inulin and psyllium were used in nine (69%) patients.

At 12-week follow-up, 12 patients (93%) experienced an improvement of symptoms, with five of them (38%) experiencing a total remission of symptoms.

Conclusion: A precision medicine approach based on gut microbiome testing may be a promising strategy to treat PI-IBS. Well designed, randomized and larger studies are needed to confirm our preliminary findings.

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A.G. reports personal fees for consultancy from Eisai Srl, 3PSolutions, Real Time Meeting, Fondazione Istituto Danone, SinergieSrl, Board MRGE and Sanofi SpA personal fees for acting as a speaker for Takeda SpA, AbbVie and Sandoz SpA and personal fees for acting on advisory boards for VSL3 and Eisai.

G.C. has received personal fees for acting as advisor for Ferring Therapeutics.

All other authors have no conflicts of interest to disclose.

PP0951

FECAL MICROBIOTA TRANSPLANTATION FOR RECURRENT CLOSTRIDIOIDES DIFFICILE INFECTION IN PATIENTS WITH ULCERATIVE COLITIS

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Introduction: Clostridioides difficile infection is a major challenge for healthcare systems. Inflammatory bowel disease (IBD), including ulcerative colitis (UC) and Crohn's disease, is a risk factor for primary and recurrent CDI (rCDI). Moreover, CDI itself often worsens the clinical picture of IBD, increasing the risk of complications. Fecal microbiota transplantation (FMT) is a highly effective treatment for rCDI, but data from patients with IBD and CDI are limited and often referred to mixed cohorts.
Aims & Methods: We aimed to report outcomes from a cohort of patients with UC treated with FMT for rCDI superinfection.
In a retrospective, single-centre cohort study we evaluated characteristics and outcomes of patients with UC who received FMT for rCDI. The primary outcome was negative C. difficile toxin 8 weeks after FMT.
Results: Thirty-five patients were included in the analysis. Sixteen patients were cured after single FMT, while 19 patients received repeat FMT. Overall, FMT cured rCDI in 32 patients (91%), and repeat FMT was significantly associated with sustained cure of CDI compared with single FMT (84% vs 50%, p= 0.018). Twenty-four patients (69%) experienced remission or an amelioration of UC activity. Serious adverse events were not observed.
Conclusion: In our cohort of patients with UC, FMT was highly effective in curing rCDI without severe adverse events, and repeat FMT was significantly associated with CDI cure. Most patients also experienced remission or amelioration of UC activity after FMT. Our findings suggest that a sequential FMT protocol may be used routinely in patients with UC and rCDI.
Disclosure: Nothing to disclose.

PP0952

LARGE QUESTIONNAIRE STUDY IDENTIFYING POSITIVE PREDICTORS FOR INTESTINAL METHANOGEN OVERGROWTH

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Introduction: Intestinal methanogen overgrowth (IMO) is characterized by colonization of methanogenic species in the gastrointestinal tract and elevated breath methane levels, which are associated with constipation. It can be diagnosed with a simple, non-invasive hydrogen and methane breath test (HMBT). We wanted to determine if IMO is associated with any other symptoms, medications or medical conditions.
Aims & Methods: A large questionnaire-based study was conducted in over 1000 patients of which 731 patients underwent a lactulose HMBT. The 26-item questionnaire included questions about medical history and symptoms, and we used this to identify positive predictors for IMO. Patients were considered positive for IMO if any of the breath samples provided had a concentration of ≥10 ppm methane. Samples were analysed using gas chromatography and statistical significance of associations and predictors were calculated using chi square and logistic regression, respectively.
Results: 232 patients were positive for IMO on HMBT. There was a positive association for constipation (P < 0.001) and negative association for diarrhoea (P = 0.002). Excessive methane was associated with stools that appear fatty/greasy and/or tend float (P < 0.001) where 75% of patients with IMO reported this. 22 patients in this cohort had inflammatory bowel disease (IBD) of which 91% tested negative for methane (P = 0.020).
Conclusion: This large questionnaire study has provided further evidence that excessive breath methane production is associated with constipation and inversely associated with diarrhoea and IBD. We have also shown that excess methane may also lead to fatty/greasy stools that can float. HMBT plays an important role to identify IMO in patients with constipation.
Disclosure: Nothing to disclose.

PP0953

ABC SCORE FOR LOWER GASTROINTESTINAL HAEMORRHAGE: DOES IT TELL US MORE THAN ONE-MONTH SURVIVAL?

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Introduction: The management of acute lower gastrointestinal bleeding (LGIB) is based on clinical acumen and local protocols that are not underpinned by validated scoring systems. The ABC score is validated to predict 30-day survival in LGIB but not to predict need for therapeutic intervention. Therefore, we retrospectively reviewed the clinical course of inpatients with LGIB at the Aberdeen Royal Infirmary (ARI) to evaluate ABC score performance in decision-making in a period before and during the COVID-19 pandemic as a part of a natural experiment.
Aims & Methods: Consecutive unscheduled admissions to ARI in the 10 months before and after 31/03/2020 with discharge summaries coded with lower or unspecified GIB that warranted investigation or management were identified by electronic patient record search. Patient demographics, investigations, and outcome were analysed with statistical testing by chi-squared and Wilcoxon rank sum tests. General linear models were created within R using a random selection of 80% of the cohort to "train" the model, using the remaining 20% as "validation" of model performance.
Results: The search identified 273 admissions (257 unique patients): 138 (51%) in the pre-pandemic period and 135 (49%) in the pandemic period. There were no significant differences in sex, age, ABC score, or length of stay between these two periods. ABC score was associated with decreased 30-day survival, though most patients with a high ABC score nonetheless survived. Patients with an intermediate ABC score were most likely to be admitted to critical care and those with a low ABC score had the shortest length of stay. ABC score performed very well in predicting 30-day survival (area under the curve [AUC] = 0.97), but not in predicting LGI endoscopy, computed tomography mesenteric angiograms, or deferment to outpatient investigations. Likewise, ABC score did not accurately predict admission to critical care. Half of patients with a high ABC score of 8 or more (15 out of 30) were qualitatively described as too frail for invasive procedures such as endoscopy.
Conclusion: The ABC score to predict 30-day survival in patients with LGIB was very accurate in our retrospective cohort of patients admitted to the ARI, both before and after the start of the COVID-19 pandemic. However, the ABC score was relatively ineffectual in predicting investigations, man-

agement, and critical care admission. Higher ABC scores were generally garnered by frailer patients, reflecting the large proportion of points relating to chronic conditions. Accordingly, these are patients in whom invasive management strategies are often not appropriate. Due to limitations in our data, we were unable to compare the performance of the ABC score relative to other scoring systems. The ABC score is unlikely to contribute to clinical decision making in the initial management of LGIB. Therefore, further large-scale studies are required to provide an evidence basis to guide admission to critical care and urgent intervention.

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Disclosure: Nothing to disclose.

PP0954

DO WE NEED EMERGENCY COLONOSCOPY FOR ACUTE DIVERTICULUM BLEEDING?

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Introduction: It has been reported that diverticulum hemorrhage has a high spontaneous hemostasis rate of 70 to 90% and rarely leads to hemorrhagic shock, so emergency colonoscopy is not widely performed. However, there is a report that the identification rate of stigmata of recent hemorrhage increases with early colonoscopy administration, so we have performed many emergency colonoscopy within 24 hours after the ER visit.

Aims & Methods: We retrospectively examined 68 cases of diverticulum bleeding who visited our hospital from April 2011 to October 2016; 38 cases in the emergency group who underwent colonoscopy within 24 hours and 30 cases in the elective group who underwent colonoscopy after 24 hours.

Results: The age was 73 ± 11 in the emergency group and 72 ± 12 in the elective group. The blood Hb concentration at the first ER visit was 10.0 ± 3.0 g / dL in the emergency group and 10.5 ± 2.4 in the elective group, showing no significant difference. There were no significant differences in blood pressure or pulse rate at the first ER visit. The oral antiplatelet drug use was 39% in the emergency group, which was higher than that in the elective group 23%, but there was no significant difference in the oral anticoagulant and NSAIDS use. The length of hospital stay was 8.0 ± 6.1 days in the emergency group, 8.0 ± 4.6 days in the elective group, and the blood transfusion rate was 53% in the emergency group and 46% in the elective group, showing no significant differences. A significant difference was observed in the rate of identifying bleeding sources. In 26% of the emergency group and 10% of the elective group, stigmata of recent hemorrhage was identified and hemostatic treatment was performed ($p<0.05$). No major complications such as intestine perforation was observed in the two group.

Conclusion: Emergency colonoscopy for diverticulum bleeding does not reduce blood transfusion during hospital stay, but it identifies bleeding sources and may lead to effective treatment.

Disclosure: Nothing to disclose.

PP0955

TRANSFUSION STRATEGIES FOR PATIENTS WITH COLONIC DIVERTICULAR BLEEDING

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Introduction: Colonic diverticular bleeding (CDB) is the most common cause of acute lower gastrointestinal bleeding (ALGIB) and often requires blood transfusion. There are several studies regarding the use of restrictive blood transfusion for acute upper gastrointestinal bleeding, but there is only one previous study regarding the use of restrictive blood transfusion for ALGIB [1]. Therefore, the efficacy of restrictive blood transfusion for CDB remains unclear.

Aims & Methods: This study sought to elucidate the association between the restrictive blood transfusion strategy and the clinical outcomes in patients with CDB. We retrospectively analyzed 475 patients who were urgently hospitalized for CBD and received blood transfusions at two facilities between November 2013 and December 2021. Transfusion strategy was defined as the restrictive group when patients received transfusion for hemoglobin (Hb) ≤ 7 g/dl, and the liberal group when patients received for Hb > 7 g/dl. The hemoglobin cut-off value for restrictive blood transfusion was determined based on a prior randomized clinical trial regarding UGIB [2]. Rebleeding within 30-days, mortality within 30-days, and composite outcome within 30-days were evaluated. The composite outcome comprised the following endpoints: rebleeding, need for surgery or IVR for hemostasis, and mortality within 30 days. We also investigated medical costs during hospitalization. Logistic regression analysis was performed to calculate the odds ratios (OR) with 95% confidence interval (CI) to analyze associations between restrictive transfusion strategy and outcomes.

Results: Of 475 patients, 184 (38.7%) (124 males, 60 females, mean age 76.5±11.5 years) patients received blood transfusion. The mean hemoglobin levels at the time of transfusion in the restrictive and liberal groups were 6.3±0.6 g/dl and 8.2±1.2 g/dl, In the restrictive and liberal group, rebleeding within 30-days was 53.9% and 45.3% ($P = 0.24$), the mortality within 30-days was 1.1% and 0% ($P = 0.30$), the composite outcome within 30-days was 56.1% and 52.6% ($P = 0.63$), respectively. After adjusting for potential confounders, multivariate analysis revealed that restrictive transfusion strategy not associated with decreased rebleeding risk within 30-days, ($P = 0.42$; odds ratio [OR], 1.3), whereas endoscopic hemostasis significantly associated with decreased rebleeding risk ($P < 0.01$; OR 0.2). There was no statistically significant difference in total medical costs between the two groups ($P = 0.68$).

Conclusion: There were no statistically significant differences in rebleeding within 30-days, mortality within 30-days, and compositeoutcome within 30-days between the restrictive and liberal blood transfusion strategies. Restrictive blood transfusion may be a reasonable therapeutic strategy for patients with CDB, except for patients in which shock status cannot be withdrawn. However, further evidence is needed to advocated the efficacy of restrictive transfusion strategies for lower gastrointestinal bleeding.

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Disclosure: Nothing to disclose.

PP0956

BENEFITS OF BOWEL PREPARATION FOR URGENT COLONOSCOPY IN PATIENTS WITH COLONIC DIVERTICULAR BLEEDING: A MULTICENTER RETROSPECTIVE STUDY WITH PROPENSITY SCORE MATCHING ANALYSIS

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Introduction: Colonic diverticular bleeding (CDB) is the most common cause of acute lower gastrointestinal bleeding (ALGIB). In a recent Japanese multicenter retrospective cohort study, 63.6% of patients with ALGIB were ultimately diagnosed with CDB [1]. It has also been reported that CDB in ALGIB is reportedly more severe than in other entities [2, 3]. However, few reports have demonstrated the efficacy and safety of bowel preparation for patients undergoing urgent colonoscopy.
Aims & Methods: We aim to clarify choice a of bowel preparation for urgent colonoscopy in patients with colonic diverticular bleeding. In a multicenter retrospective cohort study at 10 institutions, we analyzed the endoscopic findings and clinical course of patients diagnosed with CDB who underwent urgent colonoscopy within 24 hours after admission. Bowel preparation consisted of oral consumption of 1 to 2 L of polyethylene glycol lavage (PEL); enemas were not used. We compared those CDB patients who underwent PEL (PEL group) with a control group who did not undergo PEL (non-PEL group) before and after propensity score matching. For the matching, we selected variables known at the time of hospital admission (i.e. age, sex, comorbidities, medications, performance status, and laboratory data). The primary endpoint of the study was length of hospital stay, and secondary endpoints included blood transfusion requirements, rebleeding rates, endoscopic findings, and complications.
Results: 242 patients were enrolled in this study. The median age was 76 years, and 60.7% of patients were men (n = 147). Approximately half of the patients underwent bowel preparation with PEL prior to urgent colonoscopy (n = 129). We compared with clinical findings between the PEL and non-PEL groups. The length of hospital stay was shorter in the PEL group (8.0 ± 5.1 days vs 10.9 ± 5.8 days; mean ± SD; $P < 0.001$). Further, the PEL group was significantly younger (72.2 ± 12.1 vs 75.4 ± 13.1; mean ± SD; $P = 0.036$), had fewer patients with hypertension (62.0% vs 75.2%; $P = 0.027$) and malignant neoplasm (1.6% vs 10.6%; $P = 0.002$), and had better performance statuses (86.1% vs 76.1%; $P = 0.047$). Patients in the PEL group received fewer blood transfusions (25.6% vs 44.3%; $P = 0.002$), had a higher rate of cecal completion (88.3% vs 49.6%; $P < 0.001$), and shorter endoscopic observation times (20.8 ± 16.2 min vs 29.9 ± 24.8 min; mean ± SD; $P = 0.006$). After propensity score matching, there were 91 patients each in PEL group and in non-PEL group. PEL group had a significantly shorter hospital stay (7.9 ± 4.6 days vs 10.7 ± 5.8 days; mean ± SD; $P < 0.001$), a higher cecum completion rate (87.8% vs 48.3%; $P < 0.001$), and a shorter endoscopic observation time (20.7 ± 16.8 min vs 28.9 ± 24.1 min; mean ± SD; $P = 0.031$) than non-PEL group. There were no significant differences in blood transfusion requirements, rebleeding rates, identification of SRH, need for endoscopic hemostatic treatment, or complication rates.
Conclusion: In patients with CDB, urgent colonoscopy under PEL resulted in shorter hospital stays, higher cecal completion rates, and shorter endoscopic observation time in urgent colonoscopy. The safety of urgent colonoscopy with PEL was comparable to colonoscopy without PEL. These results suggest that PEL is preferrable for urgent colonoscopy in patients with CDB.
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Disclosure: Nothing to disclose.

PP0957

WHICH SIDE OF THE COLON IS MORE PRONE TO THE RECURRENCE OF COLONIC DIVERTICULAR BLEEDING? A RETROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Recurrence of colonic diverticular bleeding (CDB) can occur both in the short term and long term. The right and left sides of the colon are embryologically and hemodynamically different; thus, different rebleeding rates are expected depending on whether the diverticula are located in the right or left side of the colon. However, only few reports have specifically investigated the difference in CDB rebleeding rates between the right-sided and left-sided diverticula.
Aims & Methods: We aimed to compare the rebleeding rates in CDB between cases with right-sided and left-sided diverticula. Among the patients who underwent colonoscopy (CS) for hematochezia, and were admitted to our hospital between February 2009 and January 2022, 275 consecutive CDB patients (182 men and 93 women, mean age: 71 years) were included in the study, after excluding patients with diverticula in both sides of the colon. The diagnosis of CDB was made by CS, and the location of the diverticula was evaluated using CS and computed tomography. The right-sided group (n=167) was defined as patients with diverticula only in the right colon, and the left-sided group (n=108) was defined as patients with diverticula only in the left colon. Endoscopic treatment was indicated when stigmata of recent hemorrhage was identified during colonoscopic examination. Rebleeding was defined as significant amounts of fresh,

bloody, or wine-colored stool after discharge. The cumulative rebleeding rate after discharge was compared in both groups by the Kaplan–Meier curve, using the log-rank test. The hazard ratios adjusted for age, sex, body mass index (BMI), and background factors were calculated using the Cox proportional hazards model.

Results: A total of 119 definitive CDB cases and 156 presumptive CDB cases were included in this study. Cases that underwent surgical resection of the colon during follow-up were not included in the study. Endoscopic treatment was performed in 118 patients. The median follow-up after discharge was 26 months (interquartile range: 4–55 months), and rebleeding occurred in 75 patients (27%). Cumulative rebleeding rates in the right-sided group over 1, 3, and 5 years were 18%, 26%, and 38%, while those in the left-sided group were 13%, 15%, and 23%, respectively, with significantly more rebleeding observed in the right-sided group (P = 0.002). The hazard ratio, adjusted for age, sex, BMI, and background factors, namely, alcohol consumption, performance status, white blood cell count on admission, heart failure, non-steroidal anti-inflammatory drug use, low-dose aspirin use, and endoscopic treatment, was 1.87 (95% confidence interval: 1.04–3.36).

Conclusion: After discharge from the hospital, CDB from the right-sided colon is more likely to recur than that from the left-sided colon.

Disclosure: Nothing to disclose.

PP0958

DOES INITIAL CONTRAST-ENHANCED CT IMPACT ON CLINICAL OUTCOMES OF PATIENTS WITH COLON DIVERTICULAR BLEEDING?

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Introduction: Although the recommended method of an initial examination of hematochezia is colonoscopy, computed-enhanced CT (CECT) is an appealing diagnostic modality for the same disorder, because it has a superior ability of detecting active bleeding and it is widely available, fast, and minimally invasive. In many centers, CECT has already become an established method for characterizing the location of hematochezia. However, its impact on clinical courses of patients with colon diverticular bleeding is fully known. We conducted this study to assess them on the basis of single-center experience in Japan.

Aims & Methods: Consecutive 370 patients with colon diverticular bleeding from April 2002 to January 2023 were enrolled. Diagnosis of colon diverticular bleeding was based on total colonoscopy. Patients were divided into two groups who underwent initial examinations via CECT and colonoscopy.

Patient attributes, clinical data, and outcomes (length of hospital stay, re-bleeding rate, blood transfusion units and 30 days survival rate) were retrospectively analyzed. The patient characteristics and outcomes were compared between two groups using $\chi 2$ test or Fisher's exact test.

Results: 279 patients were men (75.4%). The average age was 70.0(30-94) years old. Initial CECT was performed to 204 patients (Group A) (54.9%) and remaining 166(group B).

Patients in group A were more likely to have cerebrovascular disorder.

Findings for other characteristics were similar between two groups.

In Group A, CECT revealed extravasation in 110 patients (53.9%).

Emergent colonoscopy was performed in 118 patients (extravasation positive 100: negative 18) and found bleeding point in 46 patients (extravasation positive 43: negative 3).

In Group B, emergent colonoscopy was performed in 70 patients and found bleeding point in 19(27.1%) patients.

Patients in group A required more blood transfusion units than group B significantly (3.36 ± 6.28 units in group A vs. 1.53 ± 2.96 units in Group B, p=0.001).

No significant difference was observed in terms of length of hospital stay (10.64 ± 7.11 days in group A vs.9.95 ± 5.37 days in Group B ,p=0.32) , recurrent bleeding rate (23.6 % in group A vs. 23.4 % in Group B, OR 1.016 ,p=1) , and 30 days survival rate (99.5% in Group A vs. 100 % in Group B, OR 1.005 ,p=1)

Conclusion: Emergent colonoscopy, subsequent to initial CECT which revealed extravasation, can detect bleeding point more efficiently in patients with colon diverticular bleeding. But, CECT did not improve clinical outcomes of these patients in this study.

Disclosure: Nothing to disclose.

PP0959

SEVERE COVID-19 IS ASSOCIATED WITH RISK OF LOWER GASTROINTESTINAL BLEEDING

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Introduction: Patients with the coronavirus disease 2019 (COVID-19) develop venous thromboembolism, resulting in a poor prognosis. Therefore, thromboprophylaxis is important for treatment, but anticoagulation is a risk for gastrointestinal bleeding. Gastrointestinal bleeding has been reported to occur in 2% to 13% of COVID-19 hospitalized patients[1], but few reports have examined the association between COVID-19 and gastrointestinal bleeding.

Aims & Methods: This study aimed to identify gastrointestinal bleeding risk factors in COVID-19 patients. A multicenter, retrospective cohort study was conducted in patients admitted with a diagnosis of COVID-19 between January 2020 and December 2021 in Japan. Thirteen hospitals around Tokyo area participated in this study. The severity of COVID-19 was classified in this study according to the NIH severity classification, Cases below moderate were classified as not severe in this study. We collected information on the background factors (gender, age, severity of COVID-19, medical history, medication at admission, treatment details) and presence of gastrointestinal bleeding during hospitalization. A multivariable logistic regression analysis model was adjusted to evaluate the association between background confounding factors and presence of gastrointestinal bleeding. Multivariate analysis was also performed separately for upper and lower gastrointestinal bleeding. Additionally, we evaluated the association between post-hospitalization treatment and gastrointestinal bleeding using descriptive statistics.

Results: 12,044 patients were included in the analysis. 4165 (34.6 %) were severe COVID-19 patients, and 1257 (10.4%) were critical COVID-19 patients. 103 (0.9 %) had gastrointestinal bleeding, of which 60 (0.5 %) were diagnosed with upper gastrointestinal bleeding and 45 (0.4%) with lower gastrointestinal bleeding. Two patients had both upper and lower gastrointestinal bleeding. Multivariate analysis showed that COVID-19 severe group had a significantly higher risk of gastrointestinal bleeding than COVID-19 not severe group (odds ratio (OR) 2.8, 95% confidence interval (CI): 1.3-5.7), and COVID-19 critical group also had a significantly higher risk of gastrointestinal bleeding (OR 22.0, 95% CI: 11.2-43.0). The risk of upper gastrointestinal bleeding was significantly higher in the critical group (OR 16.9, 95% CI: 7.5-37.8), but the severe group did not have a significantly in-

creased risk (OR 1.6 , 95% CI: 0.6-4.1). On the other hand, the risk of lower gastrointestinal bleeding was significantly higher in the severe group (OR 6.0, 95% CI: 1.7-21.3) and in the critical group (OR 35.5, 95% CI: 10.5-120.4) compared to the not severe group, suggesting that COVID-19 severe group was associated with lower gastrointestinal bleeding risk but not associated with upper gastrointestinal bleeding. No significant association was found between gastrointestinal bleeding and post-hospitalization anticoagulation in the COVID-19 severe group.

Conclusion: COVID-19 severity was considered a significant risk for gastrointestinal bleeding in hospitalized patients. The COVID-19 severe group is at risk for lower gastrointestinal bleeding even without the use of anticoagulants after hospitalization. Patients with severe or critical COVID-19 should be treated with caution, as they are at higher risk for complications of gastrointestinal bleeding, especially lower gastrointestinal bleeding.

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Disclosure: Nothing to disclose.

PP0960

VALIDATION OF OUR NEW PROTOCOL FOR COLONIC DIVERTICULAR HEMORRHAGE FOR ADJUSTING THE TIMING OF EMERGENCY ENDOSCOPIC PROCEDURES

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Introduction: Although the number of patients with diverticular hemorrhage in the colon has been increasing in recent years, it remains controversial whether emergency colonoscopy is effective for patient outcomes. We developed a new protocol to avoid emergency colonoscopic procedures at night (22:00-05:00), in which colonoscopy were performed within 8, 12, or 24 hours after the patient's arrival, as determined by the presence or absence of extravasation on contrast-enhanced computerized tomography and history of shock at the time of arrival. We have been applying the new protocol for lower gastrointestinal bleeding since the end of 2021. In addition, the endoscopic band ligation method has beenstandardized as the first choice for hemostasis when stigmata of recent hemorrhage (SRH) was identified. The purpose of this study was to verify the effectiveness of the new protocol.

Aims & Methods: Among patients diagnosed as diverticular hemorrhage at Nippon Medical School Hospital, we evaluated clinical outcomes including SRH identification rate, the rebleeding rate after 30 days of hemostasis, the period of hospitalization, and the rate for the hemostasis method after identifying SRH. Each clinical outcome factor afterapplying the protocol (January 2022 to December 2022) was compared with those before the protocol was established (January 2020 to December 2021). The chi-square or Fisher's exact test was used to compare categorical variables. Mann-Whitney U test was used to compare continuous variables.

Results: Among 93 cases diagnosed as diverticular hemorrhage during the new protocol was in operation, 79 cases followed the protocol and 74 cases underwent endoscopy. Among 191 cases diagnosed as diverticular hemorrhage before new protocol was in operation, 175 cases underwent endoscopy. After the new protocol was in operation, the number of emergency endoscopies at night (22 pm - 5 am) tended to decrease (before, 7.4% vs. after, 4.1%; P=0.41) although the difference was not significant. Both the SRH identification rate (before, 18.3% vs. after, 17.6%; P = 0.90) and the rebleeding rate after 30 days of hemostasis (8.0% vs. 6.8%; P = 0.74) was comparable between two groups. The period of hospitalization was significantly shortened by 1 day after the new protocol was in operation (P = 0.02). The rate for the hemostasis method after identifying SRH using clip/EBL was 8.4%/13% before the new protocol compared with 7.5%/9.7% after the new protocol.

Conclusion: Even when emergency colonoscopic procedures for colonic diverticular hemorrhage were not performed during nighttime whenever possible according to the protocol, similar clinical outcomes were observed by setting up detailed protocols according to the different situations.

There are no different patient outcomes observed even when emergency colonoscopic procedures for colonic diverticular hemorrhage were not performed during nighttime.

Our new protocol has validity to avoid nighttime colonoscopy as much as possible.

Disclosure: Nothing to disclose.

PP0961

EVALUATION OF THE INTRODUCTION OF FAECAL IMMUNOCHEMICAL TESTING (FIT) FOR PATIENTS WITH RECTAL BLEEDING IN NOTTINGHAM

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Introduction: Quantitative faecal immunochemical testing (FIT) is used in primary care to triage symptomatic patients for two-week-wait (TWW) colorectal cancer (CRC) referral, advised for use in all symptoms by specialty associations. FIT may effectively rule out CRC in FIT negative patients with rectal bleeding, with the potential to reduce endoscopy demand for patients with very low risk of CRC. Nottingham incorporated FIT (OC Sensor) into the TWW CRC diagnosis pathways for patients with rectal bleeding in November 2021. General Practitioners were advised to complete TWW referral for FIT ≥10 µgHb/g faeces (≥4 in the presence of anaemia or thrombocytosis).

Aims & Methods: Evaluate the demographics, investigations and early outcomes of the patients completing a FIT for rectal bleeding and compare to a reference group of TWW patients with rectal bleeding prior to the implementation of FIT.

Patients with rectal bleeding undertaking FIT after its introduction in this pathway (November 2021 to July 2022) had data collected in the Trust Enterprise Data Warehouse, allowing the formation of aggregate data (FIT group). Demographic, endoscopy, and cancer diagnosis was recorded with linkage to trust endoscopy and histology databases. A database of patients with rectal bleeding referred on a TWW pathway prior to the introduction of FIT (November 2017 to August 2019) was used as a comparison (pre-FIT group). In the pre-FIT group, investigation/outcome data was entered directly into the database by the nursing team managing referrals.

Results: 2490 patients undertook a FIT for rectal bleeding after its introduction into the pathway, with 1497 patients in the reference pre-FIT group. There were more females in the FIT group than pre-FIT group (52.6% vs 48.9% respectively). The median age was lower in the FIT group (58 years vs 63.2 years). 75% of patients with rectal bleeding undertaking FIT had a negative (<10 µgHb/g faeces) FIT, 4% a value 10-19.9 µgHb/g faeces, 8% 20-99.9 µgHb/g faeces and 12.4% ≥100 µgHb/g faeces.

65.6% of patients with a FIT ≥ 10 µgHb/g faeces underwent endoscopy, compared to 81.2% in the pre-FIT group. The proportion of patients having endoscopy increased with rising FIT result (50% at a result 10-19.9µgHb/g faeces, 74.2% ≥100 µgHb/g faeces). 13.3% of patients with a FIT <10 µgHb/g faeces underwent endoscopy.

24 (3.9%) of patients with a FIT ≥10 μgHb/g faeces had histological diagnosis of CRC. There were no diagnoses of CRC in FIT <10 μgHb/g faeces. 10 extra-colonic cancers were diagnosed in the FIT group (0.4%), all FIT <10 μgHb/g faeces. 93 (6.2%) of the pre-FIT group had a histological diagnosis of CRC, 9 (0.6%) had a diagnosis of extra-colonic cancer.

Conclusion: FIT's role in rectal bleeding remains unclear. In the limited follow-up of this study FIT appears to rule out CRC – 75% of patients returned a result <10 μgHb/g faeces and no CRC was found in these patients. However, CRC detection rates were almost 60% higher pre-FIT than in the FIT positive group; this may be explained by FIT being used for lower risk patients or the limited follow-up. Even in rectal bleeding a negative FIT may signpost towards extracolonic cancer, all found in FIT <10, suggesting appropriate investigations are required for these patients with low risk of CRC. Longer-term follow-up is required to assess whether any CRCs have been missed in "FIT-negative" patients to gauge the effectiveness of FIT for rectal bleeding and impact on endoscopy demand.

Disclosure: Nothing to disclose.

PP0962

CLINICAL CHARACTERISTICS OF ACUTE HEMORRHAGIC RECTAL ULCER

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Introduction: Acute hemorrhagic rectal ulcer (AHRU) is one of the most common diseases in elderly patients with underlying medical conditions and often results in serious outcomes. Although AHRU is a potentially life-threatening disease, its characteristics and clinical course are not fully elucidated.

Aims & Methods: We aimed to clarify the clinical characteristics of patients with acute hemorrhagic rectal ulcer. We enrolled consecutive 68 AHRU patients admitting to Nippon Medical School Hospital from September 2015 to December 2022, and their clinical characteristics and outcomes were determined according to medical records retrospectively.

Results: Clinical characteristics of AHRU patients were as follows: mean age 79; including 33 males and 35 females.

31 patients (46%) had a performance status (PS) of 3 or more. Comorbidities were cardiovascular disease in 24 patients, chronic renal failure (eGFR<30 for more than 3 months) in 12 patients, cerebrovascular disease in 14 patients, chronic hepatitis and cirrhosis in 2 patients, hypertension in 33 patients, diabetes in 22 patients, and dyslipidemia in 21 patients. Medications were antiplatelet agents in 27 patients, anticoagulants in 18 patients, NSAIDs in 7 patients, and steroids in 6 patients. 24 of 68 patients (38%) underwent endoscopic hemostasis (clip in 15 cases, hemostatic forceps in 9 cases, and combined clip and HSE injection in 1 case), interventional radiology in 1 case, and transanal suture in 4 cases. Rebleeding was observed in 16 of 68 patients (24%). Rebleeding after endoscopic hemostasis was observed in 7 of 24 patients (29%), of which 3 patients performed emergency colonoscopy after rebleeding. Of the 68 patients who required blood transfusion during hospitalization, 50 patients (74%) had a mean transfusion volume of 10.6 units (2-50). 13 (19%) of the 68 patients died during hospitalization due to exacerbation of their comorbidities.

Conclusion: AHRU was more common in elderly patients with comorbidities and lowered PS. Patients with AHRU who was required for endoscopic hemostasis was associated with frequent rebleeding, and some patients were led to severe outcome due to their complications or exacerbation of comorbidities. Therefore, management of patients with AHRU should focus on not only controlling the local bleeding but also managing their comorbidities and complications.

Disclosure: Nothing to disclose.

PP0963

TRANSCATHETER ANGIOGRAPHY AND VASCULAR EMBOLIZATION IN COLONIC DIVERTICULAR BLEEDING

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Introduction: Although transcatheter arterial embolization (TAE) has been reported to be effective for colonic diverticular bleeding, the patient outcomes of TAE have not been fully elucidated. The present study was conducted to investigate the patient characteristics and outcomes of TAE for colonic diverticular bleeding.

Aims & Methods: We enrolled 50 patients who were performed transcatheter angiography among 294 patients diagnosed as colonic diverticular bleeding by colonoscopy and abdominal CT, and were required for hospitalization from August 2012 to January 2021. Their clinical characteristics and outcomes of TAE were determined according to medical records retrospectively.

Results: The mean age of all 50 patients (44 males and 6 females) was 68 (45-86) years. History of cardiovascular disease in 15 patients, cerebrovascular disease in 7, renal disease in 4, hepatic disease in 5, hypertension in 27, diabetes mellitus in 5, and dyslipidemia in 10. The reasons for transcatheter angiography were rebleeding after colonoscopy in 21 cases (42%), shock vital in 13 cases (26%), extravasation on CT in 4 cases (8%), difficulty in stopping bleeding by endoscopy in 4 cases (8%), and rebleeding after angiography in 7 cases (14%). TAE was performed in 30 of 50 patients (60%). 7 of 50 patients (14%) were performed transcatheter angiography twice, of which 3 patients successfully performed TAE on the second time, 2 patients successfully performed TAE both times. The reasons for unsuccessful TAE were all negative extravasation on transcatheter angiography, and there were no cases in which TAE was technically impossible. In a comparison of 30 successful TAE cases and 20 unsuccessful TAE cases, the mean time from the appearance of hematochezia to transcatheter angiography (9.8 vs. 12.75 h; P=0.413), the rate of extravasation on CT before transcatheter angiography (56% vs. 45%; P=0.419) were not significantly different between the two groups. On the other hand, the rate of early rebleeding within 30 days was significantly lower in patients with successful TAE (13% vs. 60%, P = 0.001).

Conclusion: In cases of colonic diverticular bleeding, transcatheter angiography can be safely performed even when the patient's circulation is unstable. Moreover, the early rebleeding rate was significantly reduced in cases of successful TAE. However, the early rebleeding rate was high in patients who did not receive successful TAE, this should be considered as a future subject.

Disclosure: Nothing to disclose.

PP0964

LONG-TERM TREATMENT OF PATIENTS WITH SCREEN-DETECTED COLORECTAL CANCER IS LESS STRENUOUS - A RETROSPECTIVE COHORT STUDY

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Introduction: Colorectal cancer (CRC) screening has been implemented in numerous countries within the last two decades[1]. There is strong evidence that CRC screening leads to enhanced disease free- and overall survival[2–6]. However, there is to the best of our knowledge no studies investigating the effects of CRC screening on treatment in a long-term perspective.

Aims & Methods: The objective of this study was to investigate the effects of the Danish national CRC screening program on long-term treatment and health care contacts for patients diagnosed with CRC.This nationwide retrospective cohort study evaluated surgical- and oncological outpatient visits, treatments with chemo- and radiotherapy, health care contacts and hospitalization for patients with CRC during the first two years after diagnosis comparing patients with and without screen-detected CRC. The population consisted of Danish residents aged 50-75 years and diagnosed with CRC between January 1rst 2014 and March 31rst 2018. Data was collected from national healthcare registers .Duration of hospitalization were analyzed using a multivariate general linear model, metastasectomies and emergency surgeries were analyzed using a multivariate generalized linear model and data on oncological treatments were analyzed using a multivariate Poisson regression. Moreover, analyzes were stratified into UICC stages and adjusted for sex, 5-year age groups, type of cancer (colonic/rectal), and Charlson Comorbidity Index score to reduce healthy user bias.

Results: We included 4,708 and 7,332 patients with screen-detected CRC (SD-CRC) and non-screen-detected CRC (NSD-CRC), respectively. SD-CRC was associated with 38% reduced hospitalization. In a UICC-stratified analysis, hospitalization was shorter in the SD-CRC group across all UICC-stages. The rate of emergency surgery was significantly lower (RR=0.34, 95%-CI:0.28-0.41) in the SD-CRC group. There was no difference between the groups in rates of surgery for lung and liver metastasis. Lower number of oncological outpatient visits (RR=0.35, 95%-CI:0.33-0.37), treatment with chemotherapy (RR=0.57, 95%-CI:0.56-0.59) and radiotherapy (RR=0.50, 95%-CI:0.49-0.52) were found for patients with SD-CRC. UICC-stratified analyses revealed that these differences were consistent for all UICC stages, except for a significantly higher rate of treatment with chemotherapy in SD-CRC UICC stage IV. Overall, there was no difference between the two populations in number of contacts with primary healthcare providers. However, a UICC-stratified analysis revealed significantly fewer contacts with primary healthcare providers for patients with SD-CRC UICC I and III.

Conclusion: Compared with NSD-CRC, SD-CRC was associated with shorter hospitalization, less emergency surgery, and reduced oncological treatment within two years after diagnosis.

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PP0965

EARLY-ONSET COLORECTAL CANCER: A COHORT STUDY

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Introduction: Colorectal cancer's (CRC) incidence above 50 years old has been decreasing globally in the last decades, but its incidence in patients below 50 years old (early-onset colorectal cancer, EO-CRC) has been increasing, for reasons not yet fully understood.

Aims & Methods: A unicentric cohort study was conducted in a tertiary centre, including all patients admitted for a first diagnosis of CRC and evaluated by the Multidisciplinary Colorectal Cancer Group from 01.01.2017 until 31.12.2018. Patients with a previous diagnosis of a Hereditary Colorectal Cancer Syndrome were excluded.

Results: A total of 438 patients were included, 58.2% males, with a mean age at diagnosis of 67.7±11.1 years old. Mean follow-up time was 41.49 months. There were 25 EO-CRC patients (5.7%), 17 males (68%), mean age 43.1±6.0 years old.

Globally, 32.4% of the patients were current or past smokers, 18.5% had previous non-colorectal cancer, 7.5% and 3.4% were previously exposed to immunosuppressive drugs or abdominal/pelvic radiotherapy, respectively. The majority presented with normal(29.7%) to high Body Max Index (39.7%), median 25.6 (IQR:22.6-28.4) Kg/m^2. The most common CRC location was the rectum (42.9%) and 56.1% were stage I or II (AJCC 8th edition).

In the univariate analysis, a significant association was found between EO-CRC and: smoking status (past or current smokers 52% in EO-CRC vs. 31.2% in older cases p=0.009); lymphovascular invasion (40.0% in EO-CRC vs. 17.4% in over 50, p=0.018)

No significant differences were found for histological subtype (p=0.447), perineural invasion (p=0.474), or tumor stage at diagnosis, although a relevant proportion of the younger patients had metastatic disease at diagnosis (28.0% vs. 12.8%, p=0.064).

Immunohistochemistry for mismatch-repair proteins showed loss of expression of at least one protein in 1/18 EO-CRC patients and 22/179 of older patients (p=0.728).

From the EO-CRC patients, 16 were evaluated in the Familial Cancer Clinic and 14 underwent germline mutation analysis: 13 patients had inconclusive results, one of them presented a *MUTYH* heterozygote mutation and another was diagnosed with *MUTYH*-associated Polyposis (composed heterozygote mutation).

Conclusion: Colorectal cancer showed distinctive features in the younger population, with a higher prevalence of lymphovascular invasion and, possibly, a higher incidence of metastatic disease at diagnosis. Smoking had a significant association with CRC, especially in this younger population. Whether this means there is a biological difference is not yet clear. More evidence is needed in order to clarify EO-CRC aetiology and to develop screening and improve management strategies.

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Disclosure: Nothing to disclose.

PP0966

CLINICAL AND MOLECULAR DIFFERENCES IN 1,068 PATIENTS WITH COLORECTAL CANCER DEPENDING ON SEX

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Introduction: It is known that there are sex differences in the characteristics of colorectal cancer (CRC), such as incidence and prognosis. However, there is still a lack of understanding on the underlying mechanisms of its sex difference.

Aims & Methods: The aim of this study was to investigate the correlation between the clinicopathological features and the molecular characteristics of CRC depending on sex. 1,068 patients diagnosed with CRC and treated (surgery, chemotherapy or supportive care) at Seoul National University Bundang Hospital were prospectively enrolled. Basic characteristics such as sex, age, and social history, clinical characteristics such as tumor location, stage, and survival were analyzed. In addition, molecular expressions of microsatellite instability (MSI), oncogenes including K-ras, N-ras and H-ras, and DNA mismatch repair genes including MLH-1, MSH-2, MSH-6 and PMS-2 were also investigated.

Results: There were 630 males and 438 females, with a sex ratio of 1.5:1. Risk behaviors for cancer occurrence, such as drinking and smoking, were much more common in males ($p < 0.001$, respectively). In females, right colon cancer was more frequent than in males ($p = 0.022$), which seems to be associated with the loss of MLH-1 ($p < 0.001$) and PMS-2 expression ($p = 0.003$) (Table). In multivariate regression analyses, older age ($p = 0.001$), lower BMI ($p < 0.001$), presence of symptoms ($p = 0.048$), advanced cancer stage ($p < 0.001$) and mutation of BRAF ($p = 0.030$) were significant risk factors for disease-related death. Females showed better overall survival ($p = 0.031$) as well as disease-specific survival than males ($p = 0.088$), and this difference was most pronounced in age 40-69 group (overall survival $p = 0.024$; disease-specific survival $p = 0.104$, respectively), while not evident in the younger and older age groups (Table).

		Total (N=1,068)	Male (%) (n=630)	Female (%) (n=438)	p-value
Age		64.11 ± 12.69	64.04 ± 12.55	64.21 ± 12.91	0.830
BMI (n=1,047)		23.22 ± 3.44	23.33 ± 3.32	23.06 ± 3.60	0.214
Tumor location	Rt. colon	308 (28.8)	163 (25.9)	145 (33.1)	0.022
	Lt. colon	386 (36.2)	244 (38.7)	142 (32.4)	
	Rectum	374 (35.0)	223 (35.4)	151 (34.5)	
MLH1 (n=735)	No	43 (5.9)	14 (3.2)		<0.001
	Yes	692 (94.1)	417 (96.8)		
PMS2 (n=719)	No	46 (6.4)	17 (4.1)		0.003
	Yes	673 (93.6)	401 (95.9)		

Table. (A-C) Overall and (D-F) cancer-specific survival according to sex and age.

Conclusion: Colorectal cancer shows sex differences in various characteristics including incidence, tumor location and prognosis, which might be originated from sex hormone and molecular characteristics.

Disclosure: Nothing to disclose.

PP0967

PSYCHIATRIC AND SOCIOECONOMIC ASPECTS OF FAMILIAL ADENOMATOUS POLYPOSIS – A NATIONWIDE DANISH COHORT STUDY WITH MATCHED CONTROLS

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Introduction: Familial adenomatous polyposis (FAP) is a dominantly inherited disorder that predisposes to colorectal cancer. However, after the introduction of prophylactic colectomy and endoscopic surveillance, as well as genetic screening of first-degree family members, the risk of CRC has decreased dramatically with subsequent prolonged expected life expectancy[1] Current guidelines solely aim at preventing cancer, which has been the focus for decades.[2-3] From a patient perspective, mental aspects of the disease, which might decrease quality of life may be equally important. However, knowledge and focus on mental well-being in FAP patients is limited. If FAP patients are at increased risk of mental stress and ultimately of developing psychiatric disorders, a potential possibility of early intervention is missed. The Danish Polyposis Register has for over 40 years included data from all Danish FAP patients. Consequently, the register is free of referral and selection bias. We aimed this study at estimating the impact on educational level and risk of psychiatric disorders in a nationwide cohort of patients with FAP compared to a matched background population.

Aims & Methods: Known Danish FAP patients by April 2021 were identified from the Danish Polyposis Register and paired with four matched controls based on matched on sex, birth year, and zip code at birth. Using national registries, educational status, psychiatric contacts or diagnoses, and need for antidepressants, anxiolytics, or antipsychotics were compared be-

tween FAP patients and controls. Follow-up of patients started on the date of their first being identified as having FAP or on 1st January 1996, whichever came last. Follow-up ended on the date of any of the listed outcomes, emigration, death, loss to follow-up or the end of the study on 1st January 2020, whichever came first. Relative risk for any of the listed outcomes was quantified by hazard ratios (HR); these were estimated using Cox proportional hazards regression, with age as the underlying timescale, and used the variables of exposure status, year of outcome, sex, cancer, and education for the multiple regression model. Cancer was included as a time-varying covariate in the Cox proportional hazards regressions.

Results: The analysis included 445 FAP patients and 1,538 controls. The highest attained education was significantly lower for FAP patients (p<0.001). When comparing FAP patients and controls and adjusting for cancer diagnosis, an increased risk was observed for a psychiatric contact (1.69, CI 95%, 1.25–2.29, p<0.001), any psychiatric prescription (1.39, CI 95%, 1.17–1.66, p<0.001), receiving a psychiatric diagnosis (1.64, CI 95%, 1.19–2.26, p=0.002), as well as facing any psychiatric event (HR 1.55, CI 95%, 1.32–1.83, p<0.001). An increased risk was specifically seen for affective (1.76, CI 95%, 1.09–2.83, p=002) and behavioral disorders (2.01, CI 95%, 1.10–3.69, p=0.02) as well as prescription of antidepressants (1.59, CI 95%, 1.24–2.03, p<0.001) and antipsychotics (1.85, CI 95%, 1.26–2.70, p=0.002). For FAP patients, the median age for affective and behavioral disorders was 32.7 years (range 15.0–73.6 years) and 14.7 years (range 5.5–47.7 years), respectively, which did not differ from controls.

Conclusion: Compared to controls, FAP patients have a significantly reduced educational level and an increased risk of developing affective and behavioural disorders with increased needs for antidepressants and antipsychotics. This calls for further exploratory and interventional trials.

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Disclosure: JGK is consultant for SNIPR BIOME

PP0968

CLINICOPATHOLOGICAL FEATURES AND PROGNOSIS OF EARLY-ONSET T1 CRC PATIENTS

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Introduction: In recent years, the number of early-onset CRC (EO-CRC) diagnosed at the age of less than 50 years has been increasing. Previous studies suggest that EO-CRC may have higher malignant potentials and a worse prognosis than late-onset CRC. However, the reason why EO-CRC is regarded as aggressive cancer and result in delayed diagnosis remains unclear. We thought that both the lack of appropriate opportunities for screening or medical examination and the bias that was caused owing to being analyzed altogether regarding the different clinical stages could af-

fect worse prognosis of EO-CRC. In this study, we focused on T1 cancer to highlight the essential features of EO-CRC to minimize the bias caused by the time of diagnosis.

Aims & Methods: This study is a secondary analysis of the main JSCCR (The Japanese Society for Cancer of the Colon and Rectum) project, "International joint research on lymph node metastasis in CRC". Utilizing 4673 T1 CRC cases treated between July 2009 and December 2016 at 27 facilities belonging to JSCCR, we divided the patients into 5 groups according to age at the diagnosis: 49 years or younger, 50–59 years, 60–69 years, 70–79 years, and 80 years or older. To analyze the clinicopathological features including sex, tumor location, macroscopic type, tumor size, histology, submucosal invasion depth, lymphatic/venous invasion, tumor budding, lymph node metastasis, and treatment methods, the Spearman's correlation test was used. The difference of disease-free survival (DFS) between early-onset and later-onset CRC was also examined using log-rank test and Kaplan–Meier method.

Results: The cases of EO-CRC were 349 (7.5%). Among age groups, the proportion of rectum (from 49 years or younger to 80 years or older;44.1%, 42.0%, 36.6%, 29.0%, and 12.0%, respectively; P <0.05), protruded type (62.2%, 59.1%, 54.9%, 48.4%, 45.9%; P <0.05), and frequency of lymph node metastasis (10.0%, 7%, 8.0%, 7.0%, 4.6%; P <0.05) were decreased as the age group increased. In terms of sex, the proportion of male tends to decrease as the age group increased (57.9%, 60.8%, 63.5%, 57.0%, 52.7%, respectively; P <0.05). No significant differences were found among the five age groups for tumor size, histology, submucosal invasion depth, vascular invasion, tumor budding, recurrence rate, and treatment. No significant difference was observed regarding DFS between the two groups (5-year DFS; 98.7% for EO-CRC and 94.3% for late-onset CRC).

Conclusion: This study showed that the frequency of lymph node metastasis of T1 CRC decreased according to the increase of age at diagnosis, suggesting that EO-CRC may have a greater biological malignant potential compared to late-onset CRC.

As far as we know, this is also the first study to report that "protruded type" would be one of the features of EO-CRC. Although no difference was observed as for DFS between two groups, it was plausible considering that only T1 stage CRC was enrolled in this study. Further studies are warranted to evaluate the clinicopathological features characterizing early stage EO-CRC.

Disclosure: Nothing to disclose.

PP0969

ADVANCED NEOPLASIA AT COLONOSCOPY IN THE YEAR IN INDIVIDUALS WITH HIGH RISK INJURIES IN SUCCESSIVE ROUNDS OF THE POPULATION SCREENING PROGRAM

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Introduction: There is no evidence on the best surveillance strategy in individuals with high-risk lesions (sessile adenomas ≥20mm and/or number of adenomas ≥10). The Catalan Society of Digestology recommends a surveillance colonoscopy per year for this group.

Aims & Methods: The aim was to evaluate the findings of this colonoscopy in order to assess its usefulness.

Retrospective analysis of the surveillance colonoscopy per year performed in individuals with high-risk lesions from the 3rd, 4th and 5th rounds of the program of population screening Ciutat Vella-Sant Martí of Barcelona.

Results: 179 individuals were identified, of which 12 were excluded due to lack of data. 40.1% were women and 61.7% were over 60 years old. Among the total of 167 individuals, 87 (52.1%) met criteria for size, 63 (37.7%) for multiplicity and 17 (10.2%) met both. Lesions ≥20 mm were resected in fragments in 46.2% of cases. In 67 cases, more than one baseline colonoscopy was required (46.9%), to review the polypectomy base for fragmented lesions or to complete the polypectomy. 143 (85.6%) individuals underwent surveillance colonoscopy (mean time: 14.7±7.2 months).

No predictors of non-surveillance in the year were found. Colonoscopy at one year was normal in 54 (37.8%) cases, non-advanced lesions (adenomas/serrated) in 66 (46.2%) cases, advanced lesions in 22 (15.4%) cases and one case was detected of CRC (0.7%). Globally, the prevalence of advanced neoplasia (AN) was 16.1%.

The presence of AN was not associated with age, sex, round, or basal faecal hemoglobin, but with multiplicity (23.1% vs 6.7, p<0.05, in multiplicity group vs lesion group ≥ 20mm, respectively), regardless of the number of baseline colonoscopies. In the group of lesions ≥20mm resected in fragment with review colonoscopy at 4-6 months, no cases of AN were detected per year.

Conclusion: The prevalence of AN per year in individuals with high-risk lesions is considerable, and seems associated with basal multiplicity. In individuals with lesions ≥20mm with a normal follow-up colonoscopy, prolonged surveillance could be considered.

Disclosure: Nothing to disclose.

PP0970

ADENOMA DETECTION RATE AND THE RISK OF POST COLONOSCOPY COLORECTAL CANCER IN THE DANISH COLORECTAL CANCER SCREENING PROGRAM

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Introduction: The adenoma detection rate (ADR) is widely recognized as a quality indicator in colonoscopy based colorectal cancer (CRC) screening. ADR has been shown to be inversely associated with the risk of post colonoscopy colorectal cancer (PCCRC).[1,2]

A wide variation on the ADR among endoscopy units has been observed in the Danish fecal immunochemical based colonoscopy screening programme since the initiation in 2014. The ADR varied from 39% to 67% among endoscopist units from 2014-2017.[3]

Aims & Methods: To investigate the association between ADR and the risk of PCCRC using multivariable Poisson regression. Endoscopy units were grouped in quartiles based on the ADR. PCCRC was defined as a colorectal occurred 6-36 months after the initial screening colonoscopy. The Danish colorectal cancer screening registry (from 2014-2017) and the Danish Cancer registry (from 2014-2020) were used to identify colonoscopies, screening detected CRCs and PCCRCs.

Results: The study covered 80,374 colonoscopies (performed at 20 endoscopy units), 4,829 screening detected CRCs and 356 PCCRCs. Mean ADR in quartile 1 (lowest) was 41.0%, range [38.8-44.3], quartile 2: 48.3% [46.2-50.0], quartile 3: 52.2% [50.2-53.6] and quartile 4: 60.0% [54.1-67.0]. The proportion of PCCRCs (of all CRC) declined from 8.8% in quartile 1 to 4.8% in quartile 4.

Results from the multivariable Poisson regression analysis (outcome = PCCRC, predictors = age, sex, ADR) are shown in Table 1. The analysis found increased risk for PCCRC among females and a falling risk of PCCRC with higher ADR quartile.

	Relative risk	95% CI	p-value
Sex (%)			
Male	1 (Reference)		
Female	1.25	(1.02; 1.54)	0.03
ADR (%)			
Quartile 1: 41.0 [38.8-44.3]	1 (Reference)		
Quartile 2: 48.3 [46.2-50.0]	0.89	(0.68; 1.18)	0.43
Quartile 3: 52.2 [50.2-53.6]	0.72	(0.54; 0.95)	0.02
Quartile 4: 60.0 [54.1-67.0]	0.55	(0.40; 0.74)	< 0.01

**Age groups were not significant and omitted due to abstract table limitations.*

*Table 1: Multivariable poisson regression analysis for PCCRC**

Scatter plots of mean ADR (for each quartile) and relative risk suggest a linear relationship, indicating that a 1 percentage point increase in ADR lowers the risk of PCCRC by 2.5%.

Conclusion: PCCRC is an important colonoscopy quality performance indicator, however the need for years of follow-up and large-scale data limits the use as an indicator for current colonoscopy performance. ADR is a viable alternative. The latest Danish colonoscopy screening report from 2021 still shows a wide variation in ADR highlighting the need for attention to colonoscopy performance in order to increase the efficacy of the CRC screening program.[4]

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Disclosure: Nothing to disclose.

PP0971

DIFFERENCES IN TREATMENT OF STAGE I CRCS: A POPULATION-BASED STUDY OF CRCS DETECTED WITHIN AND OUTSIDE SCREENING

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Introduction: Screen-detected colorectal cancers (CRCs) are often treated less invasively than stage-matched non-screen-detected CRCs, but the reasons for this are not fully understood. This study aimed to describe the treatment of stage I CRCs detected within and outside the CRC screening program in the Netherlands and to identify factors associated with treatment on population level.

Aims & Methods: Data from the Netherlands Cancer Registry of all stage I CRCs diagnosed between January 1, 2008 and December 31, 2020 were analyzed, comparing patient, tumor and treatment characteristics of screen-detected and non-screen-detected stage I CRCs. Multivariable logistic regression analyses were used to assess the association between treatment (local excision only vs. surgical oncologic resection) and patient and tumor characteristics, stratified for T-stage and tumor location.

	T1 colon cancers	T1 rectal cancers
	OR (95% CI)	*OR (95% CI)*
Sex		
Male	1	1
Female	1.03 (0.91-1.18)	1.26 (1.03-1.55)
Age category		
55-59 years	1	1
60-64 years	1.21 (0.98-1.51)	1.01 (0.72-1.43)
65-69 years	1.12 (0.91-1.37)	1.15 (0.83-1.59)
70-74 years	0.92 (0.74-1.13)	0.84 (0.60-1.17)
75-79 years	0.75 (0.60-0.94)	1.10 (0.76-1.59)
LVI		
No	1	1
Yes	3.15 (2.61-3.81)	1.55 (1.17-2.03)
Location		
Left	1	N/A
Right	4.20 (3.61-4.90)	N/A
Tumor differentiation		
Grade 1	1	1
Grade 2	1.58 (1.06-2.35)	1.32 (0.69-2.68)
Grade 3	6.96 (3.63-12.85)	3.19 (1.26-8.43)
Detection		
Screening	1	1
No screening	2.19 (1.93-2.49)	1.29 (1.05-1.59)

Table 1. Multivariable logistic regression analyses for the association between treatment and patient- and tumor characteristics with model a) T1 colon cancers and b) T1 rectal cancers.
Abbreviations: LVI: lymphovascular invasion. OR: odds ratio. CI: confidence interval.

Results: Screen-detected stage I CRCs were relatively more often T1 than T2 compared to non-screen detected stage I CRCs (66.9% versus 53.3%, p <0.0001). When only considering T1 tumors, both screen-detected colon and rectal cancers were more often treated with local excision only than non-screen detected T1 cancers (OR 2.19, 95%CI 1.93-2.49 and OR 1.29, 95%CI 1.05-1.59, respectively), adjusted for sex, tumor location, lymphovascular invasion (LVI) status and tumor differentiation (Table 1).

Conclusion: Less invasive treatment of screen-detected stage I CRC is partly explained by the higher rate of T1 compared with non-screen-detected stage I CRC. Those with T1 stage I CRCs were also more likely to undergo less invasive treatment if they were detected by screening, after adjusting for risk factors such as LVI and tumor differentiation.

Disclosure: Nothing to disclose.

PP0972

PREVALENCE OF NEOPLASIA AT COLONOSCOPY AMONG TESTICULAR CANCER SURVIVORS TREATED WITH PLATINUM-BASED CHEMOTHERAPY

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Introduction: Testicular cancer (TC) survivors treated with platinum-based chemotherapy have an increased risk for developing secondary colorectal cancer (CRC) [1]. Colonoscopy surveillance is offered to other high-risk survivors to reduce CRC incidence and mortality. We aimed to assess the yield of colonoscopy in TC survivors.

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Aims & Methods: We conducted a prospective multicenter primary colonoscopy screening study in four Dutch hospitals. The yield of colorectal neoplasia among TC survivors was assessed at primary colonoscopy. Neoplasia was defined as adenomas, serrated polyps (SPs), advanced adenomas (AAs; high-grade dysplasia, ≥25% villous component, or ≥10mm diameter), advanced serrated polyps (ASPs; dysplasia or ≥10mm diameter), or CRC. Advanced neoplasia (AN) was defined as AA, ASP, or CRC. Yield of colonoscopy was compared to matched average-risk American males that underwent primary screening colonoscopy (n=24.193) and using a propensity score matched analysis, adjusted for age, smoking status, alcohol consumption and body mass index.

Results: A total of 137 TC survivors underwent colonoscopy. Median age was 50 years among TC survivors (IQR 43-57) vs. 55 years (IQR 51-62) in American controls. The prevalence of any neoplasia and AN was higher in TC survivors compared to age-matched American controls (Table 1). Using propensity score matching the difference in the prevalence of AN between TC survivors and American controls was even larger (8.7% vs. 1.7%; p<0.0001).

Most advanced lesion, n (%)	CATCHER	NHCR	p value
Total	137	24,193	<0.0001
No lesions	63 (46.0)	15,615 (64.5)	
Adenomas and/or SPs	62 (40.8)	7,249 (30.0)	
Advanced neoplasia	12 (8.8)	1,329 (5.5)	
30-39 year olds			0.4
No lesions	12 (70.6)	197 (81.1)	
Adenomas and/or SPs	4 (23.5)	39 (16.0)	
Advanced neoplasia	1 (5.9)	7 (2.9)	
40-49 year olds			<0.001
No lesions	27 (51.9)	873 (74.7)	
Adenomas and/or SPs	22 (42.3)	238 (20.4)	
Advanced neoplasia	3 (5.8)	58 (5.0)	
50-59 year olds			<0.001
No lesions	16 (37.2)	8,713 (64.4)	
Adenomas and/or SPs	23 (53.5)	4,101 (30.3)	
Advanced neoplasia	4 (9.3)	721 (5.3)	
60-69 year olds			0.01
No lesions	8 (34.8)	4,870 (63.4)	
Adenomas and/or SPs	13 (56.5)	2,383 (31.0)	
Advanced neoplasia	2 (8.7)	434 (5.6)	
70-80 year olds			-
No lesions	0	962 (61.7)	
Adenomas and/or SPs	0	488 (31.3)	
Advanced neoplasia	2	109 (7.0)	

Table 1. Distribution of most advanced lesions in the CATCHER cohort vs. the NHCR (control) cohort, stratified per age category. Abbreviations: SP: serrated polyp. NHCR: New Hampshire Colonoscopy Registry.

Conclusion: TC survivors treated with platinum-based chemotherapy had a higher incidence of any neoplasia and AN compared with age-matched controls, which was underscored by the propensity score matching analysis. These results support our hypothesis that platinum-based chemotherapy increases the risk of developing colorectal neoplasia in TC survivors, emphasizing the importance of participation in CRC screening and clear risk communication.

Disclosure: Nothing to disclose.

PP0973

PROPORTIONS AND CHARACTERISTICS OF COLORECTAL CANCER WITH DIFFERENT DETECTION HISTORY INCLUDING INTERVAL CANCER: RESULTS FROM A MULTICENTER PROSPECTIVE STUDY, C-DETECT STUDY

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Introduction: Colorectal cancer (CRC) can be divided into screen-detected and non-screen-detected CRC. Furthermore, based on the interval between CRC detection and a previous screening or examination, CRC can be classified into several groups, including interval cancer and post-colonoscopy CRC. The proportion and characteristics of each CRC need to be clarified to understand the usefulness and limitations of CRC screening; however, they have not been fully elucidated. Particularly, little data is available on interval cancer under the annual fecal immunochemical test (FIT) screening.

Aims & Methods: We aimed to examine the proportions and characteristics of CRC with different detection histories by conducting a multicenter prospective study in Japan ("C-DETECT study"). Consecutive adult patients with CRC were prospectively enrolled in four hub hospitals of cancer treatment. CRC detection methods and intervals from previous examinations were assessed using a questionnaire. Since the population-based CRC screening using an annual FIT is performed in Japan, FIT-interval cancer was defined as CRC detected within 1 year following a previous negative FIT. Three-year post-colonoscopy CRC (PCCRC-3yr), which was defined as CRC detected within 3 years after the previous colonoscopy with negative CRC, was also investigated. Differences in the lesion and patient characteristics were compared for patients with the following CRC using the chi-squared test: i) screen-detected and non-screen-detected CRC; ii) (a) FIT-interval cancer, (b) PCCRC-3yr, (c) CRC detected within 1 year after a positive FIT with noncompliance to colonoscopy, and (d) CRC other than (a), (b), and (c).

Results: Of 1,241 CRC patients (1064 with invasive and 177 with intramucosal CRC), 475 (38.3%) had screen-detected and 766 (61.7%) had non-screen-detected CRCs. Non-screen detected CRCs showed significantly higher proportions of presence of ≥T2 invasion, metastasis, worse histology (poorly differentiated adenocarcinoma, signet-ring cell, or mucinous carcinoma) and left-sided CRCs than screen-detected CRC (82.1% vs 52.8% (P<0.01); 52.0% vs 26.7% (P<0.01); 18.7% vs 11.4% (P<0.01); 71.1% vs 61.7% (P<0.01), respectively). FIT-interval cancer (a), PCCRC-3yr (b), and CRC detected within 1 year after a positive FIT with noncompliance to colonoscopy (c) accounted for 4.5%, 7.0%, and 3.9% of all CRCs, respectively, and for 3.9%, 5.4%, and 4.3% of invasive CRCs, respectively. The comparison among these three types (a, b, c) and the other (d) demonstrated a significant difference in the proportions of ≥T2 invasion ((a) 58.9%, (b) 44.8%, (c) 87.5%, and (d) 73.0%, respectively (P<0.01)), metastasis ((a) 33.9%, (b) 21.8%, (c) 54.2%, and (d) 43.9%, respectively (P<0.01)), right-sided CRC ((a) 42.9%, (b) 40.2%, (c) 18.8%, and (d) 28.6%, respectively (P<0.01)), and female patients ((a) 53.6%, (b) 49.4%, (c) 27.1%, and (d) 41.6% respectively (P=0.02)).

Conclusion: Non-screen-detected CRC accounted for a large proportion of patients and demonstrated advanced characteristics in terms of invasion depth and metastasis, as well as CRC detected shortly after a positive FIT with no colonoscopy. These findings emphasize the importance of screening and colonoscopy compliance following a positive FIT.

Notably, FIT-interval cancer and PCCRC-3yr existed in non-negligible proportions even under the annual FIT screening system and were characterized by higher proportions of a right-sided location and female. This novel finding suggests that these two types of CRCs may have different biological features from the others.

Disclosure: Nothing to disclose.

PP0974

PREVALENCE OF ANAL HR-HPV INFECTION AND ABNORMAL CYTOHISTOLOGY IN MSM USING PREP COMPARED TO MSM LIVING WITH HIV

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Introduction: Persistent high-risk Human Papillomavirus (HR-HPV) infection can lead to an anal high-grade squamous intraepithelial lesion (HSIL), the precursor lesion to anal squamous cell carcinoma (SCC).

HR-HPV prevalence is higher in men who have sex with men living with HIV (MSMLWH) than in HIV-negative MSM, respectively 74% and 37-41% (1,2). The use of Pre-Exposure Prophylaxis (PrEP) in HIV-negative MSM to prevent HIV contraction created a new Sexual Minority Group among MSM, i.e. MSM using PrEP. The aim of this study was to determine the prevalence of anal HR-HPV infection and abnormal anal cytohistology in MSM using PrEP and MSMLWH. Preliminary data are reported here and final results are expected in coming months.

Aims & Methods: MSM using PrEP and MSMLWH were enrolled in this mono-centric study during consultations at the S-clinic and the HIV-reference centre respectively. Patient characteristics, sexual behavior and demographics were collected using a questionnaire, completed on the day of the anal swab testing. Patients with HR-HPV infection, abnormal cytology or both were subsequently sent for High Resolution Anoscopy (HRA).

Results: At present, we enrolled 150 MSM using PrEP and 107 MSMLWH. Quality of anal swabs was sufficient in respectively 95% (n=143) and 81% (n=87). HR-HPV prevalence in MSM using PrEP was comparable with HR-HPV prevalence in MSMLWH; respectively 74% (n=106) and 75% (n=65) tested positive for at least one HR-HPV (p=1.000). No significant difference in abnormal cytology was seen; 53% (n=76) of MSM using PrEP and 58% (n=51) of MSMLWH had either ASC-US, ASC-H, LSIL or HSIL (p=0.6). Until today, 58 MSM using PrEP and 31 MSMLWH underwent HRA. Biopsies were

performed in 43 MSM using PrEP and 25 MSMLWH. Preliminary results on histology of lesions show presence of anal HSIL in 19% (n=11) and 32% (n=10) respectively (p= 0.706).

Conclusion: MSM using PrEP have a similar risk of HR-HPV infection and abnormal anal cytohistology as MSMLWH, which is higher than what has been reported in HIV-negative MSM not using PrEP (1). ANCHOR showed that treating anal HSIL reduces the incidence of anal SCC in people living with HIV (3), but the risk of progression to anal cancer and thus the need for screening and treatment is to be investigated in this immunocompetent population of MSM using PrEP.

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Disclosure: Nothing to disclose.

PP0975

DEMOGRAPHIC DIFFERENCES IN LEFT-TO-RIGHT SHIFT OF COLON CANCER OVER 25 YEARS. RESULTS FROM ROBUST ANALYSIS OF PARMA COUNTY CANCER REGISTRY DATA

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Introduction: Screening by fecal immunochemical test (FIT) reduces colon cancer (CC) mortality and incidence, yet its efficiency may vary depending upon tumor location and recipient demographics. We addressed the modifications of left and right CC epidemiology following screening adoption.

Aims & Methods: To address the differences between left and right CC, we analyzed by Joinpoint, robust and logistic regression models the data of Parma County tumor registry, comprising 6697 incident cases above 50 years of age in the period 1994-2018 and recording screening adherence since the start in 2005.

Results: Adjusted standardized rates of left-CC declined significantly within screening age (50-69 years) (male annual percent changes [APC] -8.38; p<.001; female APC -13.1; p=.007), as well above it (male APC-4.97; p=.001; female APC -3.96; p=.003). The incidence of right-CC did not decline in screening age and increased above (male APC, 1.91%; p=0.001; female APC, 2.23%; p<0.001). Robust regression confirmed that left-CC decreased irrespectively of sex and age (all p<.001, but for elder males, p=.03), pointing to significant increase of right-CC across sexes and ages (all p£.006).

In multivariable regression models, as compared left-CC the risk of right-CC almost doubled in the 7thdecade (Odds Ratio 1.89, 95%CI 1.43-2.44; p=.001), was higher for females (OR 1.40; 95%CI 1.27-1.54; p<.001) and after screening adoption (OR 1.44, 95%CI 1.27-1.54; p<.001).

In sex specific models, the probability of right-CC in females increased from 65 years of age (OR 1.80, 95%CI 1.18-2.75; p=.007) and in males from 75 years (OR 1.58, 95% CI 1.09-2.27; p=.015).

Due to the unequal distribution of right-CC, the rate of interval cancers over screen detected ones was significantly different between males (78/315; 25%) and females (93/200; 46.5%; p=.0004).

Independently from screening participation, right-CC in females brought an increased risk only of stage II (OR 1.43, 95%CI 1.06-1.92; p=.017) while in males it also enhanced the risks of stage III (OR 1.54, 95%CI 1.17-2.02; p=0.002), and IV (OR 1.47, 95%CI 1.06-2.03; p=.02) cancers.

At Cox modeling, right-CC carried a lower risk of death in females than in males (HR 0.77, 95%CI 0.67-0.89; p<.001), independently from tumor stage and screening status.

Conclusion: The screening reduced only the incidence of left-CC, while that of right-CC raised with aging, primarily and earlier in females. Right-CC progression in males carried a higher risk of death. Unimodal administration of FIT was followed by increasing burden of right-CC, advocating awareness on its specific development and progression by sex and age.

Disclosure: Nothing to disclose.

PP0976

RISK FACTORS OF RECTAL NEUROENDOCRINE TUMOR IN A LARGE POPULATION BASED COHORT

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Introduction: Risk factors for rectal neuroendocrine tumor (NET) has not been reported in a cohort setting, even if their association was reported in a cross sectional study. We investigated sex-specific risk factors of rectal NET in a population-based cohort.

Aims & Methods: This is a population-based cohort study. Cancer and NET-free individuals who underwent general health examination during 2010 at the Korean National Health Insurance Service were enrolled and followed through 2017. Many epidemiologic factors and lipid were evaluated. Adjusted hazard ratios (aHR) and 95% confidence intervals (CI) determined by Cox regression analysis were used to investigate risk of NET.

Results: Rectal NET was newly detected in 2339 of 5.522 million individuals. In adjusted analysis, male sex (HR, 1.32; 95% CI, 1.17-1.48), current smoker (HR, 1.19), past smoker (HR,1.14), and obesity (HR, 1.462; 95% CI, 1.01-2.11 in BMI >=30) increased the risk of rectal NET. Frequent alcohol consumption increased the risk of rectal NET with dose dependent manner (HR, 1.36 in 1/week, 1.47 in 2-3/week, 1.54 in 4-5/week, 1.16 in >=6/week). In men, current smoker, past smoker, frequent alcohol consumption, and obesity (HR, 2.51; 95% CI, 1.41-4.45 in BMI >=30) increased the risk of NET. In women, past smoker (HR, 1.65), frequent drinker, and previous hysterectomy history (HR, 1.54; 95% CI, 1.16-2.03) increased the risk of rectal NET. Younger age was associated with rectal NET risk in both men and women.

Conclusion: Younger age, smoking, frequent alcohol consumption increased the risk of rectal NET in both men and women, whereas obesity markedly increased rectal NET in men but not in women. In women, previous hysterectomy history increased the risk of rectal NET.

Disclosure: Nothing to disclose.

PP0977

INTERVAL COLORECTAL CANCERS IN THE CZECH REPUBLIC

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Introduction: The organized, population-based National Colorectal Cancer (CRC) Screening Program in the Czech Republic is focused on asymptomatic individuals aged over 50. There are two methods available. Fecal occult blood test (FOBT) is offered by general practitioners annually at ages 50 – 54 and biennially at age ≥ 55 (followed by FOBT+ colonoscopy, if positive). And screening colonoscopy from age 50, repeated in 10 years interval, if negative. Both, FOBT+ colonoscopy and screening colonoscopy are considered preventive colonoscopies. FOBT performed in the laboratory is designated as diagnostic FOBT. Interval cancer is defined as a malignity diagnosed after an index exam (preventive, diagnostic, or therapeutic) in which no cancer is detected, and before the date of the next recommended exam.

Aims & Methods: The analysis included men and women of age ≥ 55 diagnosed with their first colorectal cancer in the period 2016-2020 (data source: National Cancer Registry). For those patients, the search of examinations in the National Registry of Reimbursed Health Services was performed focused on procedures in the period 0.5-5.5 years (depending on the type of examination; FOBT till 2.5 years, colonoscopy till 5.5 years) before the time of the cancer diagnosis: FOBT (screening and diagnostic), FOBT+colonoscopy and screening colonoscopy marked as preventive colonoscopy, diagnostic colonoscopy. As therapy, the endoscopic polypectomy, mucosal resection, and submucosal dissection performed within 6 months of the mentioned examinations were considered.

Results: There were colorectal cancers in 30,723 patients found (Table 1), with 13,816 cancers in stages III and IV (45.0%). The majority of the patients (64.4%) did not undergo any observed procedure. 20.3% of patients had negative FOBT, so, they were considered as patients with interval cancer. Preventive colonoscopies were accompanied by a low rate of interval cancers (0.9%).

Procedures in patients with colorectal cancer	All stages No. (%)	Advanced stages (II and IV) No. (%)
Preventive colonoscopy with therapy	354 (1.2%)	126 (0.9%)
Preventive colonoscopy without therapy	289 (0.9%)	123 (0.9%)
Screening FOBT positive with diagnostic colonoscopy	279 (0.9%)	72 (0.5%)
Screening FOBT positive without any diagnostic colonoscopy	1,073 (3.5%)	447 (3.2%)
Screening FOBT negative	6,228 (20.3%)	2,769 (20.0%)
Diagnostic colonoscopy	2197 (7.2%)	879 (6.4%)
Diagnostic FOBT	509 (1.7%)	223 (1.6%)
No examination	19,794 (64.4%)	9,177 (66.4%)
Total	30,723	13,816

Conclusion: The highest number of colorectal cancers was found in patients with no procedures related to CRC incidence and mortality reduction (preventive, diagnostic, or therapeutic). Approximately 20% of people with colorectal cancers had interval carcinoma (after negative screening FOBT) which could be caused by the inappropriate setting of FOBT examination or low sensitivity of FOBT. The higher proportion of cancers after negative screening FOBT might be also caused by the fold higher number of procedures FOBT performed.

References:
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Disclosure: Nothing to disclose.

PP0978

ADHERENCE TO THE HUNGARIAN POPULATION-BASED COLORECTAL SCREENING PROGRAM AND POTENTIAL INFLUENCING DEMOGRAPHIC FACTORS

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Introduction: Participation in colorectal cancer (CRC) screening programs significantly vary with 36–71% fecal occult blood test (FOBT) uptake rates, and compliance with referral for colonoscopy ranging 64–92% in Europe. The Hungarian population-based colorectal cancer (CRC) screening program (EFOP-1.8.1-VEKOP-15-2016-00001) was launched in 2019 among asymptomatic individuals between the ages of 50 and 70 with average risk of CRC.

Aims & Methods: The aim of this study was to assess the adherence to Hungarian population-based CRC screening program (EFOP-1.8.1-VEKOP-15-2016-00001), and to determine influencing demographic factors. This observational, non-interventional cohort study retrospectively analyzed participation data of the Hungarian population-based CRC screening program between 2019 and 2022, prospectively collected in National Public Health Institute's registry.

Data were analyzed as that of 13/02/2023. Gender and type of residence (municipality, town, city with county rights, and capital) were investigated as demographic parameters potentially influencing adherence rates with logistic regression.

Results: Of 1,819,664 invited individuals, 377,552 returned the screening kit, resulting in 20.8% adherence to FOBT. 36,995 individuals (9.8%) had non-negative results. 20,902 individuals (56.5%) were reported to undergo screening colonoscopy.

Adherence rates to FOBT decreased over the years since the initiation of the screening program: yearly rates for returning screening kits from 2019 to 2022 were 32.1%, 24.8%, 18.8%, and 14.1%, respectively. In contrast, adherence rates to screening colonoscopy showed less variation over the years (58.9%, 52.7%, 52.3%, 55.62% from 2019 to 2022). Average kit returning time over the years was as follows: 99.2±0.2 days, 66.6±0.3 days, 56.0±0.5 days, and 68.0±0.1 days, from 2019 to 2022, respectively.

Over the years, colonoscopy was performed following the FOBT results after an average of 85.5±0.9 days, 93.8±1.5 days, 56.6±2.0 days, and 52.8±0.4 days. Female gender was associated with higher adherence to returning screening kits (22.4% vs. 18.8%).

Attendance rates at screening colonoscopies were 57.2% for males and 55.5% for females. Screening kits were returned by 19.1% of individuals living in municipalities, 20.5% of those living in towns, 23.5% of those living in cities with county rights and 19.8% of those living in the capital.

Attendance rates at colonoscopy according to type of residence were the following: 57.8% for individuals from municipalities, 53.9% for those from towns, 60.3% for those from cities with county rights, and only 50.2% for those from the capital. Adherence rates to FOBT tests were significantly influenced by both gender and type of residence, while attendance rates at screening colonoscopy was only influenced by type of residence.

Conclusion: Adherence rates to Hungarian CRC screening program are somewhat lower than in other European countries. Although adherence rates to FOBT gradually decreased since the initiation of the CRC screening program, adherence rates to screening colonoscopy remained stable. Socio-demographic factors influence screening adherence.

Disclosure: Nothing to disclose.

PP0979

IMPACT OF A COLORECTAL CANCER SCREENING PROGRAM IN THE SOUTHWESTERN OLTENIA REGION

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Introduction: Colorectal cancer (CRC) is one of the most commonly diagnosed types of cancer worldwide, ranking as the third most common neoplasia and the second leading cause of cancer-related deaths according to Global Cancer Statistics 2020 [1].

In Romania, CRC has the highest incidence rate, as reported by the Globocan platform in 2020, although the mortality rate follows global trends. The growing incidence of colorectal cancer poses a significant challenge to the global healthcare system [2].

Aims & Methods: Our aims are to assess and demonstrate the importance and value of a CRC screening program in early diagnosis among individuals aged 50 to 75 years in the southwestern of Oltenia, Romania. We prospectively enrolled apparently healthy individuals between 50 and 75 years old in a CRC prevention program at the University of Medicine and Pharmacy of Craiova, in the southwestern Oltenia region. The ongoing program started in November 2020.

Exclusion criteria included individuals already enrolled in a screening program for CRC, with a personal history of colonic polyps, colorectal cancer, or inflammatory bowel diseases and individuals with a family history of inherited syndromes linked with CRC**.** Patients were identified based on the lists provided by participating general practitioners.

All provided informed consent and completed a questionnaire regarding symptoms and family history of CRC. Based on their responses, patients were either offered a fecal immunochemical test (FIT) followed by colonoscopy in case of a positive result or were directly referred for colonoscopy. Those with negative results were instructed to repeat the test in two years.

Results: Until 24 April 2023 we enrolled 44,714 individuals (18,415 male, 41.18%). Of these, 38,610 (86.34%) received FITs, of whom 2,426 (6.28%) had a positive finding and 49 were directly referred for colonoscopy based on their questionnaire answers. We performed 1,262 colonoscopies, also having 1,004 refusals (41.38% of positive FITs) and 209 (8.61%) in waiting. Percentage of positive FIT tests correlated with older age ($p<0.05$). The chance of a positive colonoscopy finding correlated with the FIT value ($p<0.05$) and older age ($p<0.05$), while not being linked to either gender or provenance.

We did not find lesions in 400 subjects (31.7% negative colonoscopies). In total, we found 2,092 significant lesions in 862 patients: 100 tumors and 1,992 polyps.

Conclusion: We provided here the first results of a large-scale CRC screening program in the Southwestern region of Romania, proving the importance of a coherent early detection strategy in the successful management of digestive malignancies. The high rate of colonoscopy refusals shows the need for an awareness campaign involving all medical and allied health personnel.

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Disclosure: Nothing to disclose.

PP0980

LONG-TERM COLORECTAL CANCER INCIDENCE, UNPERTURBED BY SURVEILLANCE, AMONG PEOPLE WITH NO POLYPS OR LOW-RISK POLYPS: AN ANALYSIS OF DATA FROM THE UK FLEXIBLE SIGMOIDOSCOPY SCREENING TRIAL

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Introduction: Existing data on long-term colorectal cancer (CRC) incidence after polyp removal has limitations. Colonoscopy surveillance is frequently performed post-polypectomy, altering CRC incidence, but this is often not adequately addressed in analyses.

Additionally, numbers of CRC cases are often insufficient for precise estimates or subgroup analyses.

Aims & Methods: Our aim was to examine long-term CRC incidence, unperturbed by surveillance, in patients who had no polyps or low-risk polyps at endoscopic screening, by anatomic subsite. In the UK Flexible Sigmoidoscopy Screening Trial, ~41,000 participants had a once-only flexible sigmoidoscopy screen and were followed-up for a median of 21 years. This analysis includes participants who had no polyps or low-risk polyps found in the distal colon or rectum at screening, with polypectomy when needed. Only 0.5% had a baseline colonoscopy and 0.2% had colonoscopy surveillance. Participants with low-risk polyps were those with <3 adenomas <10mm with tubular histology and low-grade dysplasia and/or hyperplastic polyps <10mm. Outcomes were incident CRC by anatomic subsite (distal, proximal). Time-to-event data were censored at any first surveillance colonoscopy.

Cox regression compared incidence between those with no polyps and those with low-risk polyps, adjusted for age, sex, and baseline characteristics independently associated with CRC incidence. Standardised incidence ratios compared incidence to that in the general population (England, 2005).

Results: Of 37,911 participants in the analysis, 29,810 (79%) had no polyps and 8,101 (21%) had low-risk polyps. Compared to those with no polyps, distal and proximal cancer incidence was higher in those with low-risk polyps. Compared to the general population, distal cancer incidence was lower in those with no polyps and in those with low-risk polyps. Compared to the general population, proximal cancer incidence was not significantly different in those with no polyps but was higher in those with low-risk polyps (Table 1).

Subsite	Group	Number of cases	Incidence rate per 100,000 person-years (95%CI)	Multivariable hazard ratio (95%CI)	p-value[a]	Standardised incidence ratio (95%CI)[b]
Distal	No polyps	184	32 (28-37)	1	0.01	0.27 (0.23-0.31)
	Low-risk	66	45 (35-57)	1.46 (1.09-1.94)		0.33 (0.26-0.42)
Proximal	No polyps	366	65 (58-72)	1	<0.001	0.91 (0.82-1.01)
	Low-risk	170	115 (99-134)	1.81 (1.50-2.18)		1.57 (1.34-1.82)

CI: confidence interval.
[a]Calculated with the likelihood ratio test.
[b]Calculated by dividing observed by expected numbers of cancer cases, presented with exact Poisson 95%CIs.

Table 1. Colorectal cancer incidence and age-sex-standardised incidence ratios, by polyp group and anatomic subsite.

Conclusion: After flexible sigmoidoscopy screening, with no colonoscopy surveillance, the risk of distal cancer among those with no polyps or low-risk polyps was substantially lower than in the general population; however, among those with low-risk polyps, the risk of proximal cancer was higher than in the general population. Participants with distal low-risk polyps at baseline appear to have had a propensity for synchronous and/or metachronous proximal neoplasia and might have benefited from a baseline or surveillance colonoscopy.
Disclosure: Nothing to disclose.

PP0981

DIAPH3 IS UPREGULATED THROUGH M1A METHYLATION, AND PROMOTES THE INVASIVENESS OF COLORECTAL CANCER VIA TARGETING KRT19

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Introduction: In recent years, emphasis has been shifted on to understanding the role of N1-methyladenosine (m1A) in tumor progression. While little is known about its regulatory effect on mRNA and its role in metastatic colorectal cancer (CRC).
Aims & Methods: We performed methylated RNA immunoprecipitation sequencing with tumor tissues and tumor-adjacent normal tissues from three CRC patients to determine the profile of m1A methylation in CRC. Expression of Diaphanous-related formin 3 (DIAPH3) and its correlation with clinicopathological characteristics of CRC were evaluated using immunohistochemistry and online datasets. The role of DIAPH3 in the migration and invasion of CRC cells was evaluated by wound healing and transwell assays. Besides, the downstream targets of DIAPH3 were screened by mass spectrometry analysis. By co-transfecting DIAPH3 siRNA and Keratin 19 (KRT19) ectopic plasmid in CRC cells, the role of DIAPH3-KRT19 signaling axis was confirmed.
Results: The mRNA level of DIAHP3 and its m1A modification were increased simultaneously in CRC. Besides, high expression of DIAPH3 in CRC tissues was significantly associated with metastasis, and tended to progress to an advanced stage. After knocking down the expression of DIAPH3, the migration and invasion capabilities of CRC cells suffered notable decline, which can be rescued by overexpressing KRT19. Besides, the degradation of KRT19 might be regulated by DIAPH3 in a proteasome-dependent pathway.
Conclusion: DIAPH3 mRNA was upregulated in CRC cells through m1A methylation. Targeting DIAPH3 results in suppressed migration and invasion of CRC cells, potentially through proteasome-dependent degradation of downstream KRT19.
Disclosure: Nothing to disclose.

PP0982

FOXP3+ T-CELLS AS PREDICTORS OF LYMPH NODE METASTASIS IN T1B COLORECTAL CANCER

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Introduction: Colorectal cancer (CRC) is one of the leading causes of cancer-related mortality and morbidity worldwide. Its tumor microenvironment is composed of a complex interplay of various monocytes, dendritic cells, macrophages and T-cells. Among them, there are various subtypes of T-cells, each of which plays a very important role and has been reported to be associated with prognosis in various cancers. In CRC, there are many reports on the association between CD8+ T-cells and Foxp3+ T-cells and prognosis. However, these are all reports mainly focused on advanced cancers. No studies on T-cells focused on early-stage CRC have been reported to date. Among early-stage CRC, submucosal deep invasive (T1b) CRC has a lymph node metastasis rate of about 10%.
Although submucosal invasion depth, vascular invasion, histologic grade, or budding grade are known to be pathological risk factors of lymph node metastasis, there have been no reports evaluating the relationship between tumor microenvironment and lymph node metastasis.
Therefore, in this study, we aimed to investigate the characteristics of T-cells according to the degree of CRC invasion and the association between T-cells and the risk of lymph node metastasis in T1b CRC.
Aims & Methods: Initially, 60 patients with colorectal neoplasia [20 with intramucosal neoplasia (IM group); 20 with submucosal invasive CRC (SM group); and 20 with advanced cancer (AD group)] treated at Hiroshima University Hospital from January 2011 to December 2015 were randomly selected. We examined changes in T-cells with tumor invasion. Next, 84 patients with T1b CRC who underwent initial surgical resection with lymph node dissection or additional surgical resection with lymph node dissection after endoscopic resection at Hiroshima University Hospital from March 2013 to July 2019 were selected.
We examined the relationship between T-cells and lymph node metastasis in T1b CRC. For all specimens, the phenotype and number of T-cells were evaluated using the triple immunofluorescence method of CD4 (helper T-cell marker), CD8 (killer T-cell marker), and Foxp3 (regulatory T-cell marker). We counted T-cells by subtype in the center (CT) and the invasive front (IF) of the tumor and examined their association with lymph node metastasis.
Results: In the IM group, there was no significant difference in the number of any subtype between CT and IF, while in the SM and AD groups, all subtypes were more numerous in IF than CT. They were also predominantly more numerous as the degree of tumor invasion with IM, SM, and AD. The high number of Foxp3 in IF and the high ratio of Foxp3/CD4 and Foxp3/CD8 were positively correlated with lymph node metastasis.
Conclusion: High Foxp3 counts and high Foxp3/CD4 and high Foxp3/CD8 ratios in IF of T1b CRC may help predict lymph node metastasis.
Disclosure: The authors have no conflicts of interest or financial ties to disclose.

PP0983

THE PRIMARY STUDY ON THE MECHANISM OF MIDP619 IN COLORECTAL CANCER

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Introduction: Colorectal cancer(CRC) is the third most common cancer in the world and the fourth most common cause of cancer death. Its incidence has continued to increase in recent years. MicroRNAs (miRNAs) are the most studied non-coding RNAs. In the process of tumorigenesis and development, miRNA plays an important role as an inhibitor or proto-oncogene of tumors, which makes miRNAs extremely attractive targets for new treatment methods of tumors. microRNA-derived protein (MidP619) is highly specific and highly expressed in most tumors, but expressed low in normal cells. The downregulation of MidP619 hinders the proliferation and metastasis of various tumor cell lines.

The results of this study reveal for the first time the important role of miRNA at the 3' end, confirm a novel protein translation mode, and elucidate its important role in tumorigenesis and development through relevant experiments.

Aims & Methods: The expression of MidP619 in CRC and non-cancerous tissue was detected by immunohistochemical staining. CO-IP and protein mass spectrometry were used to identify MidP619 and its associated interaction proteins, and bioinformatics analysis was performed on their interaction protein data. After overexpression of MidP619 by protein mass spectrometry analysis and proteomics-related bioinformatics, the relevant protein components and their changes were studied. Transwell assay was used to study tumor invasion and migration; CCK-8 analysis to study tumor metabolic capacity; Edu was used to analyze tumor cell proliferation; Tumor migration ability was detected by wound healing assay; Colony formation experiments were used to identify tumor colony formation. A series of in vivo experiments were conducted to help reveal the mechanisms of MidP169 in colorectal cancer.

Results: MidP169 expression was markedly higher in CRC tissues than in non-tumour tissues. Through protein interaction and protein mass spectrometry, the interaction between MidP619 and angiogenesis-related proteins ANXA2, ANXA1 and PARVA was verified. The MidP619 overexpression in the colorectal cancer cell line was found that it had an important role in the occurrence and development of tumors through proteomic verification. Through overexpression and knockout of MidP619, Transwell, CCK-8, Edu, wound healing and colony formation experiments, it was verified that MidP619 plays an important role in the proliferation, migration and invasion ability of CRC cells. Western blot experiments preliminarily verified that MidP619 may play an important role in tumor epithelial-mesenchymal transformation (EMT) or tumor angiogenesis.

Finally, overexpression of MidP169 increased the malignancy of the tumor and angiogenesis-related treatments inhibited tumour growth in a xenograft mouse model.

Conclusion: Through the study of MidP619 in CRC, it has been confirmed that MidP619 is widely involved in the proliferation, invasion, migration, metabolism, angiogenesis and other factors leading to increased malignancy of colorectal cancer at the cellular, animal and clinical levels. Through interaction proteins and proteomics experiments, the interacting proteins of MidP619 and the related pathways involved in them were discovered. It provides more evidence for the protein translated by the new model of MidP to play a role in the body, especially tumors.

Disclosure: Nothing to disclose.

PP0984

ROOT-CAUSE ANALYSIS OF POST-COLONOSCOPY COLORECTAL CANCER PATIENTS IN A LARGE TERTIARY ISRAELI MEDICAL CENTER

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Introduction: Post-colonoscopy colorectal cancer (PCCRC) is defined by the World Endoscopy Organization (WEO) as CRC recorded between 6 to 48 months after a negative colonoscopy. Previously described causes for PCCRC include missed lesions, inadequate bowel preparation, unresected lesions and incomplete resection. Causes of PCCRC in Israel have not been described.

Aims & Methods: Using the root-cause algorithm proposed by the WEO, we aimed to investigate plausible explanations for PCCRCs in a tertiary center in Israel.

We extracted data on all colonoscopies performed in the Department of Gastroenterology at Rambam Health Care Campus between 2001-2021. Data were crossed-linked with the Israeli cancer registry to identify all patients who received a first-time diagnosis of CRC. All patients who received a diagnosis of CRC after an index negative colonoscopy at our institution were considered as possible PCCRC cases.

For all possible PCCRC cases individual electronic medical records (EMRs) were reviewed by a physician to assure PCCRC status. Patients not meeting the WEO definition of PCCRC, those without sufficient information on clinical, endoscopy and/or pathology findings to confirm the PCCRC status, those with histology other than colorectal adenocarcinoma, and patients with appendiceal cancers were excluded.

For PCCRC cases we applied the WEO algorithm to categorize explanations for PCCRC as follow:

A. Possible missed lesion, prior examination adequate;

B. Possible missed lesion, prior examination inadequate;

C. Detected lesion, not resected; or

D. Likely incomplete resection of previously identified lesion.

Results: Out of 220 cases of possible PCCRC, 130 did not meet the WEO definition for PCCRC, and 57 were excluded due to missing data (n=49), incompatible histology (n=7) or appendiceal location (n=1). Thirty three cases meeting the WEO definition of PCCRC were analyzed. Average patient age at diagnosis was 65.4 years. Six patients (18.2%) had a positive family history of CRC. Four patients (12.1%) had a prior diagnosis of inflammatory bowel disease. Thirty of 33 (91%) index colonoscopies were complete (cecal intubation reported). The most common tumor locations were the rectum (6/33, 18.2%) and cecum (5/33, 15.1%).

We identified 14 category A PCCRCs (42.4%); 16 category B PCCRCs (48.5%); 3 category C PCCRCs (9.1%); and 4 category D PCCRC (12.1%). Among them 4 patients (12.1%) could be categorized into more than one group. When further analyzing the cause of each case, we found that in 18 of 33 cases (54.5%) altogether there was miscommunication between the endoscopist and the patient or the endoscopist and the primary referral physician regarding the post colonoscopy recommendations.

Conclusion: As previously reported, most PCCRCs in our cohort originated from possible missed lesions in the setting of inadequate examinations. As such most of these cases could have been avoided by repeating colonoscopy. We had the advantage of further studying individual cases, and

we can determine that over half of PCCRCs can be avoided by improving the communication process between the endoscopist, the referring physician, and the patient. These findings highlight the importance of communication in the prevention of PCCRCs.

Disclosure: Nothing to disclose.

PP0985

OPTIMAL GLYCEMIC CONTROL AND VARIABILITY INDEPENDENTLY DECREASES COLORECTAL CANCER DEVELOPMENT: A TERRITORY-WIDE STUDY OF 171,270 PATIENTS WITH DIABETES MELLITUS

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Introduction: Diabetes mellitus (DM) is an independent risk factor for colorectal cancer (CRC). Glycemic control and variability are the main components of glycemic homeostasis. We aim to identify the association of glycemic control and variability with CRC development in individuals with DM.

Aims & Methods: Patients with DM diagnosed between 2005 and 2013 were followed up till 2020 (CRC or death occurrence) via a territory-wide electronic healthcare registry from Asia. We excluded age <18 years, those with human immunodeficiency virus, inflammatory bowel disease, insufficient HbA1c measurements, and prior diagnosed CRC. We identified DM following the American Diabetes Association criteria with at least two abnormal tests of hemoglobin A1c (HbA1c) ≥6.5% or fasting plasma glucose ≥7 mmol/L; antidiabetic medication use; or International Classification of Diseases Ninth Revision (ICD-9).

An initial three-year lead-in period from the DM diagnosis date was applied to evaluate glycemic control and variability: optimal glycemic control was regarded as mean HbA1c <7% from at least two measurements; lower glycemic variability was regarded as measurements of <25% quantile, including standard deviation (SD), coefficient of variation, and average successive variability. Cox regression models with inverse probability of treatment weighting (IPTW) of study characteristics were used to calculate hazard ratios (HRs) of CRC with optimal glycemic control.

Results: During a median follow-up of 6.7 (interquartile: 5.3-8.7) years, 2,231 (1.3%) of 171,270 patients with DM (mean [SD] age: 61.7 [11.7] years; male: 90,441 [52.8%]) developed CRC. Patient characteristics were well balanced after IPTW (all standardized mean differences <0.01). The 12-year cumulative incidence of CRC was 2.2% (95%CI 2.0%-2.4%) and 2.7% (95%CI 2.5%-3.0%) in optimal and suboptimal glycemic control respectively with an HR of 0.83 (95%CI 0.76-0.90). The association was validated in sensitivity analyses (HRs: 0.79-0.88) and consistent across subgroups regardless of at-risk age (40-75 years), obesity, smoking status, aspirin use, and diabetes-related comorbidity (HRs: 0.73-0.86). CRC risk increased incrementally with HbA1c increases beyond ≥7% in the multivariate Cox regression model, from an adjusted HR of 1.31 (95%CI 1.17-1.48) for HbA1c 7.0%-7.5%, to 1.36 (95%CI, 1.16-1.59) for HbA1c 7.5%-<8.0%, to 1.47 (95%CI, 1.20-1.80) for HbA1c 8.0%-<8.5%.

The beneficial effects of glycemic control were limited to the left colon (HR 0.82, 95%CI 0.71-0.94) and rectum (HR 0.81, 95%CI 0.68-0.96) but not to the right colon (HR 0.92, 95%CI 0.75-1.11). Among those who had colonoscopy during the study period (n=14,399), optimal glycemic control was associated with lower CRC risk in patients with (HR 0.78, 95%CI 0.67-0.92) and without (HR 0.85, 95%CI 0.73-0.98) adenomas. Lower vs. higher glycemic variability yielded consistent associations for CRC risk (HRs: 0.81-0.85; All P <0.001). Optimal glycemic control had no association with adenoma (HR 1.01, 95%CI, 0.96-1.07) and advanced adenoma (HR 0.98, 95%CI 0.87-1.10) development.

Conclusion: Optimal glycemic control was independently associated with reduced CRC development in patients with DM, while the worsening of glycemic control was associated with an incrementally increased cancer risk. Our study findings can aid CRC risk stratification of among patients with DM.

Disclosure: Nothing to disclose.

PP0986

COLON CANCER IN DIFFERENT ETHNIC GROUPS, POPULATION-BASED LARGE COHORT OF TWO ETHNIC GROUPS IN ISRAEL

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Introduction: Colorectal Cancer (CRC) is the third most common cancer worldwide. Only scant data is known regarding specific ethnicities and minorities. The Arab population in Israel is about 20% of the population; the Arab population in Israel has unique historical, social, and cultural characteristics. The Arab society in Israel has undergone major and rapid changes in lifestyle in the last five decades, from agricultural to urban society, with changes in nutrition, a high rate of smoking among men, a low rate of physical activity, and a high rate of consanguinity, which affect the health of the population.

Aims & Methods: We aimed to investigate the general characteristic, comorbidities, and all cause-mortality of CRC among the Arab population compared to the Jewish population.

CRC patients, according to ICD-10 codes were retrospectively included between the years 1999 and 2021. Data regarding demographics, age at diagnosis, comorbidities, and mortality were collected. Data were retrieved using the MdClone platform from the largest Health Maintenance Organization, "Clalit" in Israel. The risk factors and comorbidities were compared between young patients (≤50 years) compared to the other patients.

Results: 61,679 CRC patients were included in the present study, 4891 (7.9%) of Arab ethnicity and 56,788 of Jewish ethnicity. Age at diagnosis is significantly younger Among Arab (62.5±14 vs 70.8±13 years, p<0.001), with a higher males proportion of 51.3% vs 49.2%, p=0,005). 21.3% of the Arab CRC patients were diagnosed at age 50 or younger, compared to 8% of Jewish patients, p<0.001. Significant differences were found in family history of CRC and smoking (3.6% vs 6.2%, 34.9% vs 30%, respectively. Higher rates of diabetes mellitus and obesity were found among Arab patients (37.6% vs 27.5%, and 36% vs 21.4%, p<0.001), while lower rates of ischemic heart disease, hypertension and chronic kidney disease (9.7% vs 12.6%, 45.6% vs 53.7% and 8.1% vs 10.3%, p<0.001, respectively.

All-cause mortality was lower among patients of Arab ethnicity (49.6% vs 60.8%, p<0.001) with younger age at death (70.9±14.5 vs 79.8±11.8, p<0.001).

Conclusion: Disparities in risk factors, comorbidities, and all-cause mortality were found in different ethnic groups; special consideration is needed for specific ethnicities and minorities according to the colon cancer characteristics.

Disclosure: Nothing to disclose.

PP0987

FERROPTOSIS-RELATED LNCRNAS AS NOVEL PROGNOSTIC BIOMARKERS FOR COLON ADENOCARCINOMA

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Introduction: This study aimed to build up prognosis model and discover novel prognostic biomarkers for colon adenocarcinoma (COAD) based on ferroptosis-related lncRNA analysis.

Aims & Methods: The RNA-sequencing data and clinical information were obtained from TCGA database. Ferroptosis-related genes used were downloaded from the GSEA database. We screened ferroptosis-related lncRNAs with correlation coefficient >0.3 and P <0.001. Firstly, the prognostic value of ferroptosis-related lncRNAs with P < 0.05 was assessed by univariate Cox regression. Then, the results were submitted to Least Absolute Shrinkage and Selection Operator (LASSO) regression. Eventually, the results of LASSO were incorporated into a multivariate Cox model in order to calculate risk scores. We developed a risk score formula for predicting overall survival (OS), based on a linear combination of ferroptosis-related lncRNAs expression levels multiplied with a regression coefficient. According to the median risk score, patients were divided into high-risk and low-risk groups. K-M method and log-rank test were applied to draw the survival curve of highly and lowly expressed prognostic ferroptosis-related lncRNAs. Cox regression was utilized to build up an independent prognostic model. The index of concordance (C-index), calibration curves, and receiver operating characteristic (ROC) curves were applied to assess the accuracy of the model. The clinical data were included in multivariate Cox regression in order to confirm whether the risk score was an independent indicator for the prognosis.

Results: An eight-lncRNAs signature was built up, 7 lncRNAs (ZEB1-AS1, AL354993.2, LINC02381, AP001505.1, NCK1-DT, CD27-AS1, AC068580.3) predicted a poor prognosis, and SNHG16 predicted a good prognosis. The formula of the risk score calculation: risk score = (0.557*ZEB1-AS1) + (0.199*AL354993.2) + (0.183*LINC02381) + (0.079*AP001505.1) + (0.279*NCK1-DT) + (0.107*CD27-AS1) + (0.532* AC068580.3 – (0.138* SNHG16). The low-risk group had longer OS than the high-risk group (P<0.001, log-rank test), so the risk score might be related to the OS of COAD patients. According to the forest map, the hazard ratios of risk score in univariate and multivariate Cox regression analyses were 1.354 (95% CI: 1.228-1.494, P <0.001) and 1.343 (95%CI = 1.202 -1.500, P <0.001), respectively. Either in univariate or multivariate analysis, the risk score was of independent significance for prognosis. The AUC of ROC curve in 3-years survival was 0.737 and 0.785 in 5-years survival. According to the multivariate factor ROC curves, besides risk score, age and TNM stage also had a good ability to predict overall survival, while gender had a weak ability. Next, risk score, age T, M, N and stage were included into the nomogram. As indicated in the nomogram, risk score and stage were the largest contributors to OS of COAD patients. The risk score increased with stage, demonstrating that this ferroptosis-related lncRNA signature could predict the clinical progression of COAD. We divided the clinical sample data into three groups to obtain the calibration diagram, showing that the OS predicted by the model was in a good agreement with the observed clinically. The C-index of the prognostic model was 0.795 (se=0.028).

Conclusion: A signature based on eight ferroptosis-related lncRNAs is efficient in predicting the prognosis of patients with COAD. The eight lncRNAs may be novel prognostic and therapeutic biomarkers for COAD. The specific mechanism of how ferroptosis-related lncRNAs affects tumor biological behavior remains to be researched.

Disclosure: Nothing to disclose.

PP0988

LONG-READ SEQUENCING IDENTIFIED NOVEL CITRATE SYNTHASE VARIANT CONTRIBUTING TO METASTATIC PHENOTYPE THROUGH METABOLIC ALTERATIONS IN COLORECTAL CARCINOMA

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Introduction: Ranking 3rd in the most diagnosed cancer and 2nd in the leading cause of cancer deaths globally, colorectal carcinoma (CRC) is characterized by the nuanced multi-step carcinogenesis in which it acquires the hallmarks of cancer. Metastatic CRC (mCRC), which majorly appears in an advanced stage, has only a 12% 5-year survival. Notably, immediate resection of mCRC is rare, and the lack of operability motivates the further uncovering of carcinogenic mechanisms to broaden our therapeutic options. Our group has directed our focus on alternative splicing event which is frequently reported to be hijacked in cancer. By long-read sequencing in CRC organoids, we identified a novel isoform of citrate synthase (CS) with unprecedented exon-skipping (ΔCS) apart from the full-length isoform (CS-WT). Being the rate-limiting enzyme of the tricarboxylic acid cycle, differentially expressed ΔCS in CRC might be explanatory to metabolic reprogramming phenotype and may serve as a potential target of therapeutic intervention.

Aims & Methods: We validated the sequencing results in normal colonic (n=5), primary CRC (pCRC, n=10), and mCRC organoids (n=3), and in-house patient tumor and adjacent normal tissue pairs (n=97) by RT-qPCR. We performed survival analyses with progression-free survival, disease-free survival, and overall survival using all stages, late-stage, and early-stage stratification to explore the clinical relevance of ΔCS. We then proceeded into in vitro experimental validation in CRC cell lines, and in vivo tail-vein injection in NSG mice for investigating the biological phenomena. We also inspected the molecular mechanism to explain the oncogenic phenomena by focusing on the potential structural effects and enzymatic activity upon exon-skipping in ΔCS.

Results: An in-frame spliced CS transcript unreported in RefSeq and GENECODE was found upregulated in patient-derived pCRC organoids over normal organoids, and mCRC organoids have the highest ΔCS expression among the 3 groups. The clinical relevance of ΔCS was proven by 97 pairs of human CRC tissues, demonstrating a significant overexpression over non-tumoral colonic tissues (Paired student's t-test, p<0.001). Tumor-to-adjacent normal (T/AN) ratio analysis indicated that 80.4% of patients showed increased expression of ΔCS in tumor tissues. A significant association was observed between high ΔCS expression and recurrence (Fisher's exact test, p<0.01). Kaplan-Meier analyses, stratified by median expression, were performed and the high ΔCS expression group was found associated with lower survival rates when compared to the low ΔCS group in both PFS (Log-rank test, p<0.01) and DFS (p<0.005). We further separated groups by cancer stages and found that high ΔCS expression leads to worse survival outcomes in stage III & IV patients, indicating the metastatic feature associated with this isoform (OS: p<0.005; PFS: p<0.005).

Moreover, ΔCS silencing (shΔCS) demonstrated a more profound inhibition of cell proliferation compared with CS-WT knock-down (shCS-WT) and control. shΔCS groups also showed a significant increase in apoptosis cell counts. Overexpression of ΔCS showed enhanced migration ability in vitro and in vivo. The dimerization effect by ΔCS leads to enhanced CS activity, and metabolic shift to amino acids synthesis was found by GC-MS profiling.

Conclusion: Unannotated ΔCS isoform is explanatory to clinically important metastatic phenotype in CRC through metabolic alteration.

Disclosure: Nothing to disclose.

PP0989

A MULTITARGET FRAMEWORK FOR WNT SIGNALLING-DRIVEN COLORECTAL CANCER PREVENTION AND EARLY DETECTION

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Introduction: Colorectal cancer (CRC) is the 3rd most common cancer worldwide. Approximately 85% of CRC develop on a background of Wnt/β-catenin signalling impairment. Familial adenomatous polyposis (FAP), caused by inherited APC gene mutations (part of the β-catenin destruction complex), is characterized by the development of hundreds to thousands adenomatous polyps. FAP patients have up to 100% risk of developing CRC during their lifetime. The Wnt/β-catenin together with the PI3K/mTOR signalling control the self-renewal and homeostasis of intestinal stem cells and are frequently deregulated in CRC therefore representing attractive targets for chemoprevention and treatment [1], [2].

It has been shown that each pathway may be deregulated by an altered composition of the gut microbiota [3], [4], which plays an important role in the onset, development and progression of CRC thus representing potential target for prevention and potentially biomarkers for the early detection of deranged Wnt/β-catenin-driven lesions [5].

Aims & Methods: The aim of the study was to identify potential targets for the prevention and early detection of CRC in the setting of Wnt/β-catenin disruption.

Transcriptional and translational levels of Wnt/β-catenin and PI3K/mTOR pathways were evaluated by RT-qPCR and immunohistochemical analysis, respectively, in FAP adenomas (n=17 patients) and in sporadic CRC tissues (tumor stages I-III; n=15 patients). In FAP adenomas germline and somatic *APC* mutations were confirmed by Sanger and Targeted Next Generation Sequencing. The composition of oral, fecal and mucosal-associated microbiota was sequenced by the bacterial 16S rRNA gene. Non-diseased Faecal Immunochemical Testing positive subjects (FIT+; n=17) were included as control group.

Results: We found increased expressions of *AXIN2* and *cMYC*, downstream targets of Wnt/β-catenin, in FAP adenomas. The activation status of PI3K/mTOR was confirmed by an increase of *RPS6* gene and pS6R protein expression, indicating that germline and somatic *APC* mutations of FAP adenomas induce an activation of both pathways.

On the other hand, compared to FAP adenomas, a higher expression of *AXIN2, cMYC* and cytosolic and nuclear β-catenin was found in CRC, while no changes were detected in pS6R, suggesting that the hyperactivation of Wnt/β-catenin in sporadic CRC contributes to the impairment of mTOR signalling. Importantly, we analyzed the microbiome composition in FAP and CRC settings.

The oral microbiota of FAP was significantly enriched of Proteobacteria ($p<0.01$), which decreased in FAP adenomatous mucosal samples compared to FIT+ and CRC. In contrast, Firmicutes showed an opposite trend in FAP patients, with a decrease in the oral composition ($p<0.01$) and an increase in the adenomatous mucosa ($p<0.05$).

Interestingly, a significant decrease of the CRC-protective phylum Actinobacteria was found in oral and adenomas microbiota of FAP patients compared to FIT+.

In contrast, CRC fecal microbiota was enriched of Proteobacteria and a higher abundance of the well-known cancer associated families Fusobacteriaceae, Clostridiaceae and Gemellaceae was found in CRC mucosal samples compared to FIT+.

Conclusion: These findings reveal new insights into the role of Wnt/β-catenin and PI3K/mTOR pathways in influencing the homeostasis of precancerous CRC lesions.

Moreover, by defining different microbial signatures in FAP patients, these results will contribute to the enhancement of non-invasive screening tools for the early detection of WNT signalling-driven colorectal cancers.

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PP0990

LOSS OF MULTIMERIN-2 IN COLORECTAL CANCER ASSOCIATES WITH VASCULAR INSTABILITY AND ALTERED IMMUNE RESPONSE

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Introduction: Angiogenesis is a hallmark of cancer[1] and it plays a critical role in tumor development, especially in the proliferation and progression of colorectal cancer (CRC)[2,3].

Indeed, tumor vasculature prompts tumor growth and metastasis since it not only provides nutrients and oxygen for the rapid proliferation of cancer cells as well as a route for metastatization, but also affects the infiltration of immune cells to the tumor site. Thus, the targeting of angiogenesis has become an attractive strategy against various human malignancies, including CRC[4]. In fact, tumor-associated vessels are leaky and poorly efficient due to the dismantlement of the basement membrane and the loss of pericytes, thus preventing proficient drug delivery to the tumor[5].

In this context, we demonstrated that Multimerin-2, an extracellular matrix glycoprotein deposited along the blood vessels in juxtaposition between endothelial cells and pericytes, mural cells fundamental in vessels stabilization, is key in the maintenance of vascular homoeostasis[6].

However, the effects of this molecule on pericytes biology and its putative impact on the immune cells' recruitment are still poorly understood.

Aims & Methods: Immunohistochemistry analysis on colorectal cancer patients' biopsies revealed that colon cancer associated vessels display a downregulated expression of Multimerin-2. Thus, we aimed to verify the extent of pericyte recruitment by Multimerin-2-devoid vessels in a colon cancer model and to evaluate how Multimerin-2 loss affects the surrounding tumor microenvironment.

Human umbilical vein endothelial cells (HUVEC) and Human brain vascular pericytes (HBVP) were used as *in vitro* models for proliferation, functional assays, transcriptomic and proteomics analyses. *Wild type* and *Multimerin-2*$^{-/-}$ C57BL/6 mice were subcutaneously injected with the syngeneic colon cancer MC-38 cells and the tumor sections were analysed by immunofluorescence analyses. Animals were then treated with cisplatin six hours prior sacrificing to evaluate the drug delivery.

Results: We demonstrated that Multimerin-2 affects pericytes migration, adhesion, and proliferation. MC-38 xenografts from *Multimerin-2*$^{-/-}$ mice displayed lower number of pericytes along the vessels as well as increased hypoxia, likely due to vascular inefficiency. The delivery of drug to the tumors was impaired as assessed by the analysis of cisplatin DNA adducts, following the treatment with the chemotherapy drug.

Importantly, tumors from *Multimerin-2*$^{-/-}$ mice also displayed an altered CD68^{+} cells infiltrate, suggesting that Multimerin-2 loss can affect macrophages recruitment to the tumor site. These results are in agreement with the finding that Multimerin-2 devoid endothelium was more permissive for the migration of the monocytic cell line THP-1. Finally, the loss of Multimerin-2 also associates with the expression of cytokines involved in macrophages recruitment.

Conclusion: In conclusion, loss of Multimerin-2 in CRC associates with poor pericyte recruitment, compromised delivery of drugs to the tumor, and an altered immune response. Our results suggest that Multimerin-2 expression could represent a promising marker to predict the efficacy of immunotherapy and the outcome of CRC patients.

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PP0991

A COMBINATION OF RAPAMYCIN, Ω3-PUFA DOCOSAHEXAENOIC ACID AND EPIGALLOCATECHIN-3-GALLATE FOR THE SIMULTANEOUS SUPPRESSION OF PI3K/MTOR PATHWAY AND WNT/B-CATENIN SIGNALLING IN COLORECTAL CARCINOGENESIS

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Introduction: The Wnt/β-catenin signalling is frequently deregulated in colorectal cancer (CRC); indeed, germ-line (as found in familial adenomatous polyposis – FAP) or somatic loss of function of the *APC* gene represent crucial events in CRC onset. Importantly the PI3K/mTOR pathway is frequently impaired in CRC development and closely involved together with Wnt/β-catenin signalling in self-renewal and homeostasis of intestinal stem cells (1,2). Numerous inhibitors of Wnt/β-catenin and PI3K/mTOR pathways have been proposed as potential anti-cancer treatments (3,4), but long-term exposure often fails due to toxicity or the acquisition of resistance, usually associated with the activation of the non-inhibited pathway due to their mutual regulation (5).

Aims & Methods: The aim of the study was to evaluate the effect of a combination (RDE) of Rapamycin, ω3-PUFA Docosahexaenoic Acid (DHA) and epigallocatechin-3-gallate (EGCG) on PI3K/mTOR and Wnt/β-catenin pathways, in order to define an effective combinatorial approach for CRC prevention through simultaneous suppression of both pathways.

For this purpose RDE was tested for 24 or 48 hours (in cell lines and intestinal organoids, respectively) in selected different genetic backgrounds: (i) *APC*-mutated settings consisting of cell lines SW480 and HT-29, and intestinal organoids from four FAP patients morphologically normal-appearing mucosa (NM); (ii) non-*APC*-mutated CRC settings comprising HCT116 (*CTNNB1 mutated*) cell line and sporadic CRC organoids (CRC1: *TP53 mutated*; CRC2: *PI3KCA and TP53 mutated*); HEK293STF cell line and three healthy patients NM-derived organoids as non-mutated settings (iii). We evaluated cells and organoids viability, markers of intestinal stemness (*LGR5*) and differentiation (*KRT20*), and we analyzed the expression of target genes and effector proteins of the Wnt/β-catenin and PI3K/mTOR pathways by RT-qPCR and Western-blot.

Results: We found that RDE strongly inhibited PI3K/mTOR by downregulating the protein expression of phospho-P70S6K and phospho-S6R in all tested genetic backgrounds. FAP NM organoids responded to RDE similarly to HEK293STF cell line and the healthy organoids, with increased translocation of β-catenin into the nucleus. In contrast, in the *APC*-mutated SW480 and HT-29 cell lines, RDE inactivated the Wnt/β-catenin pathway, inhibiting β-catenin nuclear translocation despite the downregulation of APC and AXIN1. These findings were replicated in HCT116 cell line, that also showed reduced cell viability and induction of apoptosis. On the other hand, in non-*APC*-mutated CRC organoids, RDE showed a mild downregulation of Wnt/β-catenin pathway. Importantly, RDE significantly suppressed *LGR5* and induced *KRT20* gene expression. Finally, independently from the genetic backgrounds, exposing organoids to RDE led to increased expression of *c-MYC*.

Conclusion: We found that the dual inhibition of PI3K/mTOR and Wnt/β-catenin pathways by RDE is influenced by genetic backgrounds. Our approach was effective in CRC cell lines and in organoids by affecting markers of intestinal stemness and tissue differentiation, suggesting a potential therapeutic approach for both preventive and therapeutic strategies against CRC.

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PP0992

A NOVEL BIOMARKER ASSAY FOR THE IDENTIFICATION OF COLORECTAL CANCER CELLS BASED ON SPECIFIC METHYLATION PATTERNS

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Introduction: Colorectal cancer is one of the most frequent malignant tumors worldwide. With increasing use of prognostic biomarkers, molecularly stratified treatment of colorectal cancer is improving in clinical practice. However, identifying stable and easily detectable biomarkers for clinical use remains a challenge. Among these biomarkers, epigenetic changes, especially DNA methylation, are the most promising candidates for clinical practice. Prominent examples of such methylation markers are SEPTIN9, the Secretin Receptor (SCTR), and Engrailed Homeobox 1 (EN1). The methylation preferentially affects CpG islands within promoter regions of these genes. Aberrant methylation of CpG islands in the promoter region can be associated with the silencing of tumor suppressor genes and promotes tumorigenesis and tumor growth.

Aims & Methods: Our goal is to develop an innovative diagnostic tool for the reliable detection of malignant colon tissue based on the recognition of specific methylation patterns. This reporter system will detect hypermethylated genetic regions in vivo using luminescence. Suitable biomarkers for this approach will be identified by methylation profiling of colorectal carcinoma cell lines as well as organoids from patients with colorectal cancer.

Our reporter system consists of two constructs. The first construct, the key element of which is the methyl-binding domain of Methyl-CpG-binding domain protein 1 (MBD1), recognizes hypermethylated CpG islands that are frequently located within the promoter region.

The second construct can bind with high specificity to the genomic region of interest via the sgRNA of a deadCas9. When the two components combine in close proximity, a SplitTEV protease induces the newly developed flipNluc luciferase.

The emitted luminescence signal then detects the tumor in a highly specific manner and can be quantified. In addition, whole-genome bisulfite sequencing on colon carcinoma cell lines HCT116 and CaCo2 and organoids from colon biopsies were used to identify additional specific hypermethylated regions. The raw data was analyzed bioinformatically using Bismark and the R package DSS.

Results: We verified the functionality of our new assay by assessing the induction of the newly developed flipNLuc luciferase by the TEV protease. We detected a significant increase in luminescence, confirming the functionality of the luciferase. Thereafter, we validated the reporter system by analyzing the methylation marker genes EN1 and SCTR, which are typically hypermethylated in colorectal carcinoma. In particular, significantly increased luminescence was measured compared to the unmethylated housekeeping genes GAPDH and GPI. To optimize the sensitivity and specificity of our new detection system, additional genes with differentially methylated regions were identified during bioinformatic analysis of the sequencing data. Currently, we are adapting our reporter system to these newly identified genes to validate their potential role as new specific biomarkers.

Conclusion: Reliable DNA methylation biomarkers for clinical practice in the diagnosis of colorectal cancer are still limited. The developed method allows the highly specific identification of malignant tissue based on the detection of hypermethylated CpG islands. Furthermore, our method can be used for targeted screening for new methylation markers. By replacing the sgRNAs of deadCas9, our newly developed method is not limited to the detection of colon tumors and can be adapted to the diagnosis of other tumor entities.

Disclosure: Nothing to disclose.

PP0993

LIVER FIBROSIS DRIVES COLORECTAL CANCER DEVELOPMENT: A RETROSPECTIVE ANALYSIS IN 1145 METABOLIC SUBJECTS

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Introduction: Liver steatosis represents the hepatic manifestation of increased adiposopathy, whose pathogenetic features have been proposed as tumorigenic triggers, specifically in colorectal cancer (CRC) [1]. Fatty liver diagnosis challenges clinicians since it is clinically silent and may be complicated with liver fibrosis. Since liver biopsy is not feasible in all patients, non-invasive and point-of-care indexes have been proposed to detect liver steatosis and fibrosis [2].

Aims & Methods: We performed a retrospective analysis among 1145 metabolic subjects to reveal any condition that may predict and concur to CRC development during a 8-years period. Anthropometric and bio humoral parameters were recorded at time zero. Non-invasive liver fibrosis scores were calculated as follows: AAR=AST/ALT; FIB-4=(age x AST)/(platelet count x √ALT); mFIB-4=(10 x age x AST)/(platelet count x ALT); Forns=7.811-3.131 x ln(platelet count) +0.781 x ln(GGT) + 3.467 x ln(age) - 0.014 x (total cholesterol); APRI= AST/Upper limit of normal values x 100/platelet count; AARPRI=AST/ALT/platelet count x 150. Comparisons were carried out by Student-T test (p-value <0.05 was considered significant) and ROC analysis was performed to assess cut-off values. Chi-square test was used to calculate the associated Odds Ratio (OR) with 95% confidence interval (CI).

Results: During a 8 years period, 28 patients (2.4%) developed CRC. No association between CRC development and visceral and general obesity was detected, while fasting plasma glucose was significantly higher and Vitamin D was significantly lower in patients who later were diagnosed with CRC, compared to those who did not develop cancer. We found that all

non-invasive liver fibrosis scores significantly identified CRC-developer at time 0 (see Table). In ROC analysis, these scores also showed good sensitivity and specificity in predicting colon cancer (AAR AUC= 0.59, sensitivity 44% and specificity 78%; FIB-4 AUC= 0.74, sensitivity 84% and specificity 57%; mFIB-4 AUC=0.69, sensitivity 80% and specificity 53%; Forns AUC= 0.67, sensitivity 73% and specificity 54%; APRI AUC= 0.63, sensitivity 57% and specificity 75%; AARPRI AUC =0.64, sensitivity 44% and specificity 83%). We then calculated ORs for values above the ROC cut-offs finding that higher FIB-4 was associated with a 6-fold increased risk of developing CRC (95% CI=2.2-16.5), while mFIB-4 showed a OR=3.6 (95% CI=1.4-8.7), Forns OR was 3.1 (95% CI=1.3-7.9), APRI OR was 3.2 (95% CI=1.4-6.9) and AARPRI OR was 3 (95% CI=1.3-6.4).

	No Cancer (n=1117) mean ± SD	Colon cancer (n=28) mean ± SD	p-value
Fasting glucose (mg/dL)	100.8±29.1	119.5±49.8	0.0011
25-OH Vitamin D (pg/mL)	22.8±11.2	16.3±7.8	0.0099
AAR	0.8±0.3	1±0.5	0.0064
FIB-4	1.1±0.7	1.8±1	<0.0001
mFIB-4	2.2±1.5	3.3±2.3	0.0004
Forns	5.3±1.8	6.3±1.3	0.0039
APRI	0.3±0.2	0.5±0.4	0.0003
AARPRI	0.6±0.3	0.8±0.5	0.0011

Conclusion: These findings support the hypothesis that liver steatosis and fibrosis may play a role in the clinical background of CRC and bring to light the fascinating possibility of a reversed gut-liver axis communication in the pathogenesis of CRC. Thus, the use of non-invasive scores of liver fibrosis may be helpful to predict the risk of CRC and serve as novel prognostic factors for prevention and therapeutic strategies.

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PP0994

A CIRCULAR RNA GENERATED FROM *LRBA* SUPPRESSED COLORECTAL CANCER PROGRESSION THROUGH HSPA8-MEDIATED AUTOPHAGY

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Introduction: Circular RNAs (circRNAs) are a class of singlestranded, covalently closed RNA molecules that are formed by precursor mRNA back-splicing or skipping events of thousands of genes in eukaryotes. CircRNAs play an essential role in the initiation and progression of human cancers by participating in the regulation of one or several cancer hallmarks.

Aims & Methods: In our study, we aimed to reveal the functions and mechanisms of circRNAs in colorectal cancer (CRC) progression. High-throughput RNA sequencing (RNA-seq) was performed to assess RNA expression profiles in 10 paires of CRC tumor tissues and matched adjacent peritumor tissues, then the expression level of top five dysregulated circRNAs were tested in CRC cancer cell lines. The circLRBA with concordant alteration in RNA-seq data and cell lines was validated in tumor and corresponding adjacent tissues (85 pairs) from a CRC cohort by qRT-PCR analysis followed by correlation and prognosis analysis between circLRBA and clinical characteristics. Sanger sequencing, RNase R and Actinomycin D assays were used to verify the ring structure of circLRBA. Nuclear-cytoplasmic separation experiment and the fluorescence in situ hybridization (FISH) were performed to show the cellular location of circLRBA.

Functional experiments, including CCK8 assay, colony formation assay, transwell assay, 3D multicellular tumor spheroid invasion assay and orthotopic-injected CRC cell line-derived xenograft (CDX) mouse models, were performed by using circLRBA overexpression and knockdown cell lines to investigate the effects of circLRBA on CRC progression in vitro and in vivo. Mechanistically, RNA-sequencing was used to reveal the dysregulated genes followed by circLRBA overexpression. Bioinformatic analysis was used to predict the possible downstream pathways.

Furthermore, Biotin-labeled RNA pulldown and RNA immunoprecipitation (RIP) assays were carried out to identify the proteins directly interacting with circLRBA.

Results: Totally 853 differentially expressed circRNAs were identified, including 778 down-regulated and 75 up-regulated circRNAs. We identified a circular RNA generated from the *LRBA* gene, designated circLRBA, that was significantly down-regulated in CRC tissues and associated with unfavorable clinicopathological parameters.

CircLRBA was dominantly distributed in the cytoplasm in several CRC cell lines. Gain- and loss-of-function experiments suggested that circLRBA could inhibit CRC cell proliferation, metastasis and apoptosis in vitro and in vivo. RNA-seq of circLRBA-overexpressing cells and the controls revealed that these dysregulated genes were significantly enriched in pathways of malignant neoplasm of colon stage IV (*DisGeNET* database), protein localization to endoplastic reticulum and lysosomal lumen (*Gene Ontology* analyse).

Furthermore, RNA pulldown and RIP assays validated that circLRBA directly binds to the HSPA8 protein, which is an essential chaperone for mediating cell autophagy by translocating proteins containing the KFERQ-like motif in their amino acid sequence to undergo lysosomal degradation.

Conclusion: Our study uncovered a novel *LRBA* gene-generated circRNA with a tumor suppression function. CircLRBA probably inhibited CRC progression by chaperone-mediated autophagy (CMA) through interacting with HSPA8. However, further exploration is needed to reveal the substrate protein of HSPA8 and its effects on CRC. CircLRBA is expected to be a new therapeutic target for CRC patients in the future.

Disclosure: No conflict of interest.

PP0995

TUMOUR MICROENVIRONMENT-MEDIATED METABOLIC SHIFTS IN COLORECTAL CANCER REGULATE PD-L1 EXPRESSION

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Introduction: Immune checkpoint blockade (ICB) for treatment of colorectal cancer (CRC) has been approved for clinical use since 2017. However, the approval of PD-L1 inhibitor for CRC has been encumbered by the lack of durable clinical benefits. Increasing evidence from other cancer types support that PD-L1 expression correlates to the efficacy of ICB and tumor PD-L1 is essential for ICB-mediated tumor cytotoxicity [1-3]. Concomitantly, many studies have also demonstrated the infrequent expression of PD-L1 in CRC cells [4, 5], thereby alluding to the possibility of low/absent PD-L1 expression as a primary obstacle to ICB efficacy.

Aims & Methods: Given the integral role of tumour microenvironment (TME) in shaping the tumour's natural history, we sought to elucidate the role of tumour stroma in regulating CRC PD-L1 expression. To this end, we aim to rescue tumor PD-L1 and assess its utility in ICB-mediated anti-tumour immunity.

To explore the role of different cell types in the TME on CRC PD-L1 expression, cocultures between major cell compartments of the TME and CRC cell lines were performed. Further various omics approaches were utilised to characterise the crosstalk between CRC and stromal cells that saw significant suppression of CRC PD-L1 expression.

Results: Myeloid cells are able to exert a significant suppression of PD-L1 expression in CRC and this suppression is regulated at a post-transcriptional level. The underlying mechanism is orchestrated by CRC metabolic shift from glycolysis to oxidative phosphorylation in response to harsh metabolic competition within the TME.

Conclusion: We have identified potential cellular compartment of the TME and mechanisms which may explain, in part, low/absent CRC PD-L1 expression. This can thus serve to evaluate appropriate external manipulations that can alleviate CRC PD-L1 suppression and explore the possibility of combinatory therapy with anti-PD-L1 ICB to improve its clinical efficacy and durability.

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PP0996

DISCOVERY OF GENETIC FACTORS THROUGH GENOME-WIDE ASSOCIATION STUDY IN NON-HEREDITARY COLORECTAL POLYPOSIS

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Introduction: Colorectal polyposis, characterized by more than 10 adenomas, indicates a higher risk of malignancy and necessitates more frequent screening and genetic assessment. However, there are still a large number of polyposis patients with negative genetic test results. This study aimed to explore the risk genetic variants associated with non-hereditary colorectal polyposis through a genome-wide association study (GWAS).

Aims & Methods: Among patients who underwent colonoscopy at a single referral university hospital from January 2012 to September 2021, a total of 638 patients with 10 or more biopsy-proven cumulative polyps on colonoscopies and without genetic mutations or family history related to colorectal polyposis were included in this study. For the control group, a total of 7087 people who underwent colonoscopy for the purpose of health check-up at the Korea Medical Institute and were normal at least twice in a row were included. To find susceptible loci to non-hereditary colorectal polyposis, GWAS was performed and a genome-wide p-value threshold of 5×10^{-7} was set to assess statistical significance.

We compared the genetic differences between two groups of patients with non-hereditary colorectal polyposis: those with 10 or more polyp recurrences observed during follow-up colonoscopies and those without such recurrences. We utilized SNPs that were identified as risk variants for non-hereditary colorectal polyposis in this GWAS. For each SNP, we defined the risk allele as the allele associated with increased risk of non-hereditary colorectal polyposis as identified in this GWAS. Genotypes were coded as 0, 1, or 2 based on the number of risk alleles identified at each SNP. We used a polytomous logistic regression model to identify SNPs that significantly increased the risk of polyp recurrence compared to the group without recurrence. Results of all regression analyses were adjusted for age, sex, BMI, smoking history, alcohol consumption history, family history of cancer, history of cancer other than colorectal cancer, comorbidities, and history of medication use.

Results: A total of 71 risk variants were discovered, which were new single-nucleotide polymorphisms (SNPs) not found in previous GWAS associated with colorectal cancer and polyp (Figure 1). 5 genes (UPF3A, BICRA, CBWD6, PDE4DIP, ABCC4) nearest or overlapped with 7 SNPs (rs566295755, rs2770288, rs1012003, rs201270202, rs71264659, rs1699813, rs149368557) previously reported directly or indirectly related to the development of colorectal cancer were proven to be risk variants significantly associated with non-hereditary colorectal polyposis. In addition, two new genes (CNTN4, CNTNAP3B) that have not previously been reported to be associated with colorectal cancer or polyp were newly identified.

The SNP rs149368557 was identified as being significantly associated with an increased risk of polyp recurrence in non-polyposis hereditary colorectal cancer (p-value: 0.049, odds ratio: 2.991, 95% confidence interval: 1.006–8.899).

Conclusion: In this study, we found 71 novel risk variants associated with non-hereditary colorectal polyposis. The SNP rs149368557 was identified as being significantly associated with an increased risk of polyp recurrence in non-hereditary colorectal polyposis. The risk variants and genes discovered in this study might be utilized as novel targets to prevent colorectal cancer in the future.

Disclosure: Nothing to disclose.

PP0997

EXPLORING THE POTENTIAL OF METFORMIN AND CELECOXIB AS NEW ADJUVANT THERAPY FOR COLORECTAL CANCER

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Introduction: Colorectal cancer (CRC) is a global health concern, with high mortality rates and limited success in early detection and effective treatment of metastatic disease. While conventional treatments such as surgery, chemotherapy, and radiation therapy have shown some success, there is still a need for new and more effective treatment options. Repurposing existing drugs for cancer treatment has gained increasing attention due to its cost-effective nature and the availability of a large number of approved drugs with established safety profiles.

In this study, we investigate the potential of using metformin and celecoxib as adjuvant agents for CRC treatment. Both drugs have been shown to have anti-cancer properties and are well-established for the treatment of other conditions. By analyzing gene expression data sets for these drugs and performing *in vitro* assays, we aim to evaluate their effectiveness as combination therapy and explore the underlying mechanisms of action.

Aims & Methods: Gene expression data sets for these drugs were obtained from the GEO database (GSE11237 and GSE67342) and analyzed using the R Limma package. Fold-change (FC; value > 1) and p-value ≤ 0.05 are considered as DEG selection criteria. MTT assay, apoptosis, and cell cycle analysis will be performed to evaluate the cytotoxic effect of these drugs on CaCO2 and SW48 cell lines. Furthermore, to assess the expression of the candidate genes identified in the *in-silico* phase, we will perform real-time PCR analysis.

Results: After performing gene expression analysis using the R Limma package, we found that only one gene, *ID1*, was identified as commonly expressed in both datasets. STRING server was used to find the intermediate network between *ID1* and other human genes. Finally, the resulting gene network was determined by using Gephi software. Based on this, three modules were obtained. The genes in the module containing *ID1* are *MYOD1*, *SMAD4*, *SMAD9*, *SMAD5*, and *TCF3*. Among the resulting genes, considering that *ID1* is a hub gene and the functional pathway of this gene is TGFB. We selected the *SMAD4* gene, which plays a role in this pathway, as a companion gene to determine the expression level of these two genes in treatment with both drugs.

Our results suggest a potential functional role for *ID1* in the cellular response to treatment with the drugs metformin and celecoxib in CRC.

Conclusion: In conclusion, our study provides evidence that the combination therapy of metformin and celecoxib may have the potential as adjuvant therapy for CRC. These findings contribute to the understanding of the molecular mechanisms underlying the therapeutic effects of these drugs in CRC and provide a basis for the development of new adjuvant therapies that could improve patient outcomes and reduce healthcare costs.

Disclosure: Nothing to disclose.

PP0998

P53 - A NOVEL REGULATOR OF PERIPHERAL TOLERANCE AND IMMUNE EVASION IN COLORECTAL CARCINOMA

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Introduction: Tumor-related peripheral tolerance is responsible for the limited ability of the immune system to control tumor growth. In addition to the known functions of p53 as a tumor suppressor, there is increasing evidence that p53 also regulates innate and adaptive immune responses. Wild-type p53 affects the innate immune system by modulating macrophage function via the induction of cytokine expression, thereby sharpening the immune system to suppress tumorigenesis. When p53 is mutated or deleted, as is the case in many tumors, macrophages are not attracted to the tumor and immune evasion occurs.

In addition to soluble factors that activate innate immunity, the glycerophospholipid phosphatidylserine also plays a key role in peripheral tolerance. This lipid is localized on the inner side of the plasma membrane facing the cell matrix.

The exposure of phosphatidylserine to the outside of the cell, e.g. during apoptosis, causes the induction of peripheral tolerance and helps to suppress inflammation. The localization of phosphatidylserine is regulated by the flippase complex.

Here, we demonstrate for the first time that p53 exerts a direct influence on the composition of the plasma membrane and can control immune responses by regulation of flippase protein expression. When p53 is deleted or mutated, phosphatidylserine is externalized and tolerance towards the tumor is induced.

Aims & Methods: We generated stable HCT116 cell lines using CRISPR/Cas9 that have either a complete knock-out of p53 or knock-out of the DNA-binding domain of p53. We assessed exposure of phosphatidylserine and induction of cell death by flow cytometry and determined the metabolic activity of the cells by measuring NAD(P)H and ATP.

In addition, the expression of flippase subunits was analyzed by Western blot and quantitative PCR. Comparative transcriptome analysis of wild-type and p53 knock-out cells was performed by next-generation sequencing to further investigate the regulation of phosphatidylserine exposure.

Results: Following the knock-out of p53 or deletion of the p53 DNA-binding domain, we detected a translocation of phosphatidylserine to the outer side of the plasma membrane. Of importance, cells with knock-out of the p53 DNA-binding domain, as well as cells with complete p53 knock-out, remained metabolically active. Proliferation was comparable to wild-type cells. Thus, cell death can be excluded as the underlying mechanism of phosphatidylserine externalization.

Subsequently, the expression of essential flippase subunits was examined. We observed a downregulation of the protein expression of ATP11A and ATP11C subunits in p53 knock-out cells. This explains why there is an increased phosphatidylserine exposure in these cells and how tumors with p53 deletions may evade the immune system.

Moreover, transcriptome analysis revealed that genes upregulated in p53 knock-out cells are mainly induced by interferons, demonstrating involvement of the immune system.

Conclusion: Here we report a novel function of p53 as an immunomodulator. In addition to its tumor suppressor properties, p53 regulates plasma membrane composition. Deletion of p53 or its DNA-binding domain, as frequently observed in malignant tumors, leads to the downregulation of essential flippase subunits and thus, to the externalization of phosphatidylserine. In this way, peripheral tolerance can be induced and the malignant tumor can escape the immune system. Thus, we describe a novel function of p53 in mediating peripheral tolerance in malignant tumors.

Disclosure: Nothing to disclose.

PP0999

THE SODIUM CHANNEL SUBUNIT SCNN1B SUPPRESSES COLORECTAL TUMORIGENESIS VIA MODULATION OF THE GUT MICROBIOTA AND IMMUNE MICROENVIRONMENT

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Introduction: We previously demonstrated that SCNN1B is a potential tumor suppressor in colorectal cancer (CRC), however, its role in the tumor microenvironment is largely unknown. In this study, we have constructed a conditional, colon specific SCNN1B knockout mouse model, and investigated the effects of SCNN1B knockout on colorectal tumorigenesis, and the associated alterations in the gut microbiome and tumor immune microenvironment.

Aims & Methods: Conditional SCNN1B knockout mouse was established, and then crossed to CDX2-CreERT2 mouse to generate colon specific SCNN1B knockout mouse model. To knockout SCNN1B, mice were injected with tamoxifen (100mg/kg, i.p., 6 times). After SCNN1B knockout, the mice were subjected to the Azoxymethane (AOM)/Dextran Sodium Sulfate (DSS)-induced colorectal tumorigenesis. Gut barrier function was determined by FITC-dextran permeability assay. Mucosal and fecal microbiota in SCNN1B knockout mice and control mice were determined by 16S rRNA sequencing and shot gun metagenomic sequencing, respectively. The tumor immune cell infiltration was determined by flow cytometry.

Results: Colon-specific SCNN1B knockout mice were successfully constructed. Compared to wildtype controls, SCNN1B knockout significantly increased tumor number ($P<0.05$) and load ($P<0.05$) in colon. Notably, gut permeability was increased in SCNN1B knockout mice, as evidenced by increased levels of circulation FITC-dextran in the gut permeability assays. Analysis of the mucosal microbiota revealed that knockout of SCNN1B led to decreased microbial diversity according to alpha- and beta-diversities as compared to wildtype counterparts, suggesting that knockout of SCNN1B promoted gut dysbiosis. SCNN1B knockout mice were enriched in the bacterial genera of Lawsonibacter, Duncaniella, and Desulfovibrionaceae, together with the depletion of Geosporobacter. In terms of microbial function, SCNN1B knockout mice microbiota was enriched in dark sulphur oxidation activity, which is frequently associated with pathogenic processes. Meanwhile, flow cytometry demonstrated the loss of SCNN1B promoted immunosuppression, characterized by increased infiltration of myeloid-derived suppressor cells (MDSCs) and decreased CD8+ T cell activation.

Conclusion: SCNN1B functions as a tumor suppressor in CRC. Colon specific knockout of SCNN1B in mice dysregulated gut microbiota and impaired antitumor immune response, which might contribute to the pathogenesis of CRC.

Disclosure: Nothing to disclose.

PP1000

RECTAL CHROMATIN NANO-ARCHITECTURE AND MICRORNAS AS A MARKER OF FIELD CARCINOGENESIS: IMPLICATIONS FOR RISK STRATIFICATION FOR COLORECTAL CANCER SCREENING

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Introduction: Colonoscopy is highly effective yet inefficient at colorectal cancer (CRC) prevention with a prevalence of target (advanced adenomas) of only about 8%. Thus, finding a modality to risk-stratify for colonoscopy would be of public health implications One approach is to leverage field carcinogenesis, the concept that the gene/environmental interaction that predispose to neoplastic lesions are diffuse and thus rectal mucosa can predict risk of proximal neoplasia (1).

Given the diffuse molecular alterations, our group has focused on transcriptional assessment through chromatin nano-architecture. While epigenetics such as methylation, histone acetylation etc will be reflected in chromatin nano-architecture, microRNAs (mIRs) provide an independent impact on gene expression. We, therefore, wanted to test whether chromatin + miR markers from the rectum would predict concomitant adenomas.

Aims & Methods: Chromatin Nano-architecture: We used a novel nanoscale optics technology, partial wave spectroscopic microscopy (PWS) which enables us to go quantify chromatin heterogeneity through pixel-to-pixel variability in refractive indices (2). The calculated marker correlated with fractal dimension (*D*).

Human Studies: We recruited patients undergoing screening/surveillance colonoscopy with IRB consent. Following colonoscopy 6 biopsies of endoscopically normal rectum. We had 104 controls and 53 advanced adenoma patients for these studies. Advanced adenomas were defined as size >10mm, >25% villous features or high grade dysplasia. Controls were those without adenomas/carcinomas.

miR: We used RT-PCR with internal controls. We used literature to identify 4 candidates miRs and used the delta delta approach to compute fold change of miR expression (case versus control).

Results: We analyzed D from the rectal biopsies with PWS from our clinical dataset and observed excellent diagnostic performance of area under receiver operator characteristic curve (AUC) of = 0.85 for those with and without advanced adenomas sensitivity = 0.74, specificity = 0.83.

The potential of our biomarker is also evaluated via combining with epigenetic regulators microRNAs (miR) in an independent pilot study. Evaluating the 4 oncomiRs in 20 human rectal biopsies (10 control, 10 advanced adenoma) had increased expressions in patients harboring advanced adenomas (fold changes were miR137=3.4, miR92a=5.97, miR-135b-5p=174 and miR361-5p=2.01).

With our PWS marker, the elevation of miR-92a, miR-135b-5p, and D was synergistic for discriminating patients with vs. without advanced adenomas to 0.9 increase in AUC compared to D alone. AUC) = 0.90, sensitivity = 0.88, specificity = 0.85.

Conclusion: We demonstrate, for the first time, that the chromatin nano-architectural parameter, D had excellent performance for identifying patients screen relevant neoplasia elsewhere in the colon. Furthermore, adding several miR markers to provide a more comprehensive epigenetic profile was synergistic diagnostics with D. Future studies will employ more miRs and combine with artificial intelligence to further improve the already strong performance for potential clinical impact.

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Disclosure: Hemant Roy, Vadim Backman, and Hariharan Subramanian are co-founders, have equity stakes, own IP and are on the Board of Directors for Nanocytomics LLC, a biomedical company providing cancer risk-stratification tests based on their proprietary biophotonics technology platform, partial wave spectroscopic (PWS) microscopy which is being utilized in this research. Sravya Prabhala is also an employee of Nanocytomics LLC.

PP1001

THE ROLE OF MFSD2A IN THE RESOLUTION OF COLORECTAL CANCER-PROMOTING INFLAMMATION: IMPLICATIONS FOR INNOVATIVE THERAPIES

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Introduction: Inflammation is a recognized hallmark of colorectal cancer (CRC), contributing to its development and progression. Therefore, targeting cancer-associated inflammation may offer new avenues for cancer treatment. Anti-inflammatory drugs currently used for the treatment of patients with CRC show many adverse side effects that prompted researchers to propose the specialized pro-resolving mediators (SPMs), derived from omega-3 polyunsaturated fatty acids, as promoters of resolution of cancer-associated inflammation.

We previously demonstrated that the endothelial Major Facilitator Superfamily Domain-containing 2A (MFSD2A) promotes the resolution of chronic intestinal inflammation by overseeing the release of SPMs.

Aims & Methods: Considering the direct connection between inflammation and cancer development that mutually impact on each other, we hypothesize that defective MFSD2A-dependent pathways in endothelial cells may fail to resolve tumor-associated intestinal inflammation, thus promoting CRC development, growth and metastasization. Therefore, enhancing the expression of MFSD2A in the vascular compartment may counteract CRC-associated inflammation, ultimately resulting in anticancer effects.

Based on these premises, our project aims to identify the MFSD2A-dependent pathways responsible for the resolution of tumor-associated intestinal inflammation, paving the way for a new avenue for the treatment of CRC.

To test our hypothesis, we derived Human Intestinal Microvascular endothelial cells (HIMEC) from surgical specimens of CRC patients and healthy subjects. We evaluated the biological effects of MFSD2A overexpression in CRC and healthy HIMEC in terms of transcriptomic and lipidomic profiles. To better elucidate how the enhancement of MFSD2A expression *in vitro* shapes cancer cell growth, we performed co-colture experiments with HIMEC and human epithelial adenocarcinoma cell line (Caco2).

Results: To test our hypothesis, we performed a transcriptomic analysis on HIMEC. Besides the increased levels of MFSD2A transcript in CRC by comparison with the healthy, this analysis pointed out the activation of the resolution phase-related biological processes in CRC as compared to the healthy, proposing the endothelium as a player also in CRC pathogenesis.

Furthermore, by lipidomics, CRC HIMEC displayed increased release of SPMs and reduced levels of the pro-inflammatory lipids by comparison with the healthy control cells. Interestingly, upon MFSD2A silencing, CRC HIMEC switched to a pro-inflammatory phenotype, characterized by the activation of pro-inflammatory biological processes and the increased release of pro-inflammatory lipids. Notably, the enhancement of MFSD2A expression *in vitro* reduces cancer cell growth.

Conclusion: These data suggested that MFSD2A might contrast the tumor-associated inflammation and ensure the correct balance between pro-inflammatory and pro-resolving milieu, offering novel insights into the development of innovative therapies suitable for CRC patient management.

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Disclosure: Nothing to disclose.

PP1002

PATIENT-DERIVED XENOGRAFT APPROACH TO EXPLORE DIFFERENTIAL RESPONSES TO DIET DEPENDENT ON GENOTYPIC OR PHENOTYPIC CHARACTERISTICS OF COLORECTAL CANCER

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Introduction: Colorectal cancer (CRC) results from the combination of genetic alterations and environmental risk factors. Several evidences indicate that the diet may have a role in prevention and progression of CRC, but more research is needed to clarify the heterogeneity of dietary associations with CRC.

Aims & Methods: We aim at dissecting the role of diet on CRC progression exploiting the patient-derived tumor xenograft (PDX) model, implanting subcutaneously human CRCs at different staging into immunodeficient mice, and feeding with control normal diet (ND) and classical western diet (WD). Tumor phenotype, transcriptomic, genetic and metabolomic were analyzed. Statistical analysis was performed using machine learning and Mann Whitney t test.

Results: The response to WD was heterogeneous among all generated PDXs. Only one out of three showed a greater growth in mice fed with WD. Particularly, WD induced transcriptomic perturbations of several genes related to epigenetic regulations and tumor progression, remodeling tumor microenvironment, promoting mucin secretion, mitochondria dysfunction and metabolic reprogramming. Interestingly, the three PDXs responded to the same WD with a distinct metabolomic profile that was validated

through the machine learning. With whole exome sequencing, PDXs did not share the same somatic cancer mutations that could play a key role in conditioning response to a specific diet. Consistently, the same heterogeneous response to WD in tumor growth was observed in xenografts generated with CRC cell lines. To strictly mimics human diet, we tested in comparison to classic WD, humanized WD diet that displayed a different tumor behavior. The analysis of patient derived organoids developed from PDX fed with humanized diets revealed that the altered metabolic reprogramming acquired *in vivo* is also maintained *in vitro* in absence of any stimulus, suggesting a metabolic memory of cancer cells.

Conclusion: Specific CRC somatic mutations, modifying several signaling pathway and tumor metabolism promote tumor growth and progression, and could be predictive of a response to a specific diet. In this scenario, PDX could be considered as a suitable approach to study the response to the diet and to provide a screening of different diets in order to create a dietary guidance for CRC patients.

Disclosure: Nothing to disclose.

PP1003

RISK FACTORS AND HISPATHOLOGICAL CHARACTERISTICS OF EARLY-ONSET COLORECTAL CANCER

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Introduction: Colorectal cancer (CRC) is a global health problem with high incidence and mortality rates. Although the incidence has decreased with the use of screening tests, the mortality rate is approximately 1,6 – 2,0 % per year. Recent studies have shown a steady increase in the incidence of early onset (<50 years) CRC compared to that of patients >50 years of age. Early-onset CRC cancer is reported to have a more progressive course and may have a genetic and epigenetic background. In this study, we aimed to investigate the disease characteristics and risk factors for colorectal cancer in patients <50 years old and compare with patients over 50 years of age.

Aims & Methods: Patients younger than 50 years, diagnosed with colorectal adenocarcinoma and followed in our hospitals' gastroenterology, oncology, or general surgery departments between January/2009 and June/2022 were included in this retrospective study. A total of 6102 patients' files were examined. Among these, 1166 were under the age of 50, whilst 4936 were 50 years and older. Patients younger than 18 years, who had a previous history of CRC, a known familial CRC syndrome, who had synchronous tumors at the time of diagnosis or had in situ CRC were not included in the study. After applying the exclusion criteria, 989 patients were included in the under-50 age group. The comparison group consisted of 1009 patients randomly selected from a group of 4000 patients aged 50 years or older. Patients were divided into Group A (<50 years) and Group B (≥ 50 years) according to the age at diagnosis. Patients' demographic characteristics, body mass index, history of cigarette smoking and alcohol use, presenting symptoms, history of H. pylori infection, co-morbidities and medications were recorded from the files. Tumour characteristics, localization, size, TNM stage, and treatment methods were also analyzed and the relationship with each other was examined comparatively.

Results: The results of 1998 patients included in the study are shown in Table 1. TNM stages and the duration of symptoms before the diagnosis were similar between the groups but the rate of stage 1 disease was higher in group B. The rates of metastatic disease and rectal cancer were higher in Group A, but statistically non-significant. Abdominal pain was significantly more frequent in Group A, while anemia was significantly more common in Group B. Patients in Group A had higher rates of IBD, family history of CRC, mucinous adenocarcinoma, poorly differentiated tumor, higher histological grade and higher microsatellite instability (MSI-H). Although perineural and lymphatic invasion rates were similar, vascular invasion was higher in group B.

Variables	Group A (n)	Group B (n)	p value
Body Mass Index ≥30 kg/m^2	110	198	p<0.01
Family history of CRC	137	130	p<0.05
History of Inflammatory Bowel Disease	16	7	p<0.01
Tumor grade-1	104	151	p<0.01
Mucinous adenocarcinoma	131	90	p<0.01
Poor differentiation	165	96	p<0.01
High histologic grade	116	65	p<0.01
Presence of vascular invasion	277	412	p<0.01
MSI-H	58	29	p<0.01

Table1. Comparison of Patients in Group A and Group B

Conclusion: Our study revealed that Early-onset CRC is more frequently diagnosed at the metastatic stage, is characterized by a more common presence of mucinous cells, poorly differentiated histology, and microsatellite instability.

Disclosure: Nothing to disclose.

PP1004

CROSS-SECTIONAL INVESTIGATION OF THE DISTRIBUTION CHARACTERISTICS AND PROGNOSTIC SIGNIFICANCE OF LATERAL LYMPH NODES IN PATIENTS WITH RECTAL CANCER

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Introduction: Information about the distribution characteristics and prognostic significance of lateral lymph nodes (LLNs) on primary computed tomography (CT) scan in rectal cancer patients is lacking.

Aims & Methods: Between January 2013 and December 2016, patients with pathologically-proved rectal cancer and pretreatment abdominal enhanced CT in our department were screened.

We firstly redivided LLNs into 7 categories based on their locations. Then, the number and distribution of all measurable LLNs and the characteristics of the largest LLN in each lateral compartment were recorded. Furthermore, we investigated the long-term outcomes in patients with different LLNs characteristics and LLN risk scoring.

Results: A total of 572 patients were enrolled in this study. About 80% of patients had measurable LLNs. Most patients developed measurable LLNs in the obturator cranial compartment and a total of 231 (40.38%) patients and 281 (49.13%) patients had left and right obturator cranial LNs, respectively. The proportion of patients with left and right distal internal iliac LNs was 8.57% and 16.61%, respectively, and patients with left and right extended distal internal iliac LNs was 6.64% and 8.22%, respectively. We found the largest LLN short-axis diameter with 3-5 mm and 5-7 mm accounted for the most in every single compartment. The proportion of patients with the largest LLN short-axis diameter with 3-5 mm and 5-7 mm in the left obturator cranial compartment was 64.5% and 16%, respectively,

and in the right obturator cranial compartment was 55.2% and 24.9%, respectively. In the whole cohort, there were 20 (4.4%) patients with >10 mm LLN, 52 (11.3%) patients with 7-10 mm LLN, 158 (34.4%) patients with 5-7 mm LLN, 206 (44.9%) patients with 3-5 mm LLN, 23 (5.0%) patients with 0-3 mm LLN. LLNs in the left proximal internal iliac compartment and the left distal internal iliac compartment had the largest short-axis diameter (5.42 ± 2.94) and long-axis diameter (8.47 ± 11.34), respectively. LLNs in the left obturator caudal compartment had both the shortest short-axis (3.85 ± 2.18) and long-axis diameter (5.47 ± 2.99), respectively. Lateral local recurrence (LLR) was observed in 20 patients, which accounted for 83.3% of the local recurrence (LR). Patients with LLN short-axis diameter > 10 mm had the worst 5-year OS (18.5%), which was comparable with that in patients with simultaneous distant metastasis (SDM, 8.5%). With regard to local recurrence-free survival (LRFS) and lateral local recurrence-free survival (LLRFS), patients with LLN short-axis diameter > 10 mm had the worst 5-year LRFS (35.7%) and LLRFS (35.7%). We used the largest LLN characteristics on CT scan to stratify the risk of LLNM (considering short-axis diameter, morphology, border and appearance). Patients with LLN risk scoring ≥ 2 had a worse prognosis than those with LLN risk scoring < 2, while better than those with SDM.

Conclusion: Our study comprehensively descripted the distribution characteristics and prognostic significance of LLNs. Our results confirmed that LLR is the main locoregional recurrence pattern. In addition, most rectal cancer patients have measurable LLNs. However, these patients with enlarged LLNs still have a significant better prognosis than patients with distant metastasis, which indicated the potential value of locoregional treatment for enlarged LLNs. Well-designed studies with larger sample size are required to prove our results.

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Disclosure: Nothing to disclose.

PP1005

HIGH-RISK POLYPS AND COLORECTAL CANCER IN PATIENTS WITH HEREDITARY DIFFUSE GASTRIC CANCER

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Introduction: CDH1 gene mutations are associated with gastric and breast cancer. The risk of colorectal cancer may be increased in the presence of this mutation, although evidence is scarce.

Aims & Methods: Aims: To assess the presence of high-risk colorectal polyps (polyp with ≥10mm or with high-grade dysplasia, ≥5 adenomas, any serrated polyp ≥10mm or with dysplasia) and colorectal cancer in patients on surveillance program with mutation in CDH1 gene.

Methods: Retrospective study in patients with CDH1 gene mutation followed in a family risk appointment in a tertiary care hospital.

Results: Data from 36 patients with a mean age of 44.22±14.77 years, 20 males, with a mean follow-up of 5.5 years. Twenty-seven patients had family history of gastric cancer and 9 of gastric and breast cancer; twelve patients had never undergone colonoscopy (age ≤ 40 years). Of the 24 patients who had already undergone at least one colonoscopy, 12 (50%) never removed polyps. Only 4 patients had high-risk polyps (age 30, 52, 59 and 77 years) and no patient presented with colorectal cancer during follow-up.

Conclusion: Although this is a small sample, our study revealed a low percentage of patients with hereditary diffuse gastric cancer with high-risk colorectal polyps (and only one patient with a high-risk polyp aged <50 years) and no patients with colorectal cancer, similar to a population without a CDH1 mutation. Further studies with larger sample sizes are needed to clarify the impact of CDH1 mutation on colorectal cancer.

Disclosure: Nothing to disclose.

PP1006

NOVEL URINARY PROTEIN BIOMARKER PANEL FOR EARLY DETECTION OF COLORECTAL CANCER

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Introduction: Since currently utilized screening tools including fecal immunochemical test and serum tumor markers cannot reveal sufficient diagnostic powers for colorectal cancer (CRC) due to their low sensitivities. It is thus hopeful to discover non-invasive diagnostic biomarkers for CRC. Urine is one of the most attractive samples for mass-screening because of the non-invasiveness and easy handling. We have previously reported many types of urinary biomarkers for gastrointestinal malignancies.

Aims & Methods: We conducted the current study to discover and establish urinary protein biomarkers that enables early detection of CRC. Among 475 patients including 299 healthy controls (HCs) and 175 stage 0-III CRC patients, age- and sex-matched 373 patients were enrolled in this case-control study. A whole cohort was randomly divided into the discovery cohort (n=32), training cohort (n=220) and validation cohort (n=111). In the discovery cohort, we have performed the isobaric tags for relative

and absolute quantitation (iTRAQ) -coupled liquid chromatography-mass spectrometry (LC-MS) to identify urinary protein biomarker candidates. After that, the urinary protein biomarkers were established with ELISA in the training cohort. Finally, the established biomarkers were validated with ELISA in the independent validation cohort.

Results: In the discovery cohort, we identified 78 urinary proteins with aberrant expression between HCs and CRC patients. Among them, urinary levels of 11 proteins were significantly higher in the CRC patients than in the HCs, and 4 urinary proteins were independent biomarkers on the multivariate analysis in the training cohort. In the validation cohort, these urinary proteins also showed significantly higher levels in the CRC patients than in the HCs. Of these urinary biomarkers, DPEP1 and TFF1 were top two urinary protein biomarkers for the diagnosis of CRC, and the combination biomarker panel using these two proteins showed an excellent AUC of 0.870 with 94.3% sensitivity and 63.4% specificity for the diagnosis of stage 0-III CRC. Notably, this combination biomarker panel could distinguish stage 0-I CRC that are curable with endoscopic resection, with an AUC of 0.852, 93.8% sensitivity and 61.6% specificity.

Conclusion: The established novel urinary biomarker panel provides a promising method for early detection of CRC with completely non-invasive manner.

Disclosure: Nothing to disclose.

PP1007

(IIDEAS) INTELLIGENT-C ENDOSCOPY MODULE FOR REAL-TIME DETECTION OF COLONIC LESIONS - A PROSPECTIVE, NON - RANDOMIZED, SINGLE-CENTRE STUDY (NCT 05784935)

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Introduction: An accurate optical diagnosis [1,2] of colorectal polyps could make colonoscopy more cost-effective and reduce the risks of polypectomy. In a few recent retrospective studies, it was shown that artificial intelligence (AI) could be used to find and classify colorectal polyps. Many of these studies were based on still endoscopic images or video recordings rather than their application in real-time colonoscopy procedures. We conducted an open-label, non-randomized, prospective, single-center study with the aim to validate the performance of a novel state-of-the-art Artificial Intelligence (AI) model for colorectal lesion detection during routine diagnostic colonoscopy and evaluate its feasibility in daily endoscopy.

Aims & Methods: The study is a prospective, non-randomized, single-center clinical evaluation of the real-time performance of the deep learning AI model for colorectal lesion detection in colonoscopy procedures. Under white light and NBI, the primary endoscopist did the colonoscopies with high-definition endoscopes (EVIS-EXERA 290 video system, Olympus Optical, Tokyo, Japan). All of the polyps were marked for size (measured with biopsy forceps), location, and shape based on the Paris classification, and then they were either removed or a biopsy sample was taken for histologic analysis. (Fig. 1). The main goal of this study was to figure out the "adenoma miss rate," which is the number of patients whose adenomas were missed by the endoscopists but found by the AI and then confirmed by the endoscopists on re-examination (and, as a gold standard, by histological examination). The mean and the total number of missed lesions were analyzed.

Results: Totally, 81 lesions were detected and removed from the 42 subjects, out of the n=200 colonoscopies done in March 2023. Of the 81 lesions removed from subjects, 78 (96.3%) lesions were examined, including 27 (33.3%) neoplastic lesions and 47 (60.5%) non-neoplastic lesions, and the other 3 (3.7%) lesions were not examined after snaring. As for finding lesions, the AI module found 81 of them (100%), while endoscopists found 61 of them (75.3%). Of the 20 lesions missed by the endoscopists, 5 (38.5%) were missed in the transverse colon, which was the section with the highest missing rate. Based on final histology, there were 4 (14.8%) missed neoplastic lesions and 15 (30.6%) missed non-neoplastic lesions. One missed lesion was not examined. An AI-based detection system found all the lesions. According to the power analysis, the estimated sensitivity was above 95% (with an alpha value of 0.05 and a power of 80%).

Pathology	All Lesions	Lesions Missed by Endoscopist	Missing Rate
Neoplastic	27	4	14.8%
Non-Neoplastic	49	15	30.6%
Not Available	5	1	20.0%
Total	81	20	24.7%

Table: Pathology distribution of colonic lesions with the missing rate of each class.

Conclusion: Optical diagnosis using computer-aided diagnostic systems has a potential role in predicting the presence of polyps. The diagnostic performance of CAD seems to be better than that of endoscopy for colon polyp detection. With recent breakthroughs in artificial intelligence, interest in CAD is gaining traction as a novel approach to improving the quality of colonoscopies. We anticipate that each of these hurdles will likely be overcome during the next several years, which will open the door to the clinical application of CAD in colonoscopy. Large-scale use of this technology can be useful in community practice and service.

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Disclosure: Nothing to disclose.

PP1008

MANAGEMENT OF EARLY ONSET COLORECTAL CANCER

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Introduction: Incidence of early onset colorectal cancer (EOCRC,defined as under the age of 50) is rising globally. In the UK, this has tripled between 1990-2014. The National Bowel Cancer Audit 2021 (NBOCA) report in conjunction with Royal College of Surgeons of England (RCSE) found EOCRC often present as an emergency with more advanced disease. Bases on their initial findings, they hypothesize that EOCRC receive more aggressive treatment modalities with poorer prognosis. We aimed to compare our experience of EOCRC in a district general hospital with an annual 300 colorectal cancer resections with the NBOCA findings.

Aims & Methods: Retrospective observation of EOCRC between 2018–2022 in emergency and elective setting.

Results: 97 patients with a male preponderance (72:25). Mean number of cases per year was 19.4. Age range was 21 to 49 years; mean age at the time of diagnosis 37.6. 45% presented as emergencies. 50%were ASA 2,

32% ASA 1, 18% ASA 3/4. All patients received treatment. 36% underwent resection of primary malignancy and chemotherapy; 27% had resection, chemotherapy and excision of metastates; 4% resection and excision of metastates; 20% chemotherapy only. 7% patients did not have resection but underwent emergency/elective defunctioning or stenting. Majority of tumours were in the left colon (33), 24 in right colon, 6 neuroendocrine caecal cancers, 24 rectal cancers. 10% had synchronous cancers. At time of diagnosis, 32% had distant metastates. 35%staged as T4, 38% T3, 15% T2, 11% T1. 40% staged as N2, 38% N1, 19% N0. 7% had recurrence within 5 years (3 T3, 3 T4,1 T2). Mortality within 5 years was 16% (8 T4, 7 T3, 1 T2).
Conclusion: Our experience has shown that similarly to NBOCA, EOCRC are more likely to present as an emergency, with more advanced T stage and nodal disease with left sided cancers. Unlike NBOCA, we did not find a significant annual increase in its incidence and there was a strong male preponderance. This will guide our clinical assessments of patient seen in both emergency and elective setting to consider EOCRC as a diagnosis and to offer them for more aggressive and early treatment.
Disclosure: Nothing to disclose.

PP1009

ADDITIONAL 30-SECOND OBSERVATION OF THE RIGHT-SIDED COLON FOR MISSED POLYP DETECTION WITH TEXTURE AND COLOR ENHANCEMENT IMAGING COMPARED TO NARROW BAND IMAGING: A RANDOMIZED TRIAL

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Introduction: The efficacy of texture and color enhancement imaging (TXI) is a new observational mode in the novel light-emitting diode (LED) endoscopic system (EVIS-X1) for polyp detection. However, the efficacy of TXI has not been examined well.
Aims & Methods: We aimed to evaluate the non-inferiority of the additional 30-second (Add-30-s) observation of the right-sided colon (cecum/ascending colon) with TXI compared to narrow band imaging (NBI) for detecting missed polyps. We enrolled 381 patients ≥40 years old who underwent colonoscopy from September 2021 to June 2022 in three institutions and randomly assigned them to either the TXI or NBI groups. The right-sided colon was first observed with white light imaging (WLI) in both groups. Secondly, after re-insertion from hepatic flexure to the cecum, the right-sided colon was observed with Add-30-s observation of either TXI or NBI. The primary endpoint was to examine the non-inferiority of TXI to NBI using the mean number of adenomas and sessile serrated lesions (SSL) per patient (MASP). The secondary ones were to examine adenoma detection rate (ADR), adenoma, and SSL detection rates (ASDR), and polyp detection rates (PDR) in both groups.
Results: The TXI and NBI groups consisted of 177 and 181 patients, respectively. Regarding the Add-30-s observation using TXI and NBI, the mean polyp sizes (mm) were 3.8±3.2 and 2.9±2.5, (p=0.04), the ratios of cecal location were 14.3% and 34.3% (p<0.01), and the ratios of polypoid morphology were 66.1% and 62.9% (p=0.49), respectively. The MAPs/MASPs/MAPPs were 0.23/0.29/0.32 and 0.24/0.30/0.35 in the TXI and NBI groups, respectively (p=0.83/0.87/0.59). Regarding MASP of TXI and NBI as the primary endpoint of this study, between-group difference of 1.0%, 95% CI -0·38 to 20·04), indicating non-inferiority (p<0.001). MAP and MAPP were also significantly non-inferior between the two groups. The increases in the ADR, ASDR, and PDR in the TXI/NBI groups were 10.2%/10.5% (p=0.81), 13.0%/12.7% (p=0.71), and 15.3%/13.8% (p=0.71), respectively. The MAPs in the first WLI observation and the first+second observation were 0.49 and 0.71 (p=0.02) in the TXI group (p=0.02) and 0.42 and 0.66 (p=0.01) in the NBI group, respectively. The MASPs in the first WLI observation and the first+second observation were 0.58 and 0.86 (p=0.02) in the TXI group and 0.46 and 0.76 (p<0.01) in the NBI group, respectively. There were no significant differences in the ADR, ASDR, and PDR between the first observation and the first+second observation in both the TXI and NBI groups.
Conclusion: Regarding add-30-s observation of the right-sided colon, TXI was non-inferior to NBI. Add-30-s observation with either NBI or TXI could increase the ADR by 10%.
References: no references
Disclosure: Nothing to disclose.

PP1010

INVESTIGATION OF VOLATILOMIC SIGNATURES OF COLORECTAL TISSUES TOWARDS IDENTIFICATION OF POTENTIAL NON-INVASIVE BIOMARKERS FOR COLORECTAL CANCER

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Introduction: Volatile organic compounds (VOCs) form a specific chemical profile that can be used to detect the colorectal cancer-related changes in human metabolism and thereby, to diagnose this type of cancer even at an early stage.
Aims & Methods: The aim of this study was to characterize the volatile chemical patterns associated with cancer and normal tissues obtained from colorectal cancer patients and identify potential volatile biomarkers of colorectal cancer. In total 50 paired tissue samples were analyzed. Volatiles released by the tissue samples were captured using solid phase microextraction (HS-SPME) and next identified and quantified using gas chromatography with mass spectrometric detection (GC-MS).
A Wilcoxon signed-rank test was used to compare the emissions of VOCs from cancer and non-cancerous tissues and p<0.05 was taken as significant threshold.
Results: A total of 163 compounds were found in the headspace of the tissue samples. Amongst these, 149 VOCs were identified in cancer tissues and 147 in non-cancerous ones. 138 volatiles were found in both types of tissues. The predominant chemical classes in both tissues are hydrocarbons (25%) and alcohols (15%). These are followed by aldehydes, ketones and aromatics. Only 40 VOCs (27%) exhibited incidence higher than 50% in cancerous tissues. In case of healthy tissue this number amounted to 44 (30%). 11 volatiles occurred in at least 90% of both types of samples and thereby can be considered as omnipresent. 15 VOCs showed consistent differences in their headspace concentrations above samples under study. Of these, 4 compounds were found to have increased emissions from

the cancer tissue, and the other 11 showed the reduced release from this type of samples. The species emitted in higher amounts by cancerous tissue comprised 1-propanol, pyridine, isoprene and methyl thiolacetate ($p<0.05$).

Conclusion: The results of this study confirm that the chemical fingerprint formed by volatiles in colorectal tissue is altered by colorectal cancer. These VOCs - 1-propanol, pyridine, isoprene, methyl thiolacetate were found to be the most promising biomarker candidates for detecting colorectal cancer.

Disclosure: Nothing to disclose.

PP1011

THE INCIDENCE OF LYMPH NODE METASTASIS AND RECURRENCE IN PEDUNCULATED PT1 COLORECTAL CANCER BASED ON HEAD OR STALK INVASION ACCORDING TO HAGGITT LEVEL 2

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Introduction: The risk factors for synchronous lymph node metastasis (LNM) in pT1 colorectal cancer (CRC) are submucosal invasion depth (≥1000μm), lymphovascular involvement (LVI), poorly differentiated components (por), and tumor budding (BD). On the other hand, in pedunculated lesions with invasion confined to the head of the polyp, the incidence of LNM and recurrence have been reported to be very low (0-2.4% and 0%, respectively).[1,2] However, the robust evidence has been limited.

Aims & Methods: This retrospective study aimed to compare the incidence of LNM and recurrence between the head and stalk invasion groups, based on submucosal invasion assessment using Haggitt Level 2 (HL2; the junction line between normal and neoplastic epithelium), and to evaluate the impact of LNM/recurrence risk factors in pedunculated pT1 CRC.

Patients with pedunculated pT1 CRC treated by endoscopic or surgical resection in our hospital between January 2010 and December 2021 were included. Those with multiple invasive CRCs, synchronous advanced cancer in other organs, and familial adenomatous polyposis were excluded. The submucosal invasion was classified into two groups, head invasion (above HL2) and stalk invasion (beyond HL2). Clinicopathological characteristics, incidence of LMN, and recurrence rate were analyzed between patients with head and stalk invasion.

Results: The study included 66 patients with 66 lesions. The median age was 67 years, and 52 patients (78.8%) were male. The median tumor size was 20mm, and the location was as follows: 4 lesions (6.1%) in the right colon and 62 lesions (93.9%) in the left colon. There were 40 head invasion and 26 stalk invasion lesions. There were no significant differences between the two groups for LVI (17.5% vs 26.9%), por (2.5% vs 7.5%), and BD (5.0% vs 7.7%). Surgical resection was performed more frequently in the stalk invasion group (20% vs 77%, $P < 0.01$). Synchronous LNM was observed in 2 patients in the head invasion group (5.0%, 95% confidence interval [CI] 0.6-16.9), and 1 patient in the stalk invasion group (3.8%, 95%CI 0.1-19.6) ($P = 1$). Recurrence was observed in 1 patient in the head invasion group (2.5%, 95%CI 0.1-13.2), and 1 patient in the stalk invasion group (3.8%, 95%CI 0.1-19.6) ($P = 1$), both of them were distant metastasis. In patients without LVI, por, nor BD, there was no LMN in either group, but recurrence was observed in 1/32 patients in the head invasion group (3.1%, 95%CI 0-17.1), and 1/16 patients in the stalk invasion group (6.3%, 95%CI 0-30.3) ($P = 0.61$). The patient with recurrence in the head invasion group without LVI/por/BD revealed multiple liver metastases one year after endoscopic resection, and he received chemotherapy but died of colon cancer one and a half years after recurrence.

Conclusion: In pedunculated pT1 CRC, synchronous LNM and recurrence were observed in the head invasion group, with no significant difference from the stalk invasion group. Among cases without LVI/por/BD, there was no LNM but recurrence was observed in both of head and stalk invasion groups. Contrary to the previous reports, head invasion was not a completely LNM/recurrence-free condition, so endoscopic resection alone cannot be considered curative.

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Disclosure: Nothing to disclose.

PP1012

REDUCED EXPRESSION OF SMOC1 IS ASSOCIATED WITH PROGRESSION OF COLORECTAL TRADITIONAL SERRATED ADENOMAS AND CONVENTIONAL ADENOMAS

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Introduction: Colorectal serrated lesions (SLs) include hyperplastic polyp (HP), traditional serrated adenoma (TSA) and sessile serrated lesion (SSL). Aberrant DNA methylation is prevalent in colorectal SLs. We previously reported that SMOC1 (SPARC-related molecular calcium-binding 1) was frequently methylated and silenced in TSAs as well as in high-grade adenomas and colorectal cancers (CRCs) but was rarely methylated and silenced in SSLs. [1] However, the expression of SMOC1 in colorectal lesions, including SLs, has not yet been studied in detail.

Aims & Methods: To evaluate the potential of SMOC1 as a biomarker for diagnosis of SLs and risk prediction in colorectal tumors, we aimed to characterize the expression of SMOC1 in colorectal lesions. Specimens of colorectal lesions (n = 199) and adjacent normal colorectal tissues (n = 112) were collected from 173 patients who underwent endoscopic or surgical resection. Colorectal lesions were randomly divided into two groups: a training set and a validation set. SMOC1 expression was analyzed by immunohistochemistry. A rabbit anti-SMOC1 polyclonal antibody (1:1000 dilution, C-20; Sigma-Aldrich) was used for immunohistochemical staining. The intensity of SMOC1 staining was graded as strong (3), moderate (2), weak (1) or negative (0). The proportions of positively stained tumor cells were assigned a value of 0 to 10. Because neoplasm heterogeneity caused varying degrees of immunoreactivity in the slides, we used the sum of each intensity × proportion as an immunohistochemistry (IHC) score (e.g., intensity × proportion = (3) × 5 + (2) × 3 + (1) × 1 + (0) × 1 = IHC score 22; maximum score = 30) to improve accuracy. When TSAs had both flat and protruding components, SMOC1 expression was evaluated in the protrud-

ing component. Thereafter, levels of SMOC1 expression were compared between flat and protruding components in order to evaluate its involvement in the progression of TSAs. All slides were independently evaluated by gastrointestinal pathologists who were blinded to the clinical data.

Results: Histology of the 199 colorectal lesions was as follows: HP, n = 26; SSL, n = 50; SSL with dysplasia (SSLD)/SSL with early invasive cancer (EIC), n = 14; TSA, n = 51; TSA with high grade dysplasia (HGD)/EIC, n = 3; low grade adenoma, n = 17; high grade adenoma, n = 14; HGD, n = 16; EIC, n = 8. Mean IHC scores in normal colonic tissues and colorectal lesions in the training set were as follows: normal colon, 24.2; HP, 21.6; SSL, 24.8; SSLD/SSL with EIC, 17.5; TSA, 7.3; low grade adenoma, 21.4; high grade adenoma, 11.7; HGD, 12.1; EIC, 10.9. These results suggest that SMOC1 is abundantly expressed in normal colon, HPs, SSLs and low grade adenomas, whereas it is significantly downregulated in TSAs, high grade adenomas, HGDs and EICs ($p < 0.05$). Mean IHC scores for colorectal lesions in the validation set were as follows: HP, 17.7; SSL, 22.8; SSLD/SSL with EIC, 11.5; TSA, 3.1; TSA with HGD/EIC, 4.7. Again, we observed abundant expression of SMOC1 in HPs and SSLs, whereas it was significantly downregulated in TSAs and TSAs with HGD/EIC ($p < 0.05$). Among TSAs that contained both flat and protruding components, levels of SMOC1 expression were significantly lower in the protruding components both the training set ($p < 0.001$) and the validation set ($p < 0.05$).

Conclusion: Our results suggest that reduced expression of SMOC1 is associated with progression of TSAs and conventional adenomas and that SMOC1 may be a diagnostic marker of SLs as well as a predictive marker of colorectal tumors at high risk of developing into cancer.

References: [1] Aoki H, Yamamoto E, Takasawa A, Niinuma T, Yamano HO et al. Epigenetic silencing of *SMOC1* in traditional serrated adenoma and colorectal cancer. *Oncotarget.* 2018

Disclosure: Nothing to disclose.

PP1013

THE USEFULNESS OF *FUSOBACTERIUM NUCLEATUM* MEASUREMENT IN STOOL FOR COLORECTAL CANCER SCREENING

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Introduction: Over the world, fecal occult blood testing (FOBT) is used as a colorectal cancer (CRC) screening method for middle age and older age, but there are problems such as sensitivity/specificity issues, low participation rates in primary and secondary screenings, and that the incidence/mortality rates of CRC are still high. *Fusobacterium nucleatum* (*Fn*) has been reported to be frequently detected in the feces of CRC patients in recent years, and it has been reported that screening sensitivity can be increased by combining it with *Fn* PCR testing. However, due to the cost and technical complexity of PCR, it has not yet been widely used in clinical practice. In this study, we developed a simple method using ELISA to measure antibodies against FadA expressed by *Fn* and evaluated its usefulness.

Aims & Methods: We evaluated FOBT, *Fn* PCR quantification, and *Fn* (ELISA) in 41 individuals diagnosed with CRC from April 2020 to December 2022 and 41 healthy volunteers without CRC. Subgroup analysis was also performed in CRC patients at each stage.

Results: The correlation coefficient between *Fn* PCR quantification and *Fn* (ELISA) was good at $r=0.722$, $p<0.001$. FOBT alone had a sensitivity of 61% and a specificity of 100%. In *Fn* ELISA, when cut off#1 was set to maximize the AUC in ROC, the sensitivity and specificity were 76% and 78%, respectively, and when combined with FOBT, the sensitivity was 90% and the specificity was 78%. In screening, high specificity is required, so we set cut off#2 *Fn* ELISA to achieve a specificity of 93% and performed analysis. When combined with FOBT, the sensitivity was 73% and the specificity was 93%. When targeting advanced cancer of stage II or higher, the sensitivity by combining FOBT and *Fn* ELISA was 100% at cut off#1 and 79% at cut off#2, while for early cancer, the sensitivity was 76% at cut off#1 and 59% at cut off#2, both of which were better than the sensitivity of FOBT alone.

Conclusion: By combining *Fn* measurement using ELISA with FOBT, it was possible to increase the diagnostic sensitivity and reduce false negatives compared to FOBT alone. There are challenges such as setting appropriate cut-off values for use in screening, but measuring *Fn* in addition to FOBT may improve screening accuracy and increase the participation rate in secondary screening, and in the future, we would like to evaluate its effectiveness even in populations with low prior probability of screening participation.

Disclosure: Nothing to disclose.

PP1014

LYNCH SYNDROME: MMR VARIANT OF UNCERTAIN SIGNIFICANCE , FREQUENCY AND CLINICAL CHARACTERISTICS, PRELIMINARY DATA

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Introduction: The most common inherited cancer syndrome that increases individual risk for colon cancer is Lynch syndrome. It is caused by Mismatch Repair deficiency due to a germline pathogenetic variant of MMR gene (MLH1, MSH2, MSH6, PMS2, EPCAM) . The introduction of multigene testing has improved and speeded up the diagnosis but has also increased the chance of finding a variant of uncertain significance (VUS) for a clinical point of view. The clinical features and management of these cases is still not clearly defined.

The aim of the present study was to determine the frequency of VUS in patients with clinical suspicion of Lynch syndrome and to define their clinical characteristic compared with Lynch affected.

Aims & Methods: Patients referred to the Centre of reference for hereditary colorectal cancer syndromes of our institution, who performed multigene testing from 2017 to 2022 for suspicion of Lynch syndrome, were retrospectively evaluated. Demographics, clinical data and oncological family history were recorded.

Genetic analysis of probands was performed using Next Generation Sequencing technology. Variant classification was performed according to the InSiGHT database (https://www.insight-group.org/variants/databases) or the the InSiGHT Variant Interpretation Committee (VIC) MMR gene variant classification criteria.

Patients were divided into three groups according to the results of genetic testing: pathogenetic variant (Lynch syndrome affected, LS), Variant of uncertain significance (VUS) or a negative result.

Results: 172 patients were enrolled for the study (53M; 119F), mean age at diagnosis 47.2 years (range 26-78 years). Genetic analysis detected a LS (7 MLH1, 8 MSH2, 6 MSH6, 3 PMS2) in 24/172 (13.9%), a VUS (5 MLH1, 8 MSH2, 9 MSH6, 2 PMS2) in 24/172 (13.9%) cases and a negative test in 124 patients (72.1 %). Clinical features showed a colorectal cancer (CRC) in 20/24 (83.3%) LS; 14/24 (58%) VUS pts and 61/124 (49%) negative pts; an endometrial cancer in 6/20 (25%) LS; 7/14 (29%) VUS; 49/61 (39.5%) negative test pts (p. 0.007, significant at $p<0.05$). Multiple primary cancers

were present in 11/20 LS(45.8%) ; 5/14 (20.8%) of VUS ; 23/61 (18.5%) of negative test pts. A family history of cancer fulfilling Amsterdam I or II criteria was present in 37.5% in either LS or VUS pts and in 15.3% of negative test pts.

Conclusion: Multigene testing increases the likelihood of detecting a VUS in patients with suspicion of hereditary syndromes. Because of uncertainity of its pathologenic role, oncological surveillance for target organs is undefined, guidelines are lacking and this is of particular concern for psysicians . In the present study, emerged some different clinical features between LS and MMR VUS patients: female gender was prevalent in VUS and negative test groups, a colo-rectal cancer and multiple primary cancers were significantly more represented in LS; Amsterdam criteria were predominant in LS and VUS groups. These preliminary data suggest that the VUS group has peculiar clinical features that in addition to segregation analysis and functional assays, could help to predict /support variant pathogenicity or benignity and subsequent clinical management.

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PP1015

COMPUTER-AIDED DIAGNOSTIC SYSTEM USING NON-MAGNIFIED WHITE LIGHT IMAGING IN EARLY-STAGE COLORECTAL CANCER: COMPARISON WITH PROSPECTIVE STUDIES USING MAGNIFIED NBI ENDOSCOPY AND MAGNIFIED CHROMOENDOSCOPY

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Introduction: In early-stage colorectal cancer (CRC), distinguishing CRC with deep invasion is crucial in determining subsequent treatments. However, diagnosis remains difficult. Recently, we have developed and reported a computer-aided diagnostic (CAD) system to diagnose CRC with deep invasion, using only non-magnified white light imaging.1) This study aimed to compare the diagnostic accuracy of CAD for early-stage CRC with that obtained in a prospective study using magnified narrow-band imaging endoscopy (M-NBI) and dye-based magnified chromoendoscopy (MCE).2)

Aims & Methods: Among 1173 lesions registered in a multicenter prospective study, 1428 images of 162 early-stage CRC cases (125 Tis CRCs, 16 T1a CRCs and 21 T1b CRCs) registered at our hospital were included. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy rate of the CAD system for diagnosing T1b (depth of invasion ≥1000 μm) CRC were all calculated, and compared with those of M-NBI and MCE diagnoses. Optical diagnoses by M-NBI and MCE were performed by experts in real time.

Results: The sensitivity, specificity, PPV, NPV, and accuracy rate of CAD were 57.1%, 85.8%, 37.5%, 93.1%, and 82.1%, respectively. Whereas those of M-NBI were 71.4%, 93.6%, 62.5%, 95.7%, and 90.2%, respectively, and those of MCE were 85.7%, 91.5%, 60.0%, 97.7%, and 90.7%, respectively. The overall accuracy rate of CAD was significantly lower than those of M-NBI and MCE diagnoses. However, the accuracy rates for depressed lesions (IIa, IIa+IIc) were 87.5% for M-NBI, 81.3% for MCE, and 87.5% for CAD, and for polypoid lesions (Ip, Is) were 83.1% for M-NBI, 84.5% for MCE, and 76.1% for CAD, indicating that the accuracy rates of CAD were similar to those of M-NBI and MCE diagnoses in these cases.

Conclusion: CAD using non-magnified white light imaging is useful for the diagnosis of deep invasive cancer in depressed or polypoidal early-stage CRCs.

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PP1016

GRASP GENE : PROMISING METHOD FOR DETECTION OF COLORECTAL CANCER IN EARLY STAGE

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Introduction: As we know colorectal cancer is one of the most common types of cancers. Nowadays there are various invasive and non-invasive methods to diagnose this cancer. Detection using molecular markers at an early stages(stages1-2) is a convenient method.The aim of this study is to evaluate the frequency of GRASP gene promoter methylation in colorectal cancerous lesion compared to the surrounding healthy tissue.

Aims & Methods: This cross-sectional study was carried out on 100 patients with early-stage colorectal cancer between 2019-2022. DNA from samples of colorectal cancer tissue and healthy tissue around the tumor were extracted by FFPE (formalin-fixed paraffin embedded) method. Endonuclease resistance DNA methylation was measured and the frequency of GRASP gene promoter in both samples was calculated and compared.

Results: Methylation of GRASP gene promoter in colorectal cancer tissue increased significantly in early stages compared to healthy surrounding tissue. Methylation of GRASP gene promoter in cancer samples was (70.47 %, $P < 0.0001$) compared with healthy tissue samples (38.08 %, $P < 0.0001$).

Conclusion: The results showed that the frequency of GRASP gene promoter methylation in colorectal cancer tissue is significantly higher than the surrounding healthy tissue.

Disclosure: Nothing to disclose.

PP1017

HARNESSING LANGUAGE MODELS FOR STREAMLINED POST-COLONOSCOPY PATIENT MANAGEMENT: A NOVEL APPROACH

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Introduction: ChatGPT is a large language model with applications in numerous fields, including medicine[1,2]. Post-colonoscopy surveillance is crucial in colorectal cancer prevention, but adherence to guidelines remains low[3,4]. This study aims to evaluate ChatGPT's ability to streamline post-colonoscopy patient management by processing endoscopy and pathology results and providing guideline-based recommendations and patient summaries.

Aims & Methods: A proof of concept pilot study was conducted with 20 clinical scenarios prepared by a gastroenterologist, covering various recommendations from society guidelines. Scenarios were prompted to ChatGPT as structured endoscopy reports and free text clinical notes. Two senior gastroenterologists evaluated ChatGPT's responses, marking them as correct or incorrect. Fleiss' Kappa coefficient was calculated to evaluate inter-rater agreement, and accuracy was assessed in terms of concordance with guidelines.

Results: Of the 20 scenarios, 90% (18/20) of ChatGPT's responses adhered to guidelines. In 17/20 (85%) cases, both endoscopists marked the responses as correct and adherent to guidelines. Inter-rater agreement was very good, with a Fleiss' kappa coefficient of 0.84 ($p<0.01$). ChatGPT interpreted free text clinical notes similarly to structured endoscopic responses in 19/20 scenarios (95%). The model composed concise, easily understandable patient letters with comprehensive advice on maintaining a healthy lifestyle.

Conclusion: ChatGPT shows potential in providing accurate post-colonoscopy surveillance recommendations, which could aid healthcare providers in decision-making and improve guideline adherence. However, limitations include inherent randomness in responses, and the possibility of incorrect recommendations. Future prospective research is essential for exploring the integration of ChatGPT or similar language models into electronic health record systems and evaluating their effectiveness as decision support tools and means of enhancing patient communication.

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Disclosure: Nothing to disclose.

PP1018

CLINICAL FEATURE OF DEPRESSED-TYPE COLORECTAL NEOPLASM

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Introduction: There are three main concepts in colorectal carcinogenesis. The first is the well-known "adenoma-carcinoma sequence", while the second is the "saw-tooth lesion pathway". In this concept, serrated lesions transform into early carcinomas. The third concept is the "de novo" pathway, in which early carcinomas can develop even in the absence of an adenoma. In this pathway, the cancer is thought to arise directly from the normal epithelium, rather than from an adenoma, and the cancer tends to progress at a faster rate and with a higher grade of malignancy. For diagnosing colorectal cancer, magnified endoscopy, specifically the Pit pattern classification, has proved to be useful. Recently, the endoscopic examination (EC classification) has been developed, and now not only structural atypia but also cellular atypia can be observed in vivo.

In this study, we aimed to clarify the endoscopic characteristics of colorectal cancer and demonstrate the usefulness of pit pattern classification and EC classification. Our study focused mainly on colorectal cancer that is considered to arise through the "de novo" pathway.

Aims & Methods: From April 2001 to December 2022, a total of 45,419 colorectal neoplasms, excluding advanced cancer that were resected endoscopically or surgically at Showa University Northern Yokohama Hospital. Among them, 37,098 were low-grade dysplasia, 6,802 were advanced dysplasia, and 1,519 cases were submucosal invasive carcinoma. In this study, we investigated the characteristics of depressed carcinomas with respect to Pit patterns and EC classification.

Results: Of all the T1 colorectal cancers, depressed lesions accounted for 61.4% (324/528). In contrast, flat and protruding lesions accounted for only 2.9% (575/19,578) and 2.7% (673/25,313) of T1 cancers, respectively. Flat (95.1% (18,619/19,578)) and raised (94.2% (23,844/25,313)) lesions showed mostly type IIIL and type IV pit patterns corresponding to adenomas. Among depressed lesions, 92.2% (486/528) were types IIIS, VI, and VN, corresponding to adenocarcinoma in pit pattern classification. On endoscopy, most of the flat or protruding lesions corresponded to adenomas and were classified as type EC2 in the EC classification, whereas the depressed lesions were mostly classified as EC3a and EC3b (91.2%), indicating invasive carcinoma according to the EC classification.

Conclusion: This study demonstrates that depressed colorectal cancer is prone to invade the submucosa, highlighting the need for magnifying endoscopy and endoscopy, regardless of the size of the lesion. Nonetheless, detecting this type of colorectal cancer can present a significant challenge. Thus, greater attention must be devoted to the morphological characteristics of depressed colorectal cancer during routine colonoscopy.

Disclosure: Nothing to disclose.

PP1019

A SYSTEMATIC REVIEW AND META-ANALYSIS OF CONVOLUTIONAL NEURAL NETWORK IN THE DIAGNOSIS OF COLORECTAL POLYPS AND CANCER

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Introduction: Colorectal cancer (CRC) is the third most common cancer and the second cause of cancer-related deaths worldwide [1]. Although the biological pathways that transform the normal colon tissue into malignant tissue are different, polyps are presumed to be the precursor lesions for malignant tumors in all cases [2]. Colorectal polyps (CRP) can be seen in various forms or shapes on colonoscopy. Convolutional neural networks (CNNs) are a class of deep neural networks used for different clinical purposes, including improving the detection rate of colorectal lesions.

Aims & Methods: This systematic review and meta-analysis aimed to assess the performance of CNN-based models in the detection or classification of colorectal polyps (CRP) and colorectal cancer (CRC). A systematic search was performed in MEDLINE, SCOPUS, Web of Science, and other related databases. The performance measures of the CNN models in the detection of CRP and CRC were calculated in the two scenarios of the best and worst accuracy. Stata and R software were used for conducting the meta-analysis.

Results: From 3368 searched records, 24 primary studies were included. The sensitivity and specificity of CNN models in predicting CRP in worst and best scenarios ranged fr3om 84.7-91.6% and 86.0-93.8%, respectively. These values in predicting CRC varied between 93.2-94.1% and 94.6-97.7%. The positive and negative likelihood ratios varied between 6.2-14.5 and 0.09-0.17 in these scenarios, respectively, in predicting CRP, and 17.1-41.2 and 0.07-0.06 in predicting CRP. The diagnostic OR and accuracy measures of CNN models in predicting CRP in worst and best scenarios ranged between 36-162 and 80.5-88.6%, respectively. These values in predicting CRC in the worst and the best scenarios varied between 239.63-677.47 and 88.2-96.4%. The area under the ROC varied between 0.92 to 0.97 in the worst and the best scenarios in CRP, respectively, and 0.98 to 0.99 in CRP prediction.

Conclusion: CNN-based models showed an acceptable accuracy in detecting CRP and CRC.

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PP1020

COMPARISON BETWEEN YOUNG-ONSET VERSUS CLASSICAL COLORECTAL CANCER: CLINICAL, BIOCHEMICAL AND TUMOUR PROFILING

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Introduction: There is an increasing incidence of young-onset colorectal cancer (YOCRC), which is defined as patients with colorectal cancer at age 50 years and younger. They present with a distinct clinical phenotype compared to classical-onset CRC (COCRC), with a more aggressive disease at presentation, as well as different tumour location and mutational signatures. There is an unmet clinical need to elucidate the unexplained epidemiologic rise in incidence as well as disease pathogenesis of YOCRC.

Aims & Methods: To compare the clinical presentation, tumour characteristics and survival of young-onset versus classical-onset CRC.

A retrospective evaluation of patients diagnosed with colorectal cancer from 2019 to 2022 at a district general hospital was performed. We extracted data from electronic patient records for clinical, biochemical, radiological as well as histopathological reports. Comparisons were made between patients diagnosed at </=50 years (YOCRC) and >50 years of age (COCRC) respectively, and statistical analyses were performed. A p-value of <0.05 was considered statistically significant.

Results: 34 (11.1%) and 273 (88.9%) patients were diagnosed as YOCRC and COCRC respectively. There was a difference in clinical presentation between the two groups, with haematochezia (n=12, 35.3%) (p=0.03) and change in bowel habit (n=7, 20.6%) predominating in the YOCRC group, versus positive faecal immunochemical test (FIT) (n=102, 37.4%) and anaemia (n=78, 28.6%) in the COCRC group respectively. There were no differences in the tumour location between groups, with >50% of cases arising from the left colon (22 YOCRC versus 149 COCRC). Thrombocytosis (platelet count>450x10^9/L) (24% vs 11%, p=0.038) and tumour budding (12% vs 3%, p=0.006) were significantly increased in the YOCRC group. There were no significant differences in the histological subtype, TNM staging, mutational profiling and survival between groups. 6 (17.6%) YOCRC patients had died compared to 116 (37.8%) in the COCRC cohort over a median follow-up of 16 months.

Clinical presentation n (%)	YOCRC (n=34)	COCRC (n=273)	p
Positive FIT	8 (23.5)	102 (37.4)	0.113
Anaemia	6 (17.6)	78 (28.6)	0.178
Change in bowel habit	7 (20.6)	70 (25.6)	0.522
Haematochezia	12 (35.3)	53 (19.4)	0.033*
Abdominal pain	6 (17.6)	34 (12.5)	0.396
Weight loss	5 (14.7)	30 (11.0)	0.520

*p<0.05

Table 1: Clinical presentation of YOCRC and COCRC

Conclusion: Young-onset colorectal cancer represents a challenging subset of CRC, which has a different clinical and tumour phenotype to classical-onset CRC. Our study reflects the reported incidence rates of YOCRC of 11%, although the true epidemiology and frequency of YOCRC remains to be clarified. Haematochezia was the commonest presentation, while thrombocytosis and tumour budding were higher in the YOCRC group, suggesting a more advanced disease at diagnosis. Although the overall

survival rates were similar between groups, further research would benefit from larger prospective studies with subdivision of YOCRC cases by age as poorer survival have been suggested in patients aged <30 years. There is a need to elucidate the respective aetiologies, environmental risk factors and pathogenesis of YOCRC, to allow early targeted treatment of such cases.

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PP1021

CLINICOPATHOLOGICAL FEATURES OF EARLY-ONSET COLORECTAL TUMORS DIAGNOSED AGE AT 40 OR UNDER

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Introduction: The incidence of early-onset colorectal cancer has been increasing worldwide, and action is urgently needed to address this problem. Although we have previously reported age-related changes with respect to molecular pathology, the vast majority remains unknown regarding the clinicopathologic characteristics of early-onset colorectal cancers and adenomas, especially those resected by endoscopic approaches. In this study, we defined early-onset colorectal tumors as adenoma and carcinoma diagnosed age at 40 or under. The aim of this study was to examine the clinicopathologic characteristics of endoscopically resected early-onset colorectal tumors compared with later-onset colorectal tumors diagnosed at age 40 or older.

Aims & Methods: We examined the clinicopathological characteristics of endoscopically resected colorectal adenomas and carcinomas in 1,005 patients with 2,367 lesions including early-onset colorectal carcinoma/adenoma (159 lesions in 96 consecutive cases from January 2010 to December 2020), late-onset colorectal carcinoma (183 lesions in 90 cases from January 2010 to December 2020), and late-onset adenoma (2,025 lesions in 819 consecutive cases from January 2020 to July 2020) endoscopically resected at the Nippon Medical School Hospital. The chi-square test was used to compare categorical variables, and the Mann-Whitney U test was used to compare continuous variables.

Results: Median age (quartiles) and sex (female/male) of cases were 37 (34-38), 34 (35%) / 62 (65%) in the early-onset tumor group; and 55 (46-72), 277 (30%) / 632 (70%) in the late-onset tumor group, respectively. The distribution rate of tumor location was 49 cases (31%) for proximal colon, 97 (61%) for distal colon, 13 (8.2%) for rectum in the early-onset group; and 1085 (49%), 899 (41%), 83 (10%) in the later-onset group, respectively. Macroscopic types were classified into Ip for 46 cases (29%), Is and Isp for 100 (63%), II for 13 (8.2%) in the early-onset group; and 278 (13%), 1574 (71%), 356 (16%) in the late-onset group, respectively. Histological types were classified into tubular adenocarcinoma or papillary carcinoma for 14 cases (8.8%), high-grade tubular adenoma (TA) for 36 (23%), low-grade TA for 97 (61%), sessile serrated lesion or traditional serrated adenoma for 12 (7.5%) in the early-onset tumor group; and 183 (8.3%), 281 (13%), 1655 (75%), 89(4%), respectively. Compared with the later-onset colorectal tumors, a higher rate of left-sided tumor location and macroscopic type Ip was observed in the early-onset colorectal tumor (p <0.001, respectively). When limited to adenoma lesions, the rate of high-grade was significantly higher in the early-onset colorectal adenomas than those in the later-onset colorectal adenomas.

Conclusion: Regarding tumor location and macroscopic type, unique clinicopathological features were observed in early-onset colorectal tumors compared with later-onset colorectal tumors. Further studies are needed to investigate the association between early-onset colorectal cancer and adenomas stratified by the method by tumor resection.

Disclosure: Nothing to disclose.

PP1022

ASSESSING EMPIRICAL THRESHOLDS FOR INVESTIGATION IN PEOPLE REFERRED ON A SYMPTOMATIC COLORECTAL CANCER PATHWAY: A COHORT STUDY UTILISING FAECAL IMMUNOCHEMICAL AND BLOOD TESTS IN ENGLAND

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Introduction: In colorectal cancer (CRC) the pathway to diagnosis has rapidly evolved over the past 5 years incorporating Faecal Immunochemical Testing (FIT) as the chosen biomarker in the field. A FIT cut off of ≥10 µg Hb/g faeces is recommended by NICE for investigation of colorectal cancer (CRC) on an urgent pathway based on an expected CRC risk threshold of 3% in England. It is crucial to balance the risk of CRC against the ability of the health service to investigate and diagnose cancer in an appropriate and timely manner.

Aims & Methods: Our aim was to determine the empirical thresholds of CRC risk in a representative population at different FIT cut offs to assess optimal use of FIT in patients with symptoms of CRC. Cohort study of a symptomatic CRC pathway from primary care with a FIT test in Nottingham, UK (November 2017-2021) with 1-year follow-up. Heat maps showed the cumulative 1-year CRC risk using Kaplan-Meier estimates stratified by FIT (fHb <4 µg Hb/g faeces, 4-9.9 µg Hb/g faeces, 10-19.9 µg Hb/g faeces, 20 – 39.9 µg Hb/g faeces, 40- 99.9 µg Hb/g faeces and ≥100 µg Hb/g faeces), age, anaemia (≤130g/l in men; ≤120g/l in women), and thrombocytosis (≥400 x10^9/l). We estimated the number of investigations that could potentially be re-purposed if a threshold of ≥3% 1-year risk of CRC was instigated.

Results: In total 514 (1.5%) CRC's were diagnosed following 33694 index FIT tests. Individuals with a FIT ≥10 µg Hb/g faeces had a greater than 3% risk of CRC, except patients under the age of 40 years (CRC risk 1.45% (95% CI 0.03-2.86%)). Non-anaemic patients with a FIT <100 µg Hb/g faeces had a CRC risk of less than 3%, except those between the age of 70-85 years (CRC risk 5.26% 95% CI 2.72-7.73%). Non-anaemic patients do not meet the 3% threshold set by NICE for investigation until they have a FIT ≥40 µg Hb/g faeces. In contrast, those patients with anaemia meet the 3% threshold at a FIT of ≥20 µg Hb/g faeces. Using a ≥3% CRC threshold in patients < 55 years calculated using FIT, age and anaemia would allow 160-220 colonoscopies per 10000 FIT tests to be re-purposed, at a cost of missing 1-2 CRCs.

Conclusion: CRC risk varies by FIT, age and anaemia when fHb levels are below 100 µg Hb/g faeces. Tailored FIT cut offs for investigation on a CRC pathway could reduce the number of investigations needed at a 3% CRC risk threshold rather than a single cut off of ≥10 µg Hb/g faeces.

Disclosure: none to declare.

PP1023

EVALUATION THE EXPRESSION OF MAP1LC3A AUTOPHAGY GENE AND ITS RELATED LNCRNAS AND MIRNA IN 5-FU CHEMORESISTANT COLORECTAL CANCER CELL LINES

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Introduction: One of major obstacles of treatment in colorectal cancer (CRC) is drug resistance, specially 5-Fu chemoresistance which is a fundamental drug in CRC chemotherapy. Also, there is no reliable biomarkers in order to identify chemoresistance patients and improve their treatment. There are several factors that cause 5-FU chemoresistance include autophagy. This cell death phenomenon is played key role in 5-FU chemoresistance in CRC patients by providing nutritarians for CRC cells in hard circumstances; also, autophagy has regulated by different factors like genes and non-coding RNAs(ncRNA).

Aims & Methods: Verifying key gene in autophagy pathway at KEGG database. Moreover, evaluation the expression of key gene in CRC patients at TCGA database. Investigation on the key gene related LncRNAs and miRNAs in CRC at LNCpedia and mirTARBase database respectively, in order to find most relevant ncRNAs of this gene and obtain proper biomarkers. Developing 5-FU chemoresistance Caco2 and SW480 cell lines by increasing dosage of drug and MTT assay was performed to confirm the chemoresistance cell lines and western blot was performed to confirm autophagy in cell lines. Finally, evaluating the expression of MAP1LC3A and its related ncRNAs in 5-FU chemoresistant CRC cell lines by qRT-PCR.

Results: MAP1LC3A was confirmed as key gene based on KEGG analysis; also, FAM225A, NCK1-DT, LINC01825, LINC02188 and miR-335-5p have nominated as most relevant ncRNAs based on bioinformatic analysis. Furthermore, qRT-PCR analysis of MAP1LC3A and its related ncRNAs have shown differential expression between chemoresistant and chemoresistant CRC cell lines.

Conclusion: These findings indicate that FAM225A, NCK1-DT, LINC01825, LINC02188 and miR-335-5p participate in autophagy by effecting the expression of MAP1LC3A gene and they can function as proper biomarkers for 5-FU chemoresistance CRC patients. Not only they can function as biomarkers but also, they can attend in target therapy by designing siRNAs to knockdown this ncRNAs and enhance chemotherapy in CRC patients.

Disclosure: Nothing to disclose.

PP1024

THE OPTIMIZATION AND EVALUATION OF CELL LINE-DERIVED XENOGRAFT MOUSE MODELS FOR COLORECTAL CANCR WITH LIVER METASTASIS

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Introduction: Liver metastasis is one of the main reasons for colorectal cancer (CRC)-related deaths due to the lack of effective therapeutic. CRC cell line-derived xenograft (CDX) mouse models developed by orthotopic injection in the cecum, ectopic injection in the spleen or the portal vein are essential invivo tools for exploring the mechanism of liver metastasis and testing potential chemotherapeutic agents. We did this study to evaluate and optimize the establishment of these models, and emphasize characteristics of liver metastatic foci derived from different CRC cell lines.

Aims & Methods: Luciferin-expressing HCT116 cells, SW480 cells and SW620 cells were used to induce mouse models of CRC with liver metastases by the cecum injection, intrasplenic injection and intraportal injection. The metastatic characteristics of tumors were confirmed and evaluated by bioluminescence imaging, macroscopic and microscopic appearance. Furthermore, we improved and evaluated the procedures of these CRC CDX mouse models, and comprehensively summarized their performances in the aspect of liver metastasis with three popular cell lines.

Results: Models established by cecal injection and intrasplenic injection displayed similarly in the operation difficulty, cell number to need and frequency of metastasis. The bioluminescence imaging usually had a strong and concentrated signal in cecum, but a weak or moderate signal in the spleen respectively, and accompanied with a diffuse signal or no signal in the liver. The model for HCT116-induced liver metastasis could be well established by intrasplenic injection, showing granular lesions with tumor pleomorphic variation, invasion, erosion and necrosis. SW480 and SW620-derived models by cecal or intrasplenic injection characterized macroscopically with nodular, white grey metastatic foci throughout the liver tissue, and identified with scattered, sub-rotund, uniform-sized and infiltrative pathological changes. However, the metastatic lesions were more and larger in the interior of liver tissues in the cecum injection model within 6 weeks, suggesting its superiority. Intraportal injection had technique difficulty in the discovery and puncture of the portal vein, probably leading to post-operated hemostasis and mouse deaths. The metastatic foci developed from intraportal injection were hardly displayed obvious findings in macroscopic appearance, and few or small-sized sporadic lesions under microscopy could be detected.

	Orthotopic injection in the cecum	Intrasplenic injection	Intraportal injection
Cell number for injection	~3,000,000	~3,000,000	~700,000
Bioluminescence imaging performance	Strong and concentrated signal in the cecum, no signal or diffuse signal in the liver	Weak or moderate signal in the spleen, no signal or diffuse signal in the liver	Almost no signal anywhere
Macroscopic appearance of liver metastatic foci	HCT116: Shapeless lesions with erosion or necrosis	HCT116: Granular, dark-red changes with diffuse erosion or necrosis throughout the liver tissue	HCT116: Hard to identify
	SW480: Scatterd nodular, white or grey medium-sized foci	SW480: Nodular, white or grey medium-sized foci throughout the liver tissue	SW480: Rare nodular foci
	SW620: Scatterd nodular, white or grey small-sized foci	SW620: Nodular,white or grey, small-sized foci throughout the liver tissue	SW620: Rare nodular foci
Microscopic characteristic of liver metastatic foci	HCT116: Scattered, irregular, infiltrative and even necrotic foci	HCT116: Large-area, irregular, invasive and necrotic foci	HCT116: Concentrated, irregular, infiltrative and even necrotic foci
	SW480: Scattered or diffuse, subrotund,uniform in medium size	SW480: Scattered, subrotund, uniform in medium size	SW480: Sporadic, isolated, subrotund
	SW620: Scattered, subrotund,uniform in smaller size	SW620: Scattered, subrotund, uniform in smaller size	SW620: Scattered, tiny and slightly infiltrative foci
The comprehensive evaluation of the models for liver metastasis	HCT116: Suboptimal SW480: Suboptimal SW620: Excellent	HCT116: Excellent SW480: Suboptimal SW620: Suboptimal	HCT116: Mediocre SW480: Mediocre SW620: Mediocre

Table 1: The opitimization and evaluation of the establishment of three CDX models.

Conclusion: The study provides not only useful information for the establishment of CRC CDX models for liver metastasis, but also novel insights for identifying characteristics of metastatic foci induced by different cell lines.

Disclosure: No conflict of interest.

PP1025

ORGAN PRESERVATION USING CONTACT RADIOTHERAPY FOR EARLY RECTAL CANCER: AN ATLAS OF CLINICAL RESPONSE

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Introduction: Contact radiotherapy enables organ preservation in a subset of early cancer patients. An 80% response rate followed by an 80% sustained response is indicated by published results. Early detection of relapse is crucial to successful salvage. Even without recurrence, luminal change between 90 and 110 g/m2 can be significant and long-lasting. One of the most challenging parts of care is still follow-up.

As a result, endoscopy, histology, and imaging are used in combination for follow-up. Endoscopy results are highly variable and challenging to interpret clinically without training.

Our main goal is to identify a typical luminal appearance pattern and assign a classification scheme for straightforward documentation.

Aims & Methods: In order to make documentation easier, our main goal is to identify a typical pattern of luminal appearance.

Hull Teaching Hospital's medical cancer clinic between September 2015 and August 2019. Patients underwent an endo-rectal ultrasound, a chest CT, an MRI of the liver, and an MRI of the pelvis. Patients who were either deemed unfit for radical surgery or who declined it because they required a permanent stoma Three flexible sigmoidoscopies per month, a liver MRI, and a 12-monthly chest CT scan made up the patient's follow-up.

During follow-up for patients who were enrolled, we implemented our grading system in the stratification of endoscopic findings. All endoscopic findings were staged using our grading system by a colorectal consultant surgeon, an oncologist, and two foundation-year doctors in order to account for inter- and intraobserver variability.

The endoscopy findings were graded as G0: non-visible luminal change, G1: complete clinical response (flat white scar), G2: superficial ulceration (flat edge, partial reepithelization, slough, or granulation tissue base), G3: raise or nodule (adenomatous tissue like a polyp), and G4: rolling edges (visible tumor) or satellite lesions.

Results: A total of 64 patients have been treated with contact radiotherapy plus or minus external beam radiotherapy without primary surgical excision. The median age is 78 years (50–94 years). We found out that the overall survival rate was 88%. Disease-free survival was 86%, and overall survival was 88% with a median follow-up of 24 months. Mortality from the primary contact procedure was 0%.

Statistical analysis: We calculated the intraclass correlation coefficient (ICC) to access inter-observer agreement, and the results presented include the 95% confidence interval. We also reported the inter-observer correlation matrix and adopted the classification system for ICC as described in Landis (1977) http://pubmed.ncbi.nlm.nih.gov/843571/ with values higher than 0.8 to be deemed "almost perfect" agreement. Analysis was run using SPSS version 25.

Results: The interobserver correlation matrix shows that agreement between the colorectal consultant score and the juniors is slightly better than their agreement with the oncology consultant scores. The ICC was 0.966(95% CI: 0.958 to 0.972) showing almost perfect agreement.

Conclusion: The grading system is an easy-to-reproduce tool for monitoring the response of radiotherapy in patients undergoing organ preservation using contact radiotherapy for early rectal cancer. It will establish a typical pattern of luminal appearance and assign a classification system for ease of documentation and case-to-case follow-up.

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Disclosure: No disclosures

PP1026

EFFECTS OF IRON TREATMENT PATHWAY ON MACROPHAGE POLARISATION IN COLORECTAL CANCER PATIENTS WITH IRON DEFICIENCY ANAEMIA

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Introduction: Colorectal cancer (CRC) is strongly associated with iron due to the role of gut epithelium in iron uptake and the exposure of luminal epithelial cells to iron, iron trafficking within the tumour microenvironment (TM), and the role of iron in cell function including that of immune cells and tumour cells (1,2).

Tumours do not grow in isolation; they are reliant on the function of other cells within the TM (3). These cells interact with the tumour, providing tumour cells with nutrients including iron (4,5).

Within the TM, monocytes are polarised into proinflammatory (M1) macrophages and alternatively activated (M2) macrophages. M1 macrophages are characterised by production of pro-inflammatory cytokines such as IL-12, production of reactive oxygen species, and activation of Th1 responses. These cells are involved in immune surveillance and anti-cancer functions. In contrast, M2 macrophages have an anti-inflammatory phenotype and tumour promotion (6).

Tumour associated macrophages that resemble M2 macrophages have been shown to promote angiogenesis, matrix remodelling, and immune suppression (7,8) and have been associated with worse patient outcomes (9).

Iron may affect the tumour cells within the TM by influencing macrophage polarisation. Mice fed an iron-enriched diet increased M2 polarization of macrophages with increase in M2 markers (10). However, the situation is more complex as extravasation of red blood cells during neoangiogenesis resulting in a haemorrhagic environment repolarised the macrophages to an M1 phenotype with the ability to kill cancer cells (8). These results suggest that haemolytic RBCs and iron influence macrophage polarisation and are important players within the TM and an important focus for research in CRC.

Aims & Methods: The study aims were to determine the effects of iron treatments on the differentiation of macrophages within the TM in anaemic patients with CRC.

Normal and tumour tissues were obtained from patients in the IVICA trial (REC reference 11/EM/0237). Patients with CRC and iron deficiency anaemia were randomised to receive oral ferrous sulphate (n=20) or IV ferric carboxymaltose (n=20). Using immunofluorescence microscopy, we identified macrophages as being CD68 positive and demonstrated the expression of TLR2, suggesting that these are M1 macrophages. The pattern of M1 macrophages were confirmed with further experiments as cells that were CD68 and MHC-II (HLA-DR) positive. M2 macrophages were identified as CD68 and CD163 positive cells.

Results: Macrophages expression was significantly higher on tumour tissues from patients who received IV ferric carboxymaltose compared with oral ferrous sulphate ($p<0.02$). In CRC tissues, macrophages were localised as clusters mainly in the stromal tissue.

The number of M1 polarised macrophages was significantly higher in the TM of patients treated with IV ferric carboxymaltose than in those colorectal cancer patients treated with oral ferrous sulphate ($p=0.01$).

There was a trend towards an increase in M2 polarised macrophages in the tumour samples of those patients treated with oral iron, however, this was not significant.

Conclusion: This is the first study in humans to investigate the effect of iron treatment on the phenotype of macrophages within the TM. Data demonstrates that IV ferric carboxymaltose may increase the recruitment and / or polarisation of macrophages to an M1 phenotype within the TM in anaemic CRC patients. These results have the potential to influence patients' management as our work suggests that IV ferric carboxymaltose may be preferable to oral ferrous sulphate.

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PP1027

REOVIRUS COMBINED WITH A STING AGONIST ENHANCES ANTI-TUMOR IMMUNITY IN A MOUSE MODEL OF COLORECTAL CANCER

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Introduction: Reovirus, a naturally occurring oncolytic virus, triggers the lysis of tumor cells while also releasing tumor antigens or proapoptotic cytokines into the tumor microenvironment to enhance anticancer immunity. However, reovirus has developed a strategy to evade antiviral immunity by inhibiting interferon production, which negatively affects the induction of antitumor immune responses. The mammalian adaptor protein Stimulator of Interferon Genes (STING) has been identified as a crucial regulator that orchestrates immune responses by sensing cytosolic DNA derived from pathogens or tumors, resulting in the production of type I interferon.

Thus, we hypothesize that activation of the STING axis can counteract the suppression of type I IFN responses by reovirus, and combination treatment with reovirus and a STING agonist can promote anticancer immunity by improving the tumor microenvironment. In this study, we investigated the effects of combining reovirus with a STING agonist on antitumor immunity.

Aims & Methods: To investigate the role of immune responses in primary tumor growth inhibition, we performed a dual flank study using an immunocompetent syngeneic model. In the dual flank syngeneic mouse tumor model, CT26 cells were implanted on both sides of a mouse, and then one tumor was injected with reovirus, ADU-S100, or reovirus and ADU-S100, while the other tumor remained untreated. To further verify the immunotherapeutic effect of the T cell infiltration in tumor tissues of mice receiving the combination treatment, we also performed the tumor-infiltrating lymphocytes profiling in the tumor tissues of mice with the treatment using fluorescence-activated cell sorting (FACS).

Results: The combination treatment of reovirus and ADU-S100 induced significant regression in the treated tumor and the untreated distant tumor, indicating that the combination treatment activated a systemic immune response in the dual-flank tumor model. However, intratumoral (IT) injection of reovirus or ADU-S100 alone did not significantly delay tumor growth in the untreated distant tumor. The combination treatment also significantly prolonged the survival of mice bearing dual tumors. The tumor-infiltrating lymphocyte profiling showed a significantly lower CD4:CD8 T cell ratio in the treated and untreated tumors from CT26 tumor-bearing mice treated with the combination IT injection of reovirus and ADU-S100, compared to the untreated controls. However, there were no significant differences in the CD4:CD8 ratio between the control and other treatment groups. We also detected a significant reduction in the ratio of regulatory T cells in tumors treated with reovirus alone or the combination of reovirus and ADU-S100 compared to the control.

Conclusion: We demonstrated the ability of oncolytic reovirus to induce tumor regression in a CT26 syngeneic tumor model and showed that the combination treatment of reovirus and a STING agonist enhanced antitumor immunity. This enhanced antitumor response was partially mediated by IFN-induced T cell activation. Although further investigation is required to clarify the mechanism underlying the synergy between STING agonist

and reovirus in promoting immune responses and anti-tumor activity, our combination treatment strategy may have potential as an immunotherapy against colorectal cancer.

Disclosure: Nothing to disclose.

PP1028

PROTRUDED TYPE AND IN THE LEFT-SIDE COLON ARE CHARACTERISTIC FINDINGS OF COLORECTAL CANCERS OR HIGH-GRADE DYSPLASIA IN YOUNG ADULTS

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Introduction: Recently, the increase of young-onset colorectal cancer (yCRC) has been reported, and the age at which colorectal cancer screening is started has been lowered in some countries. Although the characteristics of advanced-stage yCRC or high-grade dysplasias(HGDs) have been reported, there have been few reports of early-stage yCRC or HGDs so far.

Aims & Methods: The aim of this study is to investigate the clinical and pathological characteristics of early-stage yCRC and colorectal HGDs. We retrospectively reviewed the electrical health record data of pathologically diagnosed pT1 colorectal cancers and colorectal HGDs that were resected endoscopically or surgically in our institution from January 2019 to December 2021. The pathological diagnosis was done according to the Japanese Classification of Colorectal Carcinoma. The cases were categorized into two groups: the young group (Y group) or the elderly group (E group). The definition of Group Y and Group E were patients aged 50 years or younger, and those aged 51 years or older respectively. The following factors were evaluated by univariate analysis; age, sex, and the number of experienced endoscopies of the patients; location, size, macroscopic type, histology of the lesion; and depth of invasion. Regarding the morphology or the lesions, 0-Ip, and 0-Is were categorized as protruded lesions, whereas 0-IIa and 0-IIc were categorized as superficial lesions. Statistical analysis was done by the Mann-Whitney U test for continuous variables and Fisher's exact test for categorical variables. All tests were two-sided, and P<0.05 was considered to be statistically significant.

Results: There were 34 cases in group Y and 314 cases in group E, with a median age (range) of 45 years old (32-50) and 72 years old (51-93), respectively. Sex was male:female=20:14 and male:female=204:110. First-time examination cases were significantly higher in the Y group than in the E group (91.2%:50.6% ;P<0.0001). Regarding the location, the sigmoid colon was the most common in both Y and E groups (55.9%:30.3%). The number of CRC in the left side colon is significantly larger in the Y group than in the E group (79.4%: 62.7%; p=0.0375). In terms of macroscopic type, 0-Ip was most common in group Y(16(41.7%)), whereas 0-lla was most common in group E(137(43.6%)). The number of protruded type early-stage CRC is larger in the Y group than in the E group (82.3%: 58.9%; p=0.005). The median tumor diameter (range) was 16 mm (8-60) and 12 mm (5-155) in Y and E groups respectively. Regarding the histology, well-differentiated tubular adenocarcinoma (Tub1) was the most common histological type in both groups, they were 32(94.1%) in group Y and 282(89.8%) in group E respectively(p=0.4756). pTis (HGDs) were also the most common depth of invasion in both group, they were 25(73.5%) in group Y and 241(77.0%) in group E respectively(p=0.7903).

	Group Y (n=34)	Group E (n=314)	p value
Age, year, mean, (range)	45(32-50)	72(51-93)	
Sex, n, (%) male / female	20(58.8) / 14(41.2)	204(65.0) / 110(35.0)	0.5721
Number of endoscopies, n, (%) first time / non first time	31(91.2) /3(8.8)	159(50.6) / 155(49.4)	<0.0001
Location, n, (%) C/A/T/D/S/Rs/Ra/Rb	1(2.9)/2(5.9)/4(11.8)/1(2.9)/ 19(55.9)/2(5.9)/4(11.8)/1(2.9)	25(8.0)/44(14.0)/48(15.3)/14(4.5)/ 95(30.3)/30(9.6)/23(7.3)/35(11.2)	
right side / left side	7(20.6) / 27(79.4)	117(37.3) / 197(62.7)	0.0375
Size, mm, mean, (range)	16(8-60)	12(5-155)	0.4521
Macroscopic type, n, (%) Ip/Is/IIa/IIb/IIc	16(47.1)/12(35.3)/6(17.6)/0(0)/0(0)	63(20.1)/112(35.7)/137(43.6)/1(0.3)/1(0.3)	
protruded type / superficial type	28(82.3) / 6(17.6)	185(58.9) / 129(41.1)	0.005
Histology type, n, (%) tub1 / tub2 /por	32(94.1) / 2(5.9) / 0(0)	282(89.8) / 30(9.6) / 2(0.6)	0.4756
Invasion depth, n, (%) pTis(HGDs) / pT1a / pT1b	25(73.5) / 4(11.8) / 5(14.7)	241(77.0) / 36(11.5) / 36(11.5)	0.7903

Conclusion: Compared with early CRC in elderly patients, early-stage yCRC and HGDs were more common in the left side colon and showed a protruded type.

Disclosure: Nothing to disclose.

PP1029

STAGING OF PT1 RECTAL CANCER IN A NATIONWIDE POPULATION BASED COHORT– EPIT1CONSORTIUM

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Introduction: Treatment of rectal cancer requires an understanding of presenting stage and therapeutic modalities to provide appropriate and effective multimodality approaches that are oncological sound and respectful in terms of organ preservation and survivors' quality of life. Imaging (endoscopic ultrasound (EUS) and/or magnetic resonance imaging (MRI)) determines the locoregional staging and optimal treatment for rectal cancer patients. However, for pT1 rectal cancer usually arising into a locally resectable polyp, the yield and role of this diagnostic techniques are no well-established.

Aims & Methods: Aim: To describe the use of locoregional staging and analyze its yield in a pT1CRC state-wide population-based cohort of pT1 rectal cancers.

Patients and methods: Nation-wide population-based cohort, multicenter study (EpiT1Consortium), including 33 centers from 12 different Spanish states. All pT1 CRC cases diagnosed between 2007-2018 were included regardless of the treatment received. Exclusion criteria were: histology other than adenocarcinoma, cancer hereditary syndromes, inflammatory bowel disease, synchronous and metachronous colorectal cancer in the previous 5 years, metastatic neoplastic disease at the time of diagnosis. Information on the demographic of the patient, diagnosis, staging, treatment, complications and histology of pT1 as well as a minimum of 2 years follow-up were collected. Multivariate analysis was performed using binary logistic.

Results: From 3161 patients of the EpiT1 cohort, 681 pT1 rectal cancer with complete information on staging were included for the analysis. 424/681(62.3%) underwent staging: 234(55.2%) with MRI only, 131(30.9%) MRI and EUS, 59(13.9%) only EUS. The characteristics independently associated with the staging (MRI and/or EUS) were: location in lower/middle vs upper rectum (69.1% vs 30.9%; OR 2.8[1.7-4 .5]), suspicion of invasive carcinoma at baseline colonoscopy (64.8% vs 35.2%; OR 2.6[1.6-4.2]), high risk vs low risk histology (69.5% vs 30.5%; OR 2.4[1,3-4,2]), patient management by other specialist (surgeon, oncologist, MDT) vs gastroenterologist (82.7% vs 17.3%; OR 2.2[1.3-3.7]). T staging was correct with MRI in 54/191(28,3%) and with EUS in 69/117(59%) and considering staging by MRI or EUS, 67.1% of patients were over-staged for the T. For N staging considering MRI or EUS the sensitivity and specificity were 15.4% and 82.6%, respectively (Table 1).

	MRI and EUS		Only MRI		Only EUS	
	N+ or recurrence (all therapies) N=82	N+ (oncological surgery) N=39	N+ or recurrence (all therapies) N=243	N+ (oncological surgery) N=122	N+ or recurrence (all therapies) N=121	N+ (oncological surgery) N=49
Sensitivity %	0% (0/2)	0% (0/1)	15,8% (3/19)	16,7% (2/12)	0% (0/6)	0% (0/2)
Specificity %	87,5% (70/80)	78,9% (30/38)	91,1% (204/224)	85,4% (94/110)	96,5% (111/115)	93,6% (44/47)
PPV %	0% (0/10)	0% (0/8)	13% (3/23)	11,1% (2/18)	0% (0/4)	0% (0/3)
NPV %	97,2% (70/72)	96,8% (30/31)	92,7% (204/220)	90,4% (94/104)	94,9% (111/117)	95,6% (44/46)

Table 1. Diagnostic accuracy for N: in MRI+EUS, only MRI and only EUS

Conclusion: The limited yield of locoregional staging imaging techniques should be taken into account when choosing the therapeutic strategy of suspected/known T1 rectal cancers. For T staging, considering the high rate of over-staging with imaging modalities, a stepwise approach using histopathology from a local en-bloc resection as a first step seems reasonable. For N staging, a major effort has to be performed to increase the yield of staging modalities in clinical practice.

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PP1030

EFFECTS OF THE NEWLY DEVELOPED LARGE NEUTRAL AMINO ACID TRANSPORTER1 INHIBITOR, JPH203 ON TUMOR MICROENVIRONMENT IN COLORECTAL CANCER

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Introduction: The large neutral amino acid transporter family (LAT1-4) is responsible for the cellular uptake of essential amino acids. LAT1, in particular, is dominantly expressed in cancer cells and attracts attention as a target for therapy. Previously, the tumor growth inhibitory effect of pan-LAT inhibitor, 2-aminobicyclo-(2,2,1)-heptane-2-carboxylic acid (BCH), has been reported in *in vitro* and *in vivo* therapeutic experiments. However, because BCH inhibits whole LAT family proteins including LAT1 and LAT2, it is expected that agents with high LAT1 specificity will be superior to BCH regarding fewer side effects. JPH203, a novel LAT1 inhibitor with high LAT1 specificity, was recently developed. We aimed to evaluate the efficacy and anti-tumor action mechanism of JPH203 in colorectal cancer (CRC).

Aims & Methods: LAT family gene expressions in public databases were analyzed using UCSC Xena, and LAT1 expression was evaluated using immunohistochemistry in surgically resected CRC. Moreover, we evaluated the growth inhibitory effect of JPH203 in several CRC cell lines. Furthermore, JPH203 treatment experiments were conducted using the allogeneic immune-responsive mouse model with abundant stroma, which was created by orthotopic transplantation of the mouse-derived CRC cell line CT26 and mesenchymal stem cells (MSCs). The anti-tumor effect was evaluated by comprehensive gene expression analysis using mouse tumor tissue-derived RNA and validated in mouse tumors, clinical specimens, and *in vitro*.

Results: Database analysis and immunohistochemistry for clinical specimens showed that LAT1 expression was cancer-dominant and correlated with prognosis. JPH203 showed high efficacy in *in vitro* and significantly reduced tumor size and metastasis in *in vivo*. RNA sequencing-based pathway analysis showed that not only tumor growth and amino acid metabolism pathways but also stromal activation-related pathways were suppressed. The inhibitory effect on tumor stroma was validated by vimentin immunostaining in clinical specimens, co-culture assay with CT26 and MSCs *in vitro*, and E-cadherin and vimentin fluorescent double staining in *in vivo*.

Conclusion: LAT1 expression in CRC plays a significant role in tumor progression, and JPH203 may inhibit CRC progression and tumor stroma. The stromal inhibitory effect of JPH203 may be beneficial in considering its application to other stroma-abundant carcinomas and its use combined with other drugs.

Disclosure: Nothing to disclose.

PP1031

CHEMORADIOTHERAPY AS A THERAPEUTIC APPROACH FOR RECTAL ADENOCARCINOMA AFTER LOCAL EXCISION WITHOUT CURABILITY CRITERIA

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Introduction: Rectal adenocarcinomas (ADC) are associated with a higher rate of recurrence but also with greater surgical morbidity when compared to those of the colon. Local excision (LE) of early colorectal ADC that meet curability criteria (CC) is associated with excellent outcomes, and only surveillance is recommended. However, in the presence of non-curative LE criteria, salvage treatment should be performed. Although in most cases this includes surgery with lymphadenectomy, another possible approach is radio +/- chemotherapy (RT/CRT) followed by surveillance, in a "watch and wait" (WW)-like strategy, with surgery only in case of persistence or recurrence of injury.

Aims & Methods: This work aims to evaluate oncological outcomes in a cohort of patients after LE of early rectal ADC without CC, submitted to different clinical options (surveillance, RT/CRT followed by WW and surgery). It is a retrospective study including patients evaluated at two tertiary hospital centers for pT1/pT2 rectal ADC who underwent LE (endoscopic or transanal resection - TAR) between 12/2011-12/2022.

ADC pT1, low grade, sm1, without lymphovascular or perineural invasions, without high grade budding and with free margins were considered CC.

Clinical options in patients without CC, their complications and outcomes were analyzed.

Results: 64 patients were included in which the CC for LE were not met (5 for pT2; 3 for high grade; 8 for lymphovascular invasion; 54 for positive resection margins; 36 for sm>1, 28 (44%) patients failed >1CC). Of these, 49 were male patients, mean age 65.4 years (44-88), 14 with a family history of colorectal cancer and 12 with current or past smoking habits. ADCs: 12 excised by polypectomy, 20 by mucosectomy, 26 by submucosal or intramuscular dissection, 1 endoscopic transmural resection; 2 TAR and 3 endoscopic+TAR resections; 47 lesions excised in a single fragment; 29 in flat lesions, 31 in sessile polyps, 4 in pedunculated polyps.

In 24 patients, surgery was performed with lymphadenectomy (4 with definitive colostomy); in 16 patients, only surveillance was performed (8 due to comorbidities; 2 due to risk of Abdominoperineal Resection; 4 due to LE > 12 weeks/unidentified site; 2 due to refusal of surgery); 19 patients received CRT and 5 only RT, followed by surveillance. There were CRT complications in 4 patients (grade 2/3) and surgery complications (grade II/III) in 6.

Average follow-up: 35 months; 3 relapses were identified in the surveillance only group (19%) – 2 local and 1 distant; 1 distant recurrence in the surgery group (4%); 1 local and 1 local+distant recurrence in the RT/CRT group (8%). All recurrences occurred in pT1. Two of the patients with recurrence died of the disease (1 of them had undergone surveillance, the other had surgery with lymphadenectomy).

Conclusion: Despite the short series, this work confirms the worse outcome of patients with malignant polyps and pT2 of the rectum excised without CC and only monitored, and supports promising results from RT/CRT; this may be an organ-preserving option with less morbidity than surgery in patients with malignant rectal polyps excised without CC.

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Disclosure: Nothing to disclose.

PP1032

HIGH-THROUGHPUT AND HIGH-CONTENT DRUG SCREENING ON A LARGE-SCALE PATIENT-DERIVED HIGH-RISK COLORECTAL ADENOMA ORGANOID PLATFORM

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Introduction: Colorectal adenoma (CA), especially high-risk CA (HRCA) is a precancerous lesion with high prevalence and recurrence rate, and accounts for about 90% incidence of sporadic colorectal cancer cases worldwide. Currently, recurrent CA can only be treated with repeated invasive polypectomies, while safe and promising pharmaceutical invention strategies are still missing due to the lack of reliable *in vitro* model for CA-related drug screening.
Aims & Methods: In order to discover chemopreventive alternatives, we established a large-scale patient-derived high-risk colorectal adenoma organoid (HRCA-PDO) biobank containing 37 PDO lines derived from 33 patients, and then conducted a series of high-throughput and high-content HRCA drug screening.
Results: We established the primary culture system with the non-WNT3a medium which highly improved the purity while maintained the viability of HRCA-PDOs. We also proved that the HRCA-PDOs replicated the histological features, cellular diversity, genetic mutations and molecular characteristics of the primary adenomas. Especially, we identified the dysregulated stem genes including *LGR5*, *c-Myc* and *OLFM4* as the markers of adenoma, which are well preserved in HRCA-PDOs. Based on the HRCA-PDO biobank, a customized 139 compound library was applied for drug screening. Four drugs including metformin, BMS754807, Panobinostat, and AT9283 were screened out as potential hits with generally consistent inhibitory efficacy on HRCA-PDOs. As a representative, metformin was discovered to hinder HRCA-PDO growth *in vitro* and *in vivo* by restricting the stemness maintenance.
Conclusion: This study established a promising HRCA-PDO biobank and conducted the first high-throughput and high-content HRCA drug screening in order to shed light on prevention of colorectal cancer.
Disclosure: The authors declare no competing interests.

PP1033

FOR ELDERLY PATIENTS WITH T1 COLORECTAL CANCERS TREATED BY ENDOSCOPIC RESECTION, ARE ADDITIONAL SURGERIES WITH LYMPH NODE DISSECTION NECESSARY?

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Introduction: Recent advances in endoscopic technology have allowed many T1 colorectal carcinomas (CRCs) to be resected endoscopically. After endoscopic resection (ER), we often wonder if we should perform an additional surgical resection (SR) with nodal dissection. At present, the indication of additional SR is based only on the risk of simultaneous lymph node metastasis, with no consideration of prognosis in mind. Although in particular elderly people generally have some complications and are more likely to die from other diseases, it is not clear whether the criteria for additional SR after ER should be the same as for non-elderly patients.
Aims & Methods: The aim of this study is to investigate the overall survival (OS) in patients with T1 CRCs treated by ER alone or SR with nodal dissection. After excluding complications of advanced cancer or hereditary colorectal cancer and so on, we retrospectively analyzed 1461 patients with T1 CRCs resected ER or SR at our center from April 2001 to June 2020, and followed them up over a mean period of 77.1 months. We divided the patents into two groups: ER alone group and SR with lymph node dissection group, and compared the OS using the Kaplan–Meier method and the log-rank test. In addition, the same analysis was conducted by dividing the above subjects into those ≤ 75 years of the age and those > 75 years.
Results: In the overall T1 CRC patients, the OS was significantly shorter in the ER alone group than in the SR group ($p < 0.01$). Among those ≤ 75 years old, that was also shorter in the ER alone group ($p < 0.01$), while in those > 75 years, no significant difference was found in the OS ($p = 0.08$).
Conclusion: Among T1 CRC patients > 80 years of age, there was no difference in the remaining life expectancy, with or without SR with nodal dissection, even if additional SR was indicated after ER based on the current criteria. For elderly patients, T1 CRCs could be initially resected endoscopically, and the indication for additional SR with nodal dissection might be carefully considered.
Disclosure: Nothing to disclose.

PP1034 WITHDRAWN

PP1035

USEFULNESS OF ENDOSCOPE INSERTION USING THE GEL IMMERSION METHOD FOR ENDOSCOPIC COLONIC STENTING

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Introduction: Endoscopic colonic stenting is a treatment method in which a colonoscope is used to insert a self-expandable metal stent (SEMS) into a stenotic site and allow its expansion to alleviate colonic obstruction and permit urgent colonic decompression. It is an effective and extensively practiced minimally invasive procedure compared with emergency surgery. However, perforation, stent migration, and reocclusion may occur. Perforation is particularly a serious adverse event with a mortality rate of 50%. There are three possible causes of perforation:

(1) Local perforation due to stimulation of the stent itself directly into the intestinal tract;

(2) Perforation due to guidewire or catheter manipulation during stent insertion; and

(3) Perforation due to increased pressure in the intestinal tract at the oral side of the obstruction (especially in the cecum) caused by air supply during colonoscopy insertion.

For the first possible cause, an improved colonic stent was developed to reduce irritation to the intestinal tract, and for the second possible cause, a strategy for safe stent insertion was established.

However, perforation due to the third possible cause remains a concern, and appropriate countermeasures should be urgently developed.

In endoscopic colonic stenting, we hypothesized that colonoscope insertion using the gel immersion method, which uses a recently developed endoscopic view-securing gel, would allow safe and rapid access to the lesion without increasing intestinal pressure, thereby decreasing the incidence of perforation.

Aims & Methods: This study aimed to clarify the usefulness of the gel immersion method during colonoscope insertion with endoscopic view-securing gel for colonic stenting. Eight patients in whom colorectal stenting was performed using the gel immersion method between May 2022 and January 2023 were included.

The primary endpoint was the endoscopic lesion reach rate, and the secondary endpoints were the technical and clinical success rates of SEMS deployment, colonoscope insertion time, total procedure time, and adverse event rate.

Results: Of the included patients, four were males (50%), and the mean age of patients was 67.6 ± 15.6 years. Seven patients (87.5%) had colorectal cancer and one patient (12.5%) had gastric cancer. The cancer was localized at the following sites: sigmoid colon in three patients, descending colon in three patients, transverse colon in one patient, and ascending colon in one patient. The purpose of SEMS deployment was bridge to surgery in four (50%) and palliation in four (50%) patients. In all cases, the endoscope was inserted without the preparation and insertion of the endoscope into the lesion at the origin of the obstruction without insufflation, and the endoscopic lesion reach rate was 100% (8/8). No worsening of intestinal dilatation was observed. The technical and clinical success rates each were 100% (8/8). The scope insertion time was 9.8 ± 5.2 min, total procedure time was 27.3 ± 6.5 min, and the adverse event rate was 0% (0/8).

Conclusion: For endoscopic colonic stenting, endoscope insertion using the gel immersion method could be performed safely and effectively and has the potential to become the standard method.

Disclosure: Nothing to disclose.

PP1036

PEUTZ-JEGHERS SYNDROME: OUTCOMES OF SURVEILLANCE AND LONG-TERM COMPLICATIONS

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Introduction: Peutz-Jeghers Syndrome (PJS) is a rare hereditary gastrointestinal (GI) polyposis syndrome, characterised by the development of hamartomatous GI polyps and mucocutaneous pigmentation. The risk of GI and non-GI cancers in PJS is elevated, although the magnitude of the risk that has been reported has varied. A meta-analysis reported a rate of GI tract cancers of 57% by the age of 70 years (Hearle 2006). The malignant potential of Peutz-Jeghers polyps is poorly understood and controversial. Patients with PJS undergo surveillance to detect / prevent cancers and to prevent polyp-related complications of which intussusception is the most common.

Aims & Methods: The outcomes and long-term complications in patients with PJS attending a tertiary referral centre were assessed.

This is a retrospective review of electronic health care records. All patients with PJS were identified from the surveillance database at the Royal Liverpool University Hospital.

Results: 27 patients were identified from the surveillance database. Patient were followed up for 219 patient years. The median follow up was 7 years (range 2-18). The median age was 36 (range 17-67).

258 endoscopic procedures were performed in the cohort. Of those, there were 82 gastroscopies, 80 colonoscopies, 8 sigmoidoscopies, 41 Small bowel Capsule endoscopies (SBCE), 27 antegrade single balloon enteroscopies (SBE), 4 antegrade double balloon enteroscopies (DBE), 2 retrograde SBEs, 1 retrograde DBEs and 13 surgically-assisted panenteroscopies. 44 MRI small bowels, and 14 CT enterographies were undertaken to assess the GI tract.

407 polyps were resected during the follow up period. Of these 60% (n=243/407) were removed by colonoscopy, 13% (n=52/407) by gastroscopy, 10% (n=41/407) by antegrade enteroscopy, 17% (n=71/407) by surgically assisted panenteroscopy. The median number of polyps removed per patient was 7 (range 0-102). There were two perforations following polypectomy. One occurred following a polypectomy of a caecal polyp undertaken at another centre requiring an emergency right hemicolectomy. A second occurred following removal of a 30mm polyp in the duodenum. This was managed successfully with endoscopic through-the scope clips.

The most common polyp-associated complication was small bowel intussusception. 74% (20) had at least one event, 30% (6) subsequently went on to have another intussusception event. The median age of first intussusception was 16 (range 8-38), the median size of polyps leading to intussusception was 25mm (range 15mm-32mm). Of the 20 patients with an intussusception, 70% (n=14/20) required emergency surgery. None of the hamartomatous polyps contained dysplasia. Gastric foveolar-type low grade dysplasia was seen in a duodenal biopsy containing gastric metaplasia. .

No patients developed a GI malignancy. 5 extra-GI malignancies occurred (2 ovarian, 1 lung, 1 thyroid, 1 osteochondroma). All patients were referred for pancreatic cancer screening within an ethically approved study (EUROPAC). All females were referred to a local high risk breast screening unit.

Conclusion: The absence of any GI tract cancers in this cohort of PJS patients could reflect an overestimation of risk in previous studies, a potential protective effect of GI surveillance or the small cohort size. The absence of dysplasia in any of the GI hamartomas supports the position that the malignant potential of hamartomas themselves is low. All intus-

susceptions were caused by polyps > 15mm in size, supporting a strategy of small bowel surveillance and removal of polyps of this size.
Disclosure: No conflict of interest

PP1037

OUTCOMES FROM A VIRTUAL CLINIC DEVELOPED TO MANAGE GI CONSEQUENCES OF COLORECTAL CANCER

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Introduction: Reductions in cancer mortality rates are the result of better screening and the use of improved treatments[1]. Whilst there has been a longstanding awareness of the psychological and social impact of cancer therapy, there has been little emphasis on dealing with the physical symptoms that are a frequent complication of treatment[2]. This can include living with chronic and debilitating bowel symptoms as well as problems with sexual and urinary function[3]. In our hospital, over 400 patients are diagnosed and treated for colorectal cancer annually. Data suggest that up to half, depending on the treatment(s) received, will develop chronic symptoms.
Aims & Methods: A virtual telephone clinic was set up in October 2020. Patients requiring gastroenterology review were identified at follow-up by colorectal cancer nurse specialists, colorectal surgeons or oncology specialists. Patients were reviewed by a Gastroenterology Research Fellow via a telephone consultation and investigations requested following a predefined, structured checklist according to their symptoms.
Results: 66 patients (30 male, 36 female), median age 71 (range 40-89) were reviewed between October 2020 to September 2022. The mean duration of symptoms was 33 months (range 4 to 108). All had been diagnosed with colorectal cancer (20 right colon, 10 left colon and 36 rectum). Previous treatment included surgery (n=31), surgery + chemotherapy (n=13), surgery + radiotherapy (n=4), surgery + radiotherapy + chemotherapy (n=13) and radiotherapy + chemotherapy (n=5).
Patients' symptoms pre-referral and after treatment were assessed objectively using the gastrointestinal symptoms rating scale (GSRS), with a mean GSRS on referral of 25, improving to 16 following investigation and treatment. 10 different symptoms were identified in patients (loose stool (n=45), bloating/wind (n=31), frequency (n=31), urge (n=28), incontinence (n=19), constipation (n=14), abdominal/rectal pain (n=13), mucous discharge (n=6), nocturnal symptoms (n=6) and rectal bleeding (n=1)). Outcomes of investigations are shown in Table 1. The mean overall package of care cost £803.53 (range £86.83 - £1778.49) / patient.

Outcome	Number	Outcome	Number
Constipation	13	Low Anterior Resection Syndrome (LARS)	2
Bile Acid Malabsorption (BAM)	12	Mucous Discharge	2
Dual Pathology	11	Radiation Proctopathy	1
Pancreatic Insufficiency	8	Recurrence	1
Declined Investigation	4	Colitis	1
Small Intestinal Bacterial Overgrowth (SIBO)	3	Anal Fissure	1
Excess Fibre	3	Awaiting Result	1
Fistula	2	Resolved	1

Table 1. showing the outcomes of investigations in patients.

Conclusion: In most patients referred to our specialist clinic, one or more causes for their symptoms were identified. Treatment frequently lead to a dramatic improvement in symptoms. Future recommendations include earlier recognition of patients in need of specialist referral through the use of objective questionnaires. Results from a virtual clinic are consistent with previously reported data from face-to-face consultations.
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Disclosure: There is no conflict of interest to declare.

PP1038

THREE-YEAR OUTCOME DATA FOR PATIENTS DISCUSSED AT NORTHERN REGIONAL COMPLEX RECTAL LESION (CRL) MDT

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Introduction: Queen Elizabeth Hospital (QEH) Gateshead and County Durham and Darlington NHS Foundation Trust (CDDFT) have collaborated since 2018 on a Complex Rectal Lesion (CRL) Multidisciplinary Team Meeting (MDT). The aim is to offer optimal individualised treatment for each patient: conservative management for those who choose or who are more likely to do badly with interventional treatment; organ sparing local resection for all benign and T1 Cancers; and full bowel resection for T2 or greater cancers. Discussing uncertainty and risk with patients is challenging and the CRL MDT values the input of the specialist nurse assigned to each patient to assess fitness and to support patients through the decision-making process. Given the known cancer risk of complex polyps, patients opting for local resection are recommended en bloc resection either with trans-anal surgery or Endoscopic Submucosal Dissection (ESD). We reviewed the outcomes for all patients discussed over a 3-year period.
Aims & Methods: Retrospective case note review of 318 new consecutive CRL MDT patients identified between January 2020 and December 2022 with complex rectal polyps or presumed early rectal cancer. We included patients with either adenoma or adenocarcinoma at final histology and excluded rectal cancer that appeared advanced or deeply invasive endoscopically or on imaging, as these were discussed at the colorectal cancer MDT and local resection was not an option. 305 patients (110 QEH patients and 195 CDDFT) met the inclusion criteria.
Results: Median patient age was 69 years (18 – 91 years). 292 patients were diagnosed at endoscopy, 7 at CT scan, 5 at CT colonography, and 1 at MRI (prostate). Median time between diagnosis and treatment was 75.5 days (interquartile range 70 days). Optimal endoscopic and radiological assessment of rectal lesions is essential to risk stratify these lesions. Prior to first treatment modality the MDT recommended and arranged repeat radiological imaging in 31 patients (10%) and repeat endoscopy in 65 patients (21%). 33 patients (11%) preferred or were recommended conservative treatment. 85 patients (28%) had rectal cancers at final outcome.

15 patients were referred to oncology due to deeply invasive disease on imaging and positive cancer biopsy. The remaining cancer stage post intervention was 50 T1, 15 T2, and 5 T3. 231 patients (76%) who were offered interventional treatment had organ sparing local resection. Major resection was offered to only 19 patients (6%). 3/19 of these were benign adenomas, 8 T1 cancers and 8 T2 or greater cancer at final histology. Table 1 shows breakdown of treatment modality, rate of cancer and T stage at first procedure.

Modality	No	Cancer (% of pt in that modality)	T stage for cancers			
			T1	T2	T3	T4
EMR	75	10 (14%)	9 (90%)	1 (10%)	0	0
ESD	86	11 (13%)	11 (100%)	0	0	0
Trans-anal Surgery	70	33 (47%)	22 (66%)	8 (24%)	3 (9%)	0
Major surgery	19	16 (84%)	8 (50%)	6 (38%)	2 (13%)	0
Chemoradiotherapy	15	15 (100%)	-	-	-	-
Conservative	33	-	-	-	-	-

Table 1. Breakdown of treatment modality, rate of cancer and T stage at first procedure

Conclusion: Getting it right first time is challenging in patients with complex rectal lesions. Optimal staging and careful discussion of all the options with the patient is essential. Approximately 1/3 of patients coming through our CRL MDT ultimately had rectal cancer. 71% of the rectal cancers that had intervention were early stage (T1) with good prognosis which supports en bloc organ-sparing local resection.
Disclosure: Nothing to disclose.

PP1039

COMPARISION OF USE OF SUBMUCOSAL INJECTION SUBMUCOSAL INJECTION USING EPINEPHRINE-ADDED SALINE IN COLD SNARE POLYPECTOMY AND ONLY COLD SNARE POLYPECTOMY FOR COLORECTAL POLYPS: A RANDOMIZED, PROSPECTIVE STUDY FROM PAKISTAN

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Introduction: Complications like Immediate and delayed bleeding , perforation and hemostasis issue after cold snare polypectomy for colorectal polyps might hinder the procedure causing economical burden ,prolong the time required for resection and prolong hospital stay. We investigated whether submucosal epinephrine-added saline injection reduces the complication rate,time required for the cold snare polypectomy (CSP) procedureand hospital stay.
Aims & Methods: We conducted a single-center, prospective, randomized controlled trial. Patients with colorectal polyps were randomly allocated to either CSP with epinephrine-added submucosal injection (CSP-ES group) or conventional CSP (CSP group). The primary outcome was the complication rate including perforation , immediate bleeding (within 5-10 seconds of polypectomy) , delayed bleeding (after 10 seconds of polypectomy) time required for resection (TR), and the secondary outcome was the time to spontaneous cessation of CSP-immediate bleeding(TB).
Results: A total of 75 patients were randomly assigned.105 lesions in these patients (CSP-ES) group, n Z 59; CSP group, n Z 46) were analyzed. The perforation rate was lower in the CSP-ES group(1 % , 95 % CI 0-1.5%) as compared to CSP group(10% , 95 % CI 7 to 13 %) [P<0.001] , similarly immediate bleeding rate was high in CSP group when compared(20%, 95% CI 16 to 25%) [P<0.001] however there was no statistically significant difference in these two groups regarding delayed bleeding as only one patient suffered delayed bleeding in CSP.The TR calculated using the least-square mean was significantly shorter in the CSP-ES group (150.3 s, 95% CI 105.5 to 175.4 s) than in the CSP group (207.9 s, 95% CI 167.2 to 240.7 s (P < 0.001). The TB was also significantly shorter in the CSP-ES group (25.4 s, 95% CI 17.3 to 29.5 s) than in the CSP group (89.2 s, 95% CI 67.6 to 110.7 s) (P < 0.001).
The subgroup analysis by characteristics of the lesion (size , type and location) associated with TR was also performed. According to the size of the lesion, the difference in TR between the two groups was larger when the size of the lesion was > 5 mm (-37.2 s, 95% CI -56.8 to -17.6 s) than when the size of the lesion was < 5 mm (-19.2 s, 95% CI -34.2 to -4.2 s) (p 0.1346). Comparable result was noted in comparison with the type of the lesion (flat type; -26.6 s, 95% CI -41.9 to -11.2 s and polypoidal; -21.9 s, 95% CI -45.1 to 1.1 s)[p 0.73].On comparison by the location of the lesions, the difference in TR between the two groups was larger in the lesions located in the right colon (-29.2 s, 95% CI -44.5 to -13.9 s) than in these located in the left colon (-13.1 s, 95% CI -34.2 to 8.0 s) (p for interaction Z 0.1941).
Conclusion: CSP-ES reduced the complication rate like perforation and immediate bleeding and saved the time for resection and shortened the time to cessation of CSP-IB compared with conventional CSP in colorectal polyps.
Disclosure: Nothing to disclose.

PP1040

PREVALENCE AND CHARACTERISTICS OF COVERT CARCINOMA IN LARGE NON-PEDUNCULATED COLORECTAL POLYPS AFTER PIECEMEAL ENDOSCOPIC MUCOSAL RESECTION

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Introduction: Large non-pedunculated colorectal polyps (LNPCP's) are significant precursors of colorectal cancer, commonly treated by piecemeal endoscopic mucosal resection (pEMR). When histology reveals a focus of adenocarcinoma invading the sub-mucosa, the resection is often considered non curative and salvage surgery is performed. Recent evidence shows that the risk of residual cancer in the bowel wall or lymph nodes of the surgical specimen are uncommon and that in some cases surgery may be avoided even when a focus of invasive cancer is found in the EMR specimen.
Aims & Methods: This is a retrospective observational study aimed to evaluate the prevalence, characteristics, and outcomes of covert carcinoma in LNPCPs resected by EMR in a two academic centers.
Data was collected from a prospective cohort of LNPCPs at two academic centers in Israel. We collected patient, lesion and procedural characteristics prospectively.
EMR was performed by 3 experienced endoscopist with dedicated EMR training. Piecemeal EMR was performed after endoscopic assessment for polyps that were deemed not to have sub-mucosal invasion according to accepted classification systems. Lesions suspected to containing invasive cancer were referred to surgery without endoscopic resection were excluded from the analysis.

For lesions containing invasive carcinoma, data was collected on Kikuchi classification, presence of tumor budding and lymphovascular invasion, grade of tumor differentiation, and status of the deep margin. Surgical data included presence of residual carcinoma in the surgical specimen, grading, margin involvement, and lymph node involvement.

Results: We analyzed 546 LNPCPs referred for resection at the two centers. We identified 27 cases of covert carcinoma, accounting for 4.9% of all LNPCPS resected by piecemeal EMR. A multidisciplinary tumor board deemed resection curative in 7 cases, and 18 patients were refferd for surgical resection. One patient refused surgery, and One patient was lost to follow up.

None of the surgical specimens had lymph node metastasis. In one case residual carcinoma was found in the bowel wall of the surgical specimen. No recurrence of colorectal cancer, presence of metastasis on imaging or elevation of CEA was documented for any of the patients during follow up of two year.

Conclusion: In conclusion, our study shows that covert carcinoma is relatively rare when EMR is performed in a high-volume center by expert endoscopists. In addition, the data suggests that even in these cases, the risk of metastatic disease is probably very low.

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Disclosure: Nothing to disclose.

PP1041

OSMI-1'S FOLATE-TARGETED DISELENIDE-RESPONSIVE LIPOSOME INHIBIT COLON CANCER DEVELOPMENT BY SUPPRESSING OGT-MEDIATED YAP O-GLCNACYLATION

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Introduction: Colorectal cancer ranks second in cancer-related deaths worldwide. O-GlcNAc glycosylation, as a crucial post-translational modification, is overexpressed in various cancer. Hippo pathway effector YAP can be O-GlcNAc glycosylated to promote development of some types of cancer. However, the effects of YAP's O-GlcNAc glycosylation on colorectal cancer growth are poorly understood, and the development of targeted drugs is still blank.

Aims & Methods: We aim to develop a novel anti-colorectal cancer drug targeting OGT and investigate its anti-tumor mechanism. The expression level of OGT, YAP and YAP's phosphorylation were examined through WB, IHC and bioinformatics analysis. YAP's O-GlcNAc glycosylation and OGT/YAP interaction were assessed by molecular dynamics simulations and Co-IP. OSMI-1, an OGT inhibitor, was used to construct an OSMI-1's folate-targeted diselenide-responsive liposome. Basic characteristics of liposome were identified. Next, the effect of OSMI-1's liposome on colon cancer development and invasiveness was examined, and the change of Hippo-YAP pathway as well as downstream gene expression were assessed. Finally, the metabolism, drug distribution, toxicity, and therapeutic effect of OSMI-1's liposome were investigated in subcutaneous tumor mice model.

Results: Based on TCGA and GTEx database, gene of YAP ($p<0.05$) and OGT ($p<0.01$) were remarkably overexpressed in colon cancer. High level OGT gene expression was linked with poor OS ($p=0.016$) and DFS ($p=0.02$). OGT ($p=0.05$) and YAP ($P<0.01$) expression raised with stage. WB and IHC revealed an over-expression of YAP and OGT in both colon cancer tissue and cell lines. Co-IP verified the YAP/OGT interaction and molecular dynamics simulations predicted glycosylation sites of serine 103, 366, and 216, and threonine 213 and 41, which might affect the neighboring amino acids phosphorylation. OSMI-1's folate-targeted diselenide-responsive liposome appeared as stable particles of average 205.5 nm in size. Drug loading amount was 280ug/ml. Mass spectrum indicated a standard $(Cholesterol\text{-}Se)_2$ in liposome and it stably released over 90% of OMSI-1 within 16 hours in GSH/H2O2 environment. IC50 of the drug for colon cancer was 1240ug/ml, while it presented low toxicity to normal colon cell. OSMI-1's liposome effectively inhibited the proliferation and invasion ability of colon cancer cell CACO2 and HCT116. It suppressed glycosylation of YAP but increased its phosphorylation level relatively and YAP presented more cytoplasmic translocation. The downstream target genes CTGF, Bcl-2, E-cadherin, and Vitemin were all significantly downregulated. In nude mice, the drug was significant accumulated at the subcutaneous tumor site within 12 hours and its half-life time was 20 hours. After treated with OSMI-1's liposome for 15 days, the average subcutaneous tumor volume of mice was significantly smaller than OSMI-1 group and the control group ($16.9mm^3$ vs $27.6mm^3$ vs $46.6mm^3$, $p<0.05$, $n=15$), and there was no significant change in the body weight of the mice.

Conclusion: In summary, we successfully constructed an OSMI-1's folate-targeted diselenide-responsive liposome, which exhibited well targetability and efficacy against colon cancer tissue with low toxicity to normal tissue. Furthermore, we demonstrating that OGT inhibition can reduce the YAP's O-GlcNAcylation and enhance its phosphorylation thus suppress YAP nuclear translocation, to suppress the development of colon cancer. Our research provides a brand new targeted therapy for colon cancer, with significant application value and broad development prospects.

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Disclosure: Nothing to disclose.

PP1042

COMPARISON OF POLYP RECURRENCE BETWEEN DIFFERENT POLYPECTOMY TECHNIQUES (CSP VS HSP/EMR)

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Introduction: Endoscopic removal of colorectal polyps has been shown to reduce the incidence and mortality from colorectal cancer. High quality colonoscopy includes careful polypectomy using appropriate technique to ensure complete and safe excision. We compared the outcomes of cold snare polypectomy (CSP) vs hot snare polypectomy (HSP)/endoscopic mucosal resection (EMR) on polyp recurrence.

Aims & Methods: Retrospective data (Jan 2019 to Dec 2020) was obtained from Endoscopy software (HICCS) at a London district general hospital. Number of procedure, polyp characteristics, polyp surveillance and recurrence data were analysed.

Results: 520 polypectomies in 340 patients were analysed, median age 69 (IQR 60-78), male 227 (66.8%). 112 polypectomies were HSP/EMR (median size 11mm). 408 polypectomies were CSP (median size 5mm). Sigmoid and ascending colon polypectomy were most common. 286 (70.0%) of polyps resected by CSP were adenomas (13 high grade dysplasia). 77 (68.8%) of polyps resected by HSP/EMR were adenomas (7 high grade dysplasia) Two adenocarcinomas identified in this group and were subsequently managed with surgical resection.

Surveillance colonoscopy (3–36 months) was carried out in 127 patients (37.4%) and the remainder of the patients either awaiting a planned surveillance or were discharged as per BSG surveillance guidance. Metachronous recurrence rate following CSP was 7.4% (30/408) and HSP/EMR was 8.9% (10/112). 90.0% (9/10) of HSP/EMR recurrence group were polyps ≥10mm and 20.0% (2/10) had high grade dysplasia (HGD). 10.0% (3/30) of CSP recurrence group were polyps ≥10mm and 16.7% (5/30) had HGD.

	CSP	HSP/EMR
Male patient % , median age (IQR)	68.9%, 69 (60-78)	64.3%, 69 (61-80)
Median polyp size (mm), range	5 (1-15)	11 (4-100)
Polyp histology, n (%) Adenoma High grade dysplasia	286 (70.1%) 13 (3.2%)	77 (68.7%) 7 (6.3%)
Polyp location n, (%) Left sided Right sided	187 (45.8%) 221 (54.2.3%)	60 (53.6%) 52 (46.4%)
Recurrence in 3-36 months n (%)	30 (7.4%)	10 (8.9%)

Table 1. Results Summarised.

Conclusion: The recurrence rate in our cohort was similar in both CSP and HSP/EMR however the study is limited by a small sample size. The larger polyps and/or with high grade dysplasia as expected had higher recurrence rates irrespective of polypectomy technique.

Disclosure: Nothing to disclose.

PP1043

GENOME-WIDE CRISPR/CAS9 SCREENING FOR SENOLYTIC TARGETS IN PALBOCICLIB-INDUCED SENESCENT COLORECTAL CANCER CELLS

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Introduction: Colorectal cancer (CRC) is the third fatal cancer in the world and medicine resistance is a clinical difficulty to be solved urgently. Cells subjected to treatment with anti-cancer therapies can evade apoptosis through cellular senescence. Persistent senescent tumor cells remain metabolically active, possess a secretory phenotype, known as the senescence-associated secretory phenotype (SASP) and can promote tumor proliferation and metastasis. While the cell senescence may represent an initial desirable outcome of treatment, prolonged presence of senescent cells can be deleterious. Therefore, removal of senescent tumor cells (senolytic therapy) combined with pro-senescence therapies has emerged as a promising therapeutic strategy.

Aims & Methods: The aim of this study is to screen the senolytic targets of palbociclib induced senescence CRC cells using genome-wide CRISPR/Cas9 technology.

The senescence of CRC cells induced by palbociclib, a cyclin-dependent kinase (CDK4/6) inhibitor, was confirmed by senescence associated β-galactosidase (SA-β-gal) assay and western blot. The expression of SASP gene was detected by RT-PCR. Next CCK8, Annexin V-PI assay kits and transwell co-culture system were used to detect the effect of SASP on the medicine resistance, apoptosis, invasion and migration of CRC cells.

A genome-wide CRISPR/Cas9 knockout library was applied to screen the senolytic target-MCL1 in palbociclib induced senescent CRCcells. Subsequently, the proliferation and apoptosis of doxycycline induced MCL1 knockdown CRC cells treated with palbociclib were investigated by CCK8 assay and flow cytometry. We further analyzed the effect of MCL1 inhibitor S63845 on the elimination of palbocicib-induced senescent CRC cells in vitro and in vivo.In vitro, the cell senescence and apoptosis were analyzed through SA-β-gal assay and flow cytometry respectively. In vivo, PDX mouse model of CRC was established to evaluate the senolytic effect of S63845.The expression of senescence markers P21 and Ki67 in tumor tissues was evaluated by immunohistochemistry.

Results: SA-β-gal assay verified that palbociclib could induce cell senescence. The expression of senescence-related marker proteins P53, P21 and P16 increased in a dose-dependent manner, and the expression of SASP factor gene increased in a dose - and time-dependent manner. SASP could enhance the resistance and anti-apoptosis ability of CRC cells to palbociclib as well as the invasion and migration ability.Subsequently, we screened and identified MCL1 as a senolytic target for palbociclib induced senescent CRC cells through genome-wide CRISPR/Cas9. Doxycycline conditional knockdown of MCL1 not only enhanced the sensitivity of CRC cells to palbociclib treatment, but also promoted apoptosis in palbociclib induced senescent CRC cells. S63845 also increased apoptosis and reduced the positive rate of β-galactosidase staining in palbociclib induced senescent CRC cells. In vivo,mice treated with the combination of palbociclib and S63845 showed a stronger reduction in tumor volume without the side effect of weight loss. We observed combination treatment massively eliminated senescence in the tumors as judged by P21and Ki67 staining.

Conclusion: The “one-two punch“ therapy in which palbociclib induces senescence and MCL1 inhibitor eliminates senescent cells can achieve great long-term cancer inhibition effect, which opens up a new strategy for CRC treatment.

Disclosure: Nothing to disclose.

PP1044

PERITONEAL TUBERCULOSIS : PREDICTIVE FACTORS OF DELAYED RESPONSE TO ANTI-TUBERCULOSIS TREATMENT

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Introduction: Tuberculosis is a major public health problem in Tunisia. The pulmonary form, which is the most common, is decreasing while there is an increase in extra-pulmonary forms. Peritoneal tuberculosis is one of the most frequent of these localizations and is characterized by a diversity of clinical, radiological, and evolutionary aspects.

Aims & Methods: The aim of this work is to study the epidemiological, clinical, laboratory, radiological, and evolutionary characteristics of peritoneal tuberculosis in a Tunisian center in order to determine predictive factors for delayed response to anti-tuberculosis treatment.

This was a retrospective, descriptive study conducted at the Hepatogastroenterology Department of Fattouma Bourguiba University Hospital in Monastir, covering a period of 17 years (from 2005 to 2022), collecting all patients presenting with peritoneal tuberculosis. Epidemiological, clinical, radiological, therapeutic and evolutionary data were collected. The diagnosis confirmation relied on anatomopathological evidence.

Results: In total, 6 men and 30 women with a mean age of 42.6 years (ranging from 14 to 69 years) were included. Two patients (5.6%) had a personal history of tuberculosis, and a history of tuberculosis contact was found in 6 patients (16.7%).

The circumstances of discovery were variable, dominated by ascites in 56% of cases (20) and abdominal pain in 19% of cases (7). The average delay between the onset of symptoms and consultation was 2.2 months.

Diagnostic paracentesis revealed exudative ascites with an average protein level of 53g/L (32-70), with a mean cell count of 1560 white blood cells/mm3 (100-8000), and a lymphocytic predominance ranging from 65 to 100% (100-7600).

The complete blood count showed lymphopenia in 19.4% of patients (7) and leukocytosis in 8.3% of cases (3).

Abdominal CT scan showed peritoneal nodules in 38.9% of cases (14) and ascites in 72.2% of cases (26) compared to 63.9% (23) and 88.9% (32), respectively, on diagnostic laparoscopy.

The diagnosis was confirmed by histopathological examination, which showed a giant cell granuloma in all cases. In 75% of cases (27), it was associated with caseous necrosis.

An extra-peritoneal localization was found in 41.6% of cases (15), with lymph node and liver involvement being the most common, accounting for 19.4% (7) and 11.1% (4) of cases, respectively.

All patients were treated with the same therapeutic protocol, which consisted of HRZE for 2 months, followed by HR for 4 months.

The patients were clinically and biologically monitored at M1 and M2, and underwent an abdominal CT scan between M6 and M8. The course of the disease was marked by drug toxicity in 19.4% of cases (7), mostly hepatic in 5 cases, including 1 case of severe acute hepatitis.

The cure was achieved at 6 months in 25 patients (69.4%). For the other patients, the cure was delayed: at 12 months for 7 patients and at 18 months for 3 patients, with one death case.

We conducted an analytical study to identify predictors of unfavorable outcome. The factors studied were the presence of other extra-peritoneal localizations, drug toxicity requiring treatment adaptation, initial CRP and albumin levels, and vaccination against BCG.

Non-vaccination and the presence of secondary locations were associated with a negative outcome (p=0.03 and 0.028).

Conclusion: Peritoneal tuberculosis remains a public health problem in Tunisia, affecting mainly young female subjects. Clinical signs are varied, with isolated ascites being the most common. Treatment effectiveness is reduced in non-vaccinated patients with extra-peritoneal involvement.

Disclosure: Nothing to disclose.

PP1045

IMPLEMENTING A COMMUNITY BASED FAECAL IMMUNOCHEMICAL TEST (FIT) STRATEGY INCREASES THE YIELD OF COLORECTAL CANCER DIAGNOSIS AT COLONOSCOPY

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Introduction: In the UK guidance National Institute of Clinical Excellent (NICE) guidance [1] advised early referral for colonoscopy based on symptoms suggesting lower GI malignancy. In June 2022 updated national guidance [2] was published recommending the use of FIT for all community based referral for colonoscopy. A regional FIT testing strategy (cut off 10gHb/g faeces) was implemented from July 2022.

Aims & Methods: To evaluate the outcome of implementing a community based FIT strategy on a regional Health Board colonoscopy service, focussing on diagnostic rates for colorectal cancer (CRC). Data sources included laboratory based FIT registry, EMS endoscopy reporting system and Welsh Clinical Portal (pathology, laboratory, and imaging) for all patients with a community based FIT test between July-December 2022. CRC rates for this cohort were compared with 1) Index Bowel Screening Wales programme patients (aged between 58 and 74 years of age) (referred if FIT result >120 ugHb/g faeces) undergoing colonoscopy in the same time period [n=180], and 2) a historical cohort of symptomatic patients [n=191, 78M:113F, mean age 47.7years, range 18-92] referred for lower GI endoscopy (July-December 2021) when symptom-based referral criteria applied. Differences between the CRC detection rates between each cohort were tested using the Chi-squared test.

Results: A total of 3291 FIT tests were performed (Jul-Dec 2022), 162 were positive (FIT+ rate 4.9%) [89M,73F; mean age 65.7years (range 23-91)]. 48/162 (29.6%) were anaemic. Of the FIT+ cohort 107 underwent colonoscopy and 36 had CT colonography (21 did not complete definitive diagnostic testing). 17/162 (10.4%) had colorectal cancer, with a further 20 (12.3%) have advanced neoplasia. CRC rates increased with increased FIT values: 10-80, 4.8%; 80-120, 11.1%; 120-400, 18%; >400, 25.9%. 107 colonoscopies performed to screen the FIT test cohort detected 16 CRC (14.9% detection rate and were significantly higher than comparator groups attending for colonoscopy; 12/180 (6.7%) in the BSW group [Chi-squared=6.18, d.o.f.1, p<0.025], and 3/191 (1.6%) in the historical symptomatic cohort [Chi-squared=20.65, d.o.f. 1, p<0.001]. Clinically important incidental pathology was detected in a further 11 patients during the course of their investigative pathway.

Conclusion: A regional community FIT testing strategy has been successfully implemented and supported. This has increased significantly diagnostic yield of CRC at colonoscopy vs previous symptom-based referral and national screening programmes. These benefits must be offset against the additional costs of FIT testing, providing clinical oversight and pathway safety netting and managing incidental pathology detected.

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Disclosure: Nothing to disclose.

PP1046

PROGNOSIS OF LOW-RISK PT1 CRC LOCALLY RESECTED EN BLOC AND IN PIECEMEAL - COMPARATIVE STUDY WITH TWO INTERNATIONAL COHORTS: EPIT1 CONSORTIUM AND DUTCH T1 GROUP

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Introduction: There is controversy about the management of low-risk pT1 CRCs resected in piecemeal, due to impossibility in assessing margins and potential suboptimal histological risk stratification in a fragmented and cauterized specimen.

Aims & Methods: Aims:To compare en bloc and piecemeal resected low-risk pT1CRC in terms of overall survival (OS) and metastasis free survival (MFS).

Materials and Methods: Low risk pT1 CRCs (no poor differentiation and no lymphovascular invasion) either piecemeal or en bloc resected were selected from two combined European multicenter cohorts (EpiT1 Consortium and Dutch pT1CRC study group). The exclusion criteria were primary surgical treatment, incomplete local resection, lack of information on type of resection , lack of follow-up of at least 2 years. The outcomes studied were metastasis free survival(MFS) and overal survival(OS). Cox regression analysis was performed adjusting for rectal location, size, and peduncu-lated morphology.

Variable	Piecemeal (N = 822)	En bloc (N = 3096)	P
Age, median±SD	66.88 ± 9.7	66.59 ± 9.4	0.46
Female Sex, n (%)	317 (38.6)	1168 (37.7)	0.66
ASA Classification ,n (%) I-II III-IV	N=795 636 (80.0) 159 (20.0)	N=2971 2399 (80.7) 572 (19.3)	0.63
Polyp size, mm, DE	28.04+13.23	18.93+10.32	<0.001
Location, n (%) Rectum No rectum	N=818 284(34.7) 534 (65.3)	N=3079 816 (26.5) 2263(73.5)	<0.001
Morphology Not Pedunculated Pedunculated	N=789 516 (65.4%) 273 (34.6%)	N=3002 1263 (42.1%) 1739 (57.9)	<0.001
Treatment Surveillance Oncological surgery	N=822 441(53.6%) 381 (46.4%)	N=3096 2366 (76.4%) 730 (26.6%)	<0.001

Table 1. Baseline characteristics of the patients (Multivariate analysis)

Results: Results: 3918/7043 patients with a pT1 CRC met the inclusion criteria: 822 (21%) resected in piecemeal and 3096 (79%) resected en bloc (Table 1). After local treatment, 46.6% in the piecemeal group received completion oncological surgery and 26.6% in the en bloc group. Adjusted 5-yrs MFS was lower for the piecemeal resected pT1 CRCs (94.6% (95%CI) vs. en bloc 97.4% (95%CI);p=0.001). Within the piecemeal resected pT-1CRC group, the adjusted 5-yrs MFS did not differ between the group which underwent completion surgery versus the group who received only surveillance. (93.7%(95%CI) vs 96.3% (95%CI), p=0.08). Patients with a pT1 CRC resected in piecemeal followed by secondary surgery showed more endoluminal recurrence than en bloc resected pT1 CRCs followed by surveillance (10.8% VS 1.6%, p<0.00), higher proportion of distant metastasis (13/381 (3.4%) vs 14/730 (1.9%), p = 0.04) despite a similar 5-yrs MFS (96.3% vs 97.8%, p=0.08).

Conclusion: Conclusions: Even after secondary surgery Piecemeal resected pT1 CRC have a worse outcome than en bloc resected pT1 CRCs with surveillance . This is probably due to suboptimal histological risk stratification in a fragmented and cauterized specimen.

Disclosure: Nothing to disclose.

PP1047

FOUR DECADES OF ENDOSCOPIC SURVEILLANCE IN LYNCH SYNDROME REVEALS A HIGHER COMPLICATION RATE - A RETROSPECTIVE COHORT STUDY ON SAFETY AND ADVERSE EVENTS

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Introduction: Lynch syndrome (LS) is a hereditary cancer syndrome, with an increased lifetime risk of developing colorectal cancer (CRC). Current guidelines recommend colonoscopy intervals of 2 years which requires high procedural quality for the patient's safety. Although colonoscopy is a relatively safe procedure, there are risks of adverse events (AEs) such as perforation, bleeding, splenic injury and death. Thulin et al 2019, showed that the relative frequency of bleeding and perforation varies in Sweden (bleeding: 0.02%–0.27%; perforation: 0.02%–0.27%). There are insufficient data regarding safety and quality of coloscopy surveillance for LS patients.

The aim of this study was to investigate the risk of AEs amongst LS patients during colonoscopy.

Aims & Methods: There are insufficient data regarding safety and quality of coloscopy surveillance for LS patients. The aim of this study was to investigate the risk of AEs amongst LS patients during colonoscopy.

Retrospective cohort study including 366 LS patients in endoscopic surveillance at the Karolinska University Hospital, August 1989-April 2021. Data from endoscopic surveillance colonoscopies were extracted from standardized protocols and medical records.

Results: Out of 1,887 endoscopies, 11 complications were documented within 30 days (0,58%). In this study 5/1887 (0,26%; 5/366 pts, 1,3%) endoscopies led to a documented complication of bleeding or perforation. Total number of colonoscopies per patient leading to occurrence of one complication were 6 (mean, 0-12).

Conclusion: Complications were higher compared to previously described data regarding AEs in Sweden. Due to high number of performed colonoscopies of LS patients, the lifetime risk for participation in a surveillance program needs to be considered in health economic risk-benefit analyses. Experienced high-volume endoscopists at selected centers and adherence to appropriate surveillance intervals may decrease the risk of complications.

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PP1048

COMPARISON OF TEM AND ESD IN EARLY RECTAL TUMOURS: RESULTS OF THE MUCEM STUDY (GRECCAR13 FRENCH04)

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Introduction: Only retrospective single-centre studies have compared the efficacy of transanal endoscopic microsurgery (TEM) and endoscopic submucosal dissection (ESD) for the local excision of early rectal tumours (ERT).
Aims & Methods: This was a multi-centre prospective comparative study of parallel cohorts, according to a "here-elsewhere" design. The main objective of the study was the cost-effectiveness analysis, the effectiveness being defined by the rate of complete resection. We present here the clinical, oncological and quality of life results according to the SF-36 and GIQLI scores. The medico-economic results, not yet available, will be presented during the congress. The inclusion criteria were any ERT (adenomas or usT1N0 adenocarcinomas) that could be treated either by TEM or ESD. Preoperative radio-chemotherapy was a non-inclusion criterion.
Results: We included 215 ESDs and 119 TEMs. The patients were comparable for age (p=0.62) and BMI (p=0.08). Tumours were comparable for the distance of the lower limit (ESD 4.8 ± 4 cm vs. TEM 5.8 ± 5 cm; p=0.21) and the upper limit (ESD 8.5 ± 4 cm vs. TEM 7 .7 ± 4 cm; p=0.317) of the tumour from upper limit of the internal sphincter, and its semi-circumferential (p=0.64) and circumferential aspect (ESD 3.5% vs. TEM 7.7%; p =0.29). Tumour size was greater in the ESD group (39.2 ± 18 mm vs. 30.8 ± 16 mm; p=0.004). The adenocarcinoma rate (ESD 21.8% vs. TEM 32.6%; p=0.08) and the degree of deep invasion were also comparable (ESD 381.6 ± 663 microm vs. TEM 389, 1 ± 1318 microm; p=0.97). The complete excision rate was comparable (ESD 84.5% vs. TEM 76.9%; p=0.12), but the en-bloc excision rate was in favor of ESD (99% vs. 91, 2%; p=0.001). Overall (ESD 9.4% vs. TEM 11.9%; p=0.50) and major morbidities(ESD 2.3% vs. TEM 4.2%; p=0.70) were comparable. Length of stay was reduced for ESD (ESD 2.2 ± 1 days vs. TEM 3.5 ± 3 days; p<0.001). At 3 years, overall survival was comparable (ESD 95.3% vs. TEM 97.4%; p=0.71) whereas recurrence-free survival was better after ESD (ESD 89.7% vs. TEM 78, 9%; p=0.005). Digestive quality of life was better after ESD at M1, M12, M24 and M36 although comparable preoperatively between the 2 groups.
Conclusion: The results of this study are in favor of ESD compared to TEM for ERT in terms of quality of excision, recurrence and quality of life.

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Park SU, Min YW, Shin JU, Choi JH, Kim YH, Kim JJ, Cho YB, Kim HC, Yun SH, Lee WY, Chun HK, Chang DK.
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PP1049

INCREASED USE OF HYPOFRACTIONATED RADIATION TREATMENT IN RECTAL CANCER

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Introduction: There are two approaches for neoadjuvant treatment in locally advanced rectal cancer: conventional radiotherapy (RT) with concomitant chemotherapy and hypofractionated RT. In the RAPIDO study, preoperative hypofractionated RT versus conventional chemo-radiotherapy was proven to be equally effective. In our country and in our center (approximately 90%) previously, the standard treatment was conventional RT, however due to the COVID 19 pandemic in 2020, an increase in the use of hypofractionated RT was observed, this because it was a more accessible therapy for patients due to visits. In our country, the results of hypofractionation therapy compared to a conventional one have not been explored, therefore we decided to compare the outcomes between these modalities.
Aims & Methods: To compare early radiotoxicity of conventional vs. hypofractionated RT.
Methods: Retrospective study conducted in a national reference cancer center at National Institute of Cancer (INCAN) at Mexico City, during the period of April 2020 to December 2020.
Results: We analyzed 61 patients with rectal adenocarcinoma. Locally advanced were 91.8% and metastatic 8.2%. By tumor location upper third 11.4%, middle third 16.4%, middle third 72.1%. Regarding treatment, 72.1% received hypofractionation (25Gy in 5 fractions) and 27.9% conventional (45-50.4 Gy in 25-28 fractions). Techniques used 93.4% 3DCRT, 4.9%

IMRT and 1.6% VMAT. Regarding general toxicity, it was observed in 30 patients (68%) in the hypofractionated group and 11 patients (64%) in the conventional treatment group p=0.794. Type of radiotoxicity is described in table 1. We observed a greater radiation mucositis grade 3 in the hypofractionated group compared with standard therapy. The other types were similar with no statistical significance. Table 1.

	25Gy/5Fx	45Gy/25Fx	*p*
Proctitis	Grade 1: 17(38%)	6 (35%)	
	Grade 2: 3 (6.8%)	1 (17.6%)	0.383
Cystitis	7 (15%)	0 (0%)	0.80
Radiation mucositis	Grade 1: 3 (6.8%)	1 (17.6%)	
	Grade 3: 1 (9.1%)	3 (5.9%)	0.017

Table 1.

Conclusion: We observed a considerable increase in the use of hypofractionation in which we did not observe proctitis and cystitis in relation to conventional treatment, however caution and special attention must be exercised in radiation mucositis. We can increase the use of hypofractionated treatment with almost similar radiotoxicities. Further prospective studies are required to confirm these findings.

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Disclosure: Nothing to disclose.

PP1050

BERGEN BRAINGUT STUDY: GUT INTEGRITY MARKERS AND TIGHT JUNCTION PROTEINS FOLLOWING A 12-WEEK STRICT LOW FODMAP DIET IN PATIENTS WITH IRRITABLE BOWEL SYNDROME

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Introduction: The interdisciplinary Bergen BrainGut study was designed to stratify the complex interaction between the brain, gut and microbiota in patients with irritable bowel syndrome (IBS) (1). IBS has been associated with increased gut permeability and impaired gut barrier integrity and function.

Aims & Methods: In this in-depth substudy, we aimed to assess relevant biomarkers by analysing plasma levels of gut integrity and permeability markers in patients with IBS with moderate to severe symptoms (n = 36, IBS-SSS > 175), compared to healthy controls (HCs, n = 20), and investigate changes after a dietitian-led strict 12-week low FODMAP diet (LFD) and changes in IBS symptom severity score (IBS-SSS; only patients). Responders were classified as having ≥ 50 p reduction in IBS-SSS from baseline to week 12. Blood samples were collected at baseline and after 12 weeks. ELISA was used to analyse the gut integrity markers intestinal fatty acid-binding protein (i-FABP), lipopolysaccharide-binding protein (LBP) and zonulin, and tight junction proteins Zonula Occludens 1 (ZO1) and Claudin-1 in plasma.

Results: Fifteen patients were classified as IBS-D (diarrhea), 21 as IBS-M (mix of diarrhea and constipation), mean age 38 years, 46 (77%) females and 20 HCs with a mean age 30 years, 13 (65%) females. At baseline, trends indicated higher levels of ZO1, LBP and Claudin-1, lower levels of i-FABP, and similar levels of zonulin in IBS compared to HCs. However, there was no statistically significant difference observed. Overall, there was a significant reduction in IBS-SSS after the 12-week strict LFD ($p < 0.005$), and 80% (n = 28) were classified as responders. Analysis of blood samples collected at 12 weeks revealed a trend of reduced levels of ZO1, i-FABP, LBP and Claudin-1.

However, these were not statistically significantly different from baseline concentrations. No change was seen in zonulin following LFD. At baseline, higher IBS-SSS was associated with higher levels of i-FABP ($r = 0.394$, $p = 0.031$), but no associations between gut integrity or tight junction protein markers was observed at week 12. No difference in plasma levels was observed between responders and non-responders post LFD.

Conclusion: Higher symptom severity was associated with higher levels of i-FABP at baseline, but no associations with gut integrity markers or tight junction proteins were observed following a 12-week LFD despite the significant reduction in symptom severity. Hence, our results provide no clear evidence of differences in plasma levels of gut integrity markers and tight junction proteins in IBS patients compared to HCs, nor between LFD responders and non-responders.

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Disclosure: Nothing to disclose.

PP1051

BERGEN BRAINGUT STUDY: FUNCTIONAL BACTERIAL PROFILE IN PATIENTS WITH IRRITABLE BOWEL SYNDROME AND CHANGES FOLLOWING A STRICT 12-WEEK LOW FODMAP DIET

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Introduction: The interdisciplinary Bergen BrainGut study was designed to stratify the complex interaction between the brain, gut and microbiota in patients with irritable bowel syndrome (IBS) (1). Some bacterial species have a critical function in the gut and a functional bacterial profile is useful to identify potential dysfunction when there are observations of deviation from expected normal abundance (Table 1).

Aims & Methods: In this in-depth sub-study we aimed to assess the functional bacterial profile and dysbiosis in patients with IBS compared to healthy controls (HCs), and investigate changes in the patients after a dietitian-led strict 12-week low FODMAP diet (LFD). Sixty patients with Rome IV-confirmed IBS (mean age 38 years, 46 (77%) females) with moderate to severe symptoms (IBS-SSS > 175), and 42 HCs (mean age 35 years, 27 (64%) females) were included. Participants answered IBS Symptom Severity Scale (IBS-SSS) and delivered fecal samples at baseline (IBS and HC) and 12 weeks post LFD (IBS only). Functional bacterial profiles were assessed by GA-map™ Dysbiosis Test Lx® based on 16s rRNA sequence of bacterial species or groups (Table 1). Patients were classified as LFD responders if they had a ≥ 50-point reduction in IBS-SSS from pre to post LFD. Dysbiosis was classified as dysbiosis index (DI) > 2 (range 0-5).
Results: Twenty-one patients were classified as IBS-D (diarrhea), 31 IBS-M (mixed diarrhea and constipation) and eight IBS-C (constipation). Thirty-six patients with IBS-M and IBS-D completed the 12-week LFD. At baseline, the relative frequency of dysbiosis was higher in IBS (24.6%) compared to HCs (5.6%, p = .023), but no significant difference in functional bacterial profile was observed between the groups. In week 12, patients showed a significant reduction in symptom severity (IBS-SSS, p < .005) and a significant increase in dysbiosis (BL: 17.6% vs week 12: 58.8%, p < .001). Eighty percent (n = 28) were classified as responders, but no significant change in functional bacterial profile from pre to post LFD was observed for this group, nor between responders and non-responders post LFD.

Functional profiles	Description
Butyrate producing bacteria	Low levels or balance in butyric acid producing bacteria: *Eubacterium hallii, Eubacterium rectale* and *Faecalibacterium prausnitzii*
Gut mucosa protective bacteria	Low levels or balance in important gut mucosa protective bacteria: *Faecalibacterium prausnitzii* and *Akkermansia muciniphila*
Gut intestinal health marker	Low levels of or balance of *Faecalibacterim Prausnitzii*, a key bacterium that promotes gut intestinal health
Gut barrier protective bacteria and potentially harmful bacteria	Balance or imbalance of gut barrier protective bacteria and potentially harmful bacteria: *Faecalibacterium prausnitzii, Ruminococcus gnavus,* Proteobacteria and Shigella spp. & Escherichia spp.
Pro-inflammatory bacteria	High levels or balance in pro-inflammatory bacteria: Proteobacteria and Shigella spp. & Escherichia spp.

Table 1. Description of functional bacterial profiles. Modified table from ga-map.com.

Conclusion: Although the literature suggests a different bacterial profile in IBS compared to healthy controls, our results provide no evidence for a difference in functional bacterial profile between IBS and healthy controls, nor associations with changes in symptom severity score. However, the relative frequency of dysbiosis in patients with IBS increased after a 12-week strict low FODMAP diet as avoiding some of the high FODMAP food items in a long period might lead to missing their prebiotic effects in gut.
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PP1052

PATHWAYS LINKING ADVERSE CHILDHOOD EXPERIENCES TO ADULT DISORDERS OF GUT-BRAIN INTERACTION: UPREGULATION OF ADVERSE PSYCHOLOGICAL TRAITS AND DOWNREGULATION OF POSITIVE TRAITS

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Introduction: The biopsychosocial model that underpins our understanding of disorders of gut-brain interaction (DGBI) has childhood trauma as a predisposing factor for adult symptoms[1]. The model is supported by empirical data linking childhood emotional, physical and sexual abuse to the severity of adult gastrointestinal (GI) symptoms[2].
However the mechanisms by which childhood trauma affects GI symptom burden later in life are poorly understood. Given the strong association between a number of adverse psychological traits and elevated GI symptom burden, one theory is that childhood adverse experiences (ACEs) induce a widespread negative attitude which might manifest as high levels of neuroticism and anxiety, among other possible traits[3,4], leading to increased allostatic load and amplified perception of bodily sensations[5]. However whether this is actually what happens remains unknown.
Aims & Methods: We aimed to empirically evaluate the hypotheses that:
1. Traits that are negative at high levels, neuroticism, anxiety and depression provide indirect positive paths between ACEs and adult GI symptom burden
2. A trait that may buffer the effect of ACEs, higher dispositional mindfulness, provides a risk-protective path between ACEs and adult GI symptom burden
In contrast to many previous studies, we used a validated measure of ACEs[6] as well as considering individual traumatic events. GI symptom burden was measured via the gastrointestinal symptom rating scale (GSRS)[7] and other psychological traits through validated measures. Our primary hypotheses were tested via path models.
Results: A sample of n=241 community individuals was recruited, of whom n=10 reported a physician diagnosis of an organic GI condition and were excluded. Of the remaining sample, 38% (n=88) met Rome IV criteria for irritable bowel syndrome and/or functional dyspepsia and 76% were female. The sample was generally young adults with mean age 19 years (SD=2, min=18, max=36).
GSRS scores correlated positively with overall ACEs score (r=0.16, p=0.02), neuroticism (r=0.35, p<0.001), anxiety (r=0.38, p<0.001), depression (r=0.27, p<0.001), but negatively with dispositional mindfulness (r=-0.39, p<0.001). Conversely, ACEs scores correlated positively with neuroticism (r=0.34, p<0.001), anxiety (r=0.23, p<0.001), depression (r=0.22, p=0.001), but negatively with dispositional mindfulness (r=-0.32, p<0.001).
Of the individual paths between ACEs and GSRS taken separately, the strongest was for mindfulness which explained 74%, followed by neuroticism which explained 70% of the association between ACEs and GSRS. In a model (Figure 1) where all psychological traits are considered jointly, 98% of the association between ACEs and GSRS, 98% is accounted for by indirect paths via psychological traits. Of these paths, the strongest are via mindfulness (44%) and anxiety (23%).
Conclusion: This study provides empirical support for the hypothesis that adverse childhood experiences are associated with later adult GI symptom burden via upregulation of adverse psychological traits and downregulation of positive traits (mindfulness). These findings offer opportu-

nity for early intervention with the buffering effects of positive traits and support previous findings that mindfulness can act as a buffer to negative traits, such as neuroticism[8].

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Disclosure: Nothing to disclose.

PP1053

CORRELATION ANALYSIS BETWEEN AUTONOMIC NERVOUS FUNCTION AND CLINICAL MANIFESTATIONS OF PATIENTS WITH FUNCTIONAL CONSTIPATION

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Introduction: Abnormal brain-gut interactions have a role in functional gastrointestinal disorders. The ANS is influenced by emotions, possibly affecting anorectal physiological function and the disease status of patients with constipation. However, their correlations are unclear.

Aims & Methods: To determine the association between autonomic nervous system (ANS) function and psychological status, symptoms of constipation, and life quality of functional constipation (FC) sufferers. According to Heart rate variability (HRV) tests, 139 FC sufferers were classified into low frequency (LF)/high frequency (HF) normal, LF/HF sympathetic, and LF/HF parasympathetic groups. The results of Zung's Self-Rating Anxiety and Depression Scale (SAS/SDS), Constipation Scoring System (CSS), Patient Assessment of Constipation Symptom (PAC-SYM), and the Patient Assessment of Constipation Quality of Life (PAC-QOL) were compared.

Anorectal manometry and electrointestinogram parameters were assessed. The associations between the patients' life quality and ANS function, mental or psychological status, and constipation symptoms were assessed.

Results: Anorectal physiology and intestinal electric activity were not different among the groups. Compared with the LF/HF normal group, the sympathetic group had a higher SAS/SDS score, a higher PAC-SYM score and a higher PAC-QOL score. The parasympathetic group manifested the highest CSS score, which might result from a predominance of depression. Regression analysis showed that anxiety/depression and ANS functional state significantly affected the life quality of FC sufferers.

Conclusion: FC sufferers with autonomic dysfunction apparently coexisted with anxiety/depression. The life quality of FC sufferers was negatively affected by ANS function and anxiety/depression. Autonomic adjustments, psychological interventions, and central nervous system drugs might help to treat FC.

Disclosure: Nothing to disclose.

PP1054

PSYCHOLOGICAL MORBIDITY AND ATOPY DIFFERENTIATE INDIVIDUALS WHO ARE DIAGNOSED WITH DISORDERS OF GUT-BRAIN INTERACTION IN CHILDHOOD VS ADULTHOOD

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Introduction: Although the peak prevalence of disorders of gut-brain interaction is in the 40-50 year range[1], the biological and psychological processes leading to a diagnosis are thought to start in childhood[2]. Some individuals are diagnosed early in life but for many the diagnosis comes much later. Risk factors for a diagnosis have been well studied and include psychosocial factors[3] and demographic factors, particularly female gender[4]. However determinants of how early an individual receives their initial diagnosis is not well studied and is an important question since it has been shown that early intervention in gastrointestinal disorders can lead to long-term resolution of symptoms[5].

Aims & Methods: This study sought to:

1. Describe the age at first diagnosis of irritable bowel syndrome (IBS) or functional dyspepsia (FD) in general practice
2. Identify clinical determinants of individuals who are diagnosed as children vs adults
3. Among children diagnosed with IBS or FD, identify clinical determinants of those who receive a further diagnosis as adults

The sample was obtained from general practice electronic medical records via The Health Improvement Network (THIN)[6] which has been shown to be representative of the health care-seeking United Kingdom population. We report on two samples, sample 1 combined patients with record of IBS and/or FD plus a large sample of individuals with no recorded gastrointestinal conditions. Sample 2 included patients on the basis of receiving a clinical diagnosis of IBS or FD at some point in their medical record. To ensure the potential for child and adult diagnoses, patients had to have been with the practice from at least the ages of 12 years to 25 years.

Results: Sample 1 comprised 1.27 million patients. A total of n=16,663 met all inclusion criteria for sample 2, were with their practice, on average, between the ages of 8 and 29 years and 36% were female.

Overall, a childhood DGBI diagnosis was identified in 1.3% (n=16206) and an adult diagnosis in 31% (n=393148) of patients. Across the sample, the mean age of first FGID diagnosis was 45 years (SD=18), being younger for IBS (mean=40, SD=16) than FD (mean=49, SD=18). Childhood diagnoses were first made, on average, at age 14 years (SD=3) and this was similar for IBS (mean=14, SD=3) and FD (mean=13, SD=4).

Among the sample 2 there were relatively few clinical diagnoses that differentiated patients whose first DGBI diagnosis came as a child rather than in adulthood. A lifetime diagnosis of eczema was more common in childhood onset (39% vs 34%) as was a lifetime diagnosis of recurrent abdominal pain (0.6% vs 0.1%) and type I diabetes (1.2% vs 0.7%).

Of patients diagnosed in childhood, 19% (n=542) received a further diagnosis as adults. Prominent factors that differentiated these patients from those who did not included these patients were less likely to be female

(27% vs 40%), twice as likely to receive a lifetime diagnosis of anxiety (24% vs 12%) or depression (38% vs 18%) and a lifetime diagnosis of sinusitis (22% vs 11%).

Conclusion: In general practice, patients are more likely to be diagnosed with a DGBI as adults rather than in childhood. The factors that differentiated these groups are known to be risk factors for DGBI, such as eczema, and point to early predispositions to disorders expressed in the GI tract as well as elsewhere. This study suggests that DGBI maybe be lifelong, and a smooth transition from paediatric to adult care should be accomplished.

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PP1055

PERSONALIZED ELIMINATION DIET GUIDED BY LEUKOCYTES ACTIVATION TO FOOD FOR THE TREATMENT OF IRRITABLE BOWEL SYNDROME: A DOUBLE-BLIND RANDOMIZED SHAM-CONTROLLED STUDY

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Introduction: Irritable bowel syndrome (IBS) is a common gastrointestinal condition with global prevalence ranging between 10-20%. The etiology of IBS is multifactorial and includes low grade inflammation, abnormal neuromodulation, dysbiosis, impaired integrity of the intestinal barrier, activated nociceptive sensory pathways, and dysregulation of the enteric nervous system. Treatment options include dietary modifications, which are limited due to insufficient patient adherence, and essential need for ingredient restrictions. Immune assay guided diet may provide an individualized intervention, which may increase its effectiveness compared with non-personalized dietary strategies.

Aims & Methods: A randomized, double-blind, two-arm trial, comparing the efficacy of Alcat-based personal diet versus a "Sham" balanced diet for eight-week treatment of IBS. The primary outcome was defined as a reduction of ≥50 points on the IBS-severity scoring system (IBS-SSS) [Δ IBS-SSS scores during follow-up]. Secondary outcomes included the raw scores of IBS-SSS, Irritable Bowel Syndrome Quality of Life Questionnaire (IBS-QoL) and the Visual Analogue Scale for Irritable Bowel Syndrome (VAS-IBS). IBS-Adequate Response rate and the rates of moderate / substantial improvement on the IBS Global assessment of improvement (IBS-GAI) and the IBS Global Improvement Scale (IBS-GIS) were documented. We aimed to test the effectiveness of a dietary intervention, based on Leukocyte activation to dietary components test (Alcat, Germany), to direct an individualized immune-based elimination diet.

Results: 68 patients with IBS-D (44) and IBS-M (24) were enrolled. Baseline characteristics were comparable between the study groups, except for the higher median IBS-SSS score in the Alcat-group compared with the Sham-group (390 [305-435] vs. 330 [240-390], respectively, p=0.013). At week 8 of dietary intervention, 30/35 (85.7%) patients in the Alcat-group met the primary outcome, compared with 18/33 (54.5%) of the controls (p=0.005). After 8 weeks, there were higher rates of patients in the Alcat-group who reported a significant overall improvement (i.e., positive response, 85.7% vs. 57.6%, p=0.010). Following 8 weeks of dietary intervention, patients in the Alcat group experienced a significant alleviation in abdominal pain (Δ VAS-IBS abdominal pain score of 49.7±29.8 vs. 31.6±28.8, respectively, p=0.020) and a non-significant improvement in diarrheal symptoms (Δ VAS-IBS diarrhea score of 51.0±30.4 vs. 34.4±40.8, respectively, p=0.072), compared with the controls. Performing analysis restricted to patients who were naïve to dietary-intervention, we revealed that these patients were more likely to take an advantage of the Alcat-diet compared with the Sham-diet (ΔIBS-SSS≥50 rate: 100% vs. 57%, respectively, p=0.010), while patients who had previously tried any dietary-intervention were less likely to benefit from the Alcat-diet compared to the Sham-diet (ΔIBS-SSS≥50 rate: 77% vs. 50%, respectively, p=0.148). No serious adverse events were reported during follow-up.

	ALCAT group (n=35)	Control group (n=33)	p-Value
IBS-SSS score reduction ≥50 points	85.7%	54.5%	0.005
IBS Adequate Relief	74.3%	54.5%	0.089
Significant overall improvement	85.7%	57.6%	0.010
GIS score (substantial / moderate improvement)	60.0%	42.4%	0.147
GAI score (substantial / moderate improvement)	74.3%	42.4%	0.008

Table. Study outcomes at 8-week time point.

Conclusion: Immune-based personalized diet was more efficient than Sham-diet for reducing symptoms in IBS patients, and may serve as a safe treatment option in this population.

Disclosure: This work was partially supported by a research grant from **Cell Science Systems GmbH** (Alcat Europe).

PP1056

ELECTROACUPUNCTURE IMPROVES CLINICAL SYMPTOMS IN PATIENTS WITH CONSTIPATION IRRITABLE BOWEL SYNDROME (IBS-C) THROUGH BALANCING PROFILES OF GUT MICROBIOTA

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Introduction: The pathogenesis of irritable bowel syndrome with constipation (IBS-C) remains unclear. Several studies reported that gut dysbiosis had been observed in IBS patients. The treatment of IBS mostly focuses on symptomatic therapy. Acupuncture is one of the alternative therapies for IBS symptoms. However, the effects of acupuncture on symptoms and gut microbiota profiles of IBS-C patients are still unclear. The present study aimed to determine the alterations of the gut microbiota profiles between IBS-C patients and healthy subjects as well as to investigate the effect of electroacupuncture (EA) on the alterations of the profiles of gut microbiota and IBS symptoms in IBS-C patients.

Aims & Methods: We aim to determine the alterations of the gut-brain-microbiota axis between IBS-C patients and healthy subjects and to investigate the effect of electroacupuncture on the alterations of the gut-brain-microbiota axis in IBS-C patients. Thirty-two participants were enrolled in the study, including 16 healthy participants, as the control group and 16 IBS-C patients. Clinical data, blood, and fecal samples were collected from all participants. Then, 16 IBS-C patients were treated with EA nine times for 1 month. Clinical data, blood, and feces were collected in those IBS-C patients at 2-time points: after the end of EA and 1-month follow-up.

Results: Irritable bowel syndrome symptoms severity scale scores (IBS-SSS) and Irritable bowel syndrome quality of life (IBS-QoL) of IBS patients were significantly greater than the control group. There was no significant difference in cognition and depression scores in Hospital Anxiety and Depression Scale (HADs) between the control and the IBS-C groups. A significant increase in serum cortisol level in the IBS-C group was observed when compared to controls. Clinical outcomes of IBS symptoms were significantly improved after EA. These significances were also found in the 1-month follow-up. There was no significant change in serum cortisol levels following EA therapy. Regarding gut microbiota profiles, alpha diversity was not different between the four groups: control, IBS-C, after EA treatment, and 1-month follow-up. However, the beta diversity was significantly different among groups. The beta diversity used of PERMANOVA analysis showed a significant difference between the controls and IBS-C patients (PERMANOVA q-value < 0.05 in Bray-Curtis, Jaccard, and unweighted UniFrac distances). Immediately after EA therapy in IBS-C patients, the beta diversity showed no difference between pre- and post-treatment. Interestingly, the cluster of gut microbiota profiles shifted away from the IBS group and was similar to the control group after a 1-month follow-up.

Conclusion: Our findings demonstrated the differences in profiles of gut microbiota profiles between IBS-C patients and healthy, and EA treatment showed the benefit of improving clinical outcomes and profiles of gut microbiota.

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etc.

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PP1057

NAVIGATING IRRITABLE BOWEL SYNDROME EPIDEMIOLOGY AND BURDEN IN MEDICAL AND NURSE STUDENTS IN THE "VANVITELLI-IBS STUDY": GOOD ANXIETY CONTROL AND ADHERENCE TO THE MEDITERRANEAN DIET AS POSSIBLE PROTECTIVE FACTORS

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Introduction: Gastrointestinal functional disorders, including irritable bowel syndrome (IBS), are the gastroenterological disorders with the most frequent epidemiology in the general population. Among university students (medical and nursing), there is an increased prevalence of IBS, so much so that it has repeatedly been called a "global challenge."
However, despite this, data in such populations are still scarce and not fully represented in all geographic people considering the wide variability that the epidemiology of IBS encounters moving latitude and longitude. In southern Europe and, in detail, in Italy, data in this regard are lacking.

Aims & Methods: In this cross-sectional observational survey study (VANVITELLI-IBS Study), undergraduate medical and nursing students were enrolled and sent an anonymous questionnaire. The latter was sent only after a careful interview with the gastroenterologists included in the study that excluded red flags of organic gastrointestinal disease. Criteria suggestive for diagnosing IBS according to ROME IV were assessed in the questionnaire. In addition, clinic-demographic variables and variables related to university life (i.e., year of study, being on or off campus, possible receipt of scholarships or being in a delayed time-to-degree condition (i.e., outside prescribed time) were collected.
In addition, the "Beck Anxiety Questionnaire Inventory" (BAI) and the "PREDIMED questionnaire" were provided. The former assesses anxiety symptoms, the latter the degree of adherence to the Mediterranean diet.

Results: Two hundred and fifty students were considered for enrolment; however, 89 participants were excluded (39 due to flags of non-functional gastrointestinal disorders and 50 refused to take the questionnaire). In the end, 161 patients were included. Of these, 34/161 met the criteria for IBS according to ROME IV [age 22 (21 - 25.25) years, 17 (50%) males and 17 (50%) females, 22 (65.7%) medical students and 12 (35.3%) nursing students] while 127/161 did not [age 22 (21 - 24) years, 59 (46.5%) males and 68 (53.5%) females, 59 (46.5%) medical students and 68 (53.5%) nursing students]. In addition, students who declared Bristol 1-2 stool in more than 25% of cases and Bristol 6-7 stool in less than 25% were 11/34 (32.35%) compatible with IBS-C. Those who declared an inverse percentage ratio (consistent with IBS-D) were 5/34 (14.7%). The remainder of the students (18/34, 52.9%) had a mixed phenotype (IBS-M). The rate of outside prescribed time was higher in IBS-positive than in IBS-negative (29.4% vs 4.7%, p=0.000168), while on the contrary, for that of perceived scholarship (14.7% vs 33.9%, p=0.035). BAI levels were different between positive and negative IBS [17.5 (10.5 - 40) vs 13 (7 - 20), p=0.002] as were those of PREDIMED score [4 (2.75 - 6) vs 7 (3 - 10), p=0.009]. In binary logistic regression, being outside the prescribed time was associated with a higher likelihood of IBS occurrence (OR: 8.403, p=0.000155); the opposite behaviour was for adherence to the Mediterranean diet (OR: 0.258, p=0.002). No correlations between the PREDIMED score and BAI (τ= - 0.38; p=0.493) and no significant changes in BAI (p=0.205) and PREDIMED (p=0.641) as a function of students' year of enrolment were found. More than half of the sample (61.75%) had moderate-to-severe anxiety levels, and 73.52% of the students adhered poorly to the Mediterranean diet in the IBS group.

Conclusion: This study confirms how IBS, in this setting, is a significant epidemiological problem and campaigns in favour of the Mediterranean diet and proper anxiety management could be helpful.

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PP1058

INTERACTION BETWEEN THE ANTIMICROBIAL PEPTIDE REG3Γ AND THE IL-22 PATHWAY IN A POST-INFECTIOUS IRRITABLE BOWEL SYNDROME

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Introduction: Irritable bowel syndrome is characterized by colonic hypersensitivity (CHS) and comorbidities such as anxiety or depression. When IBS occurs following a gastrointestinal infection, it is called post-infectious IBS. These patients present abdominal pain months or years after infection resolution. *Citrobacter rodentium* infection in mice leads to the development of IBS-like symptoms as CHS, anxiety-like behavior and cognitive impairment 8 days after pathogen clearance.

Moreover, recent data have shown that the induction of colonic IL-22 expression during the post-infectious phase allows the correction of IBS-like symptoms induced by *C. rodentium* infection.

Aims & Methods: Our first objective was to study the overtime chronicization of PI-IBS symptoms in this *C. rodentium* infection mouse model. In addition, since, the cytokine IL-22 is involved in *C. rodentium* clearance *via* regulation of Reg3γ antimicrobial peptide expression, the second objective was to evaluate the effect of Reg3γ expression on IBS-like symptoms in *C. rodentium*-infected mice.

Wild-type C57Bl6/J mice were infected with *C. rodentium* reference strain DBS100. Colonic sensitivity and anxiety- or depression-like behaviors were evaluated by colorectal distension (CRD) and several behavioral reference tests, respectively, at different days post-infection (DPI): 24, 42, 56, 84 or 112. In addition, a treatment with IL-22 or Reg3γ colonic vectorization expression were evaluated on IBS-like symptoms.

This treatment was administered daily between 16 and 24 DPI, using a *Lactococcus lactis* strain allowing Reg3γ (*L. lactis*$^{Reg3\gamma}$) or IL-22 (*L. lactis*$^{IL\text{-}22}$) expression in the colonic mucosa. The fecal microbiota was also analyzed by 16S rRNA sequencing.

Results: CHS persisted in a subgroup of *C. rodentium* infected mice until 84 DPI, despite anxiety-like behavior was observed only until 42 DPI. No cognition impairment was noticed after 24 DPI.

However, several post-infected animals developed depressive-like behavior at 42 DPI, which persisted over time. Finally, *L. lactis*$^{IL\text{-}22}$ and *L. lactis*$^{Reg3\gamma}$ treatments corrected CHS and anxiety-like behavior induced by *C. rodentium* infection at 24 DPI.

In addition, fecal microbiota sequencing data suggested that Reg3γ-colonic induced expression, like IL-22, modified the microbiota composition in the PI-IBS model. The effectiveness of Reg3γ delivery on long-term depressive-like behavior symptoms is being evaluated.

Conclusion: *C. rodentium* infection induced long-term IBS-like symptoms as chronic CHS associated with transient anxiety- and depression-like behaviors which is consistent with clinical symptoms observed in PI-IBS patients. Moreover, these initial data suggest that recovery of PI-IBS symptoms correlated with the correction of gut dysbiosis and that Reg3γ would represent an interesting therapeutic target to relieve these IBS-like symptoms.

Disclosure: Nothing to disclose.

PP1059 WITHDRAWN

PP1060

PRIOR PROTON PUMP INHIBITOR (PPI) USAGE IS AN INDEPENDENT RISK FACTOR FOR A GUT-TO-BRAIN PATHWAY IN PATIENTS WITH DISORDERS OF BRAIN GUT INTERACTION (DBGI) IN GENERAL PRACTICE

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Introduction: Individuals with disorders of brain gut interaction (DBGI) such as irritable bowel syndrome (IBS) and functional dyspepsia (FD) have symptoms that generally originate either first in the GI tract (e.g. fullness, pain: gut to brain) or brain (e.g. anxiety: brain- to –gut). It is unclear however what risk factors may moderate the order of incidence of either a DBGI or psychological diagnosis.

Aims & Methods: This study aimed to determine the proportion of individuals in general practice with a diagnosis of a DBGI (IBS and/or FD, IBS only, FD only, overlap IBS/FD) prior to a mood or anxiety disorder (gut to brain), and vice versa (brain to gut) and whether specific factors moderate the order of incidence of the diagnosis. Data was collected from a retrospective study of 152,674 patients diagnosed with a DBGI (excluding inflammatory bowel disease, coeliac disease, peptic ulcer disease, colorectal and gastric cancer) and psychological disorder (mood or anxiety disorder) at general practices in the United Kingdom over an average period of 16 years (SD=7 years). Information on which diagnosis appeared first was recorded (January 1994 to end 2022, inclusive). Multiple logistic regression was performed to compare a diagnosis of a DBGI (IBS and/or FD) first versus psychological diagnosis first on a range of sociodemographic factors (age, gender), medical conditions (allergy, eczema, *Helicobacter pylori*, Type 1 and Type 2 diabetes, autoimmune disease, rheumatoid arthritis, lupus, scleroderma, alcohol related diseases and prior gastrointestinal infection) and medication usage (antibiotics, proton pump inhibitors (PPI) and non-steroidal anti-inflammatory drugs (NSAIDs)) ever and prior to a diagnosis of either a DBGI or psychological disorder. Only individual moderators that reached the criterion of p<0.01 are included in the multivariate model.

Results: Of the 152,674 eligible individuals in the UK GP data set, just over half (56.2% n=85843) were diagnosed with a mood or anxiety disorder first compared with (42.9%, n=64739, 55.43%) a DBGI first. In a multivariate model being female, prior GI infection and prior PPI, antibiotic and NSAID use significantly increased the odds of being diagnosed with a DBGI first, whereas alcohol related diseases, asthma and ever having PPI and NSAID use significantly reduced the odds of having a DBGI diagnosis first (Table 1).

Variable	OR (95%CI)	P Value
Female Gender	1.21 (1.18,1.23)	0.0000
Alcohol related diseases	0.66 (0.61,0.71)	0.0000
Asthma	0.92 (0.90,0.95)	0.0000
Prior GI infection	1.23 (1.16,1.31)	0.0000
Ever PPI use	0.66 (0.64,0.67)	0.0000
Ever NSAID use	0.89 (0.86,0.91)	0.0000
Prior PPI use	2.0 (1.94,2.06)	0.0000
Prior NSAID use	1.06 (1.04,1.09)	0.0000
Prior antibiotic use	1.19 (1.16,1.22)	0.0000

Table 1. Multivariate model of predictors of a DBGI prior to a mood or anxiety disorder.

Of clinical relevance people diagnosed with a DBGI first were twice as likely to have had prior PPI use compared with those with a psychological diagnosis first (OR=2.0, 95%CI 1.94, 2.06; P=0.000). These results were similar for IBS only, FD only and overlap DBGI.

Conclusion: In a large sample of primary care patients, prior PPI use was associated with an increased probability of a gut to brain pathway. While PPI use may indicate the presence of a upper gut DGBI, the data may equally point towards the possibility that PPI use may cause changes in the gut microbiome including reduced bacterial richness.

Disclosure: Nothing to disclose.

PP1061

GASTROINTESTINAL SYMPTOMS IN PATIENTS WITH POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME IN RELATION TO HEMODYNAMIC FINDINGS

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Introduction: Postural orthostatic tachycardia syndrome (POTS) is a disorder of cardiovascular autonomic dysfunction, characterized with heart rate (HR) acceleration and orthostatic intolerance upon standing. Gastrointestinal (GI) symptoms are common in POTS (1).

Aims & Methods: The aim of this study was to explore the prevalence and severity of GI-symptoms in a Swedish POTS-cohort, and to investigate whether previously tested HR acceleration correlates with GI-symptoms.

To this cross-sectional study, we included 43 patients with POTS (93% female, median age 30.6 years) and 74 healthy controls (78% female, median age 35.6 years), who completed a study questionnaire, including prevalence of GI symptoms (2).

GI symptom severity was assessed by the IBS severity scoring system (IBS-SSS) (3) and the visual analog scale for IBS (VAS-IBS) (4), both measured in millimetres (0-100).

Five items from the IBS-SSS were added, producing a total IBS-SSS (maximum score 500). In addition, extra-intestinal symptoms from the IBS-SSS were assessed. All patients were examined by head up tilt test during 2010-2021, which included monitoring of blood pressure and HR at supine position and after 1, 3 and 10 minutes in upright position (5).

Also, the maximum HR was measured. ΔHR was calculated from supine position to each time point of upright position. All continuous variables on the IBS-SSS and VAS-IBS-scale were correlated to ΔHR at each time point and adjustments were made for psychological well-being.

Results: In patients with POTS, all variables on the GI questionnaire were significantly higher than in controls. The most prevalent symptoms were nausea (79,1%), abdominal fullness (69.8%) and bloating (66.7%). The most severe GI symptoms measured on the VAS-IBS scale, were bloating and flatulence and constipation (see table, values presented as median (IQR), measured in millimetres). Total IBS-SSS was 213 (135-319) in POTS. The most common self-reported comorbidities in POTS were IBS (n=12) and hypermobile spectrum disorders (n=12). Seven patients reported organic GI disorder. There was an inverse correlation between ΔHR_{max} and abdominal pain (r=-0.406, p=0.007). The same tendency was seen at ΔHR_{10min} (p=0.054). No positive correlations were found between ΔHR and any GI-symptom and no correlations were found between ΔHR and ex-

traintestinal symptoms. When excluding patients with organic GI disorder, we saw significantly inverse correlations between ΔHR_{10min} and ΔHR_{max} and abdominal pain, constipation, GI symptom's influence on daily life, and total-IBS-SSS, respectively. Adjustments for psychological well-being did not affect the results.

	Healthy controls (n=74)	POTS (n=43)
Abdominal pain	0 (0-0)	30 (16-62)
Diarrhea	0 (0-2)	28 (0-64)
Constipation	0 (0-13)	61 (11-74)
Bloating and flatulence	0 (0-14)	65 (25-88)
Vomiting and nausea	0 (0-4)	44 (23-70)
Psychological well-being	8 (0-30)	50 (28-62)
Symptom's influence on daily life	0 (0-7)	58 (23-76)
Total IBS-SSS	13 (0-54)	213 (135-319)

Conclusion: This study confirms that GI-symptoms are widespread in POTS, equivalent to moderate IBS. Nausea is the most prevalent symptom, whereas bloating and flatulence, and constipation are the symptoms that are reported as most severe. Higher HR acceleration at diagnosis upon tilt testing seems to be associated with less severe chronic GI-symptoms in POTS. This finding may reflect the heterogeneity and possibly different underlying pathophysiological mechanisms in POTS, but it may also reflect treatment bias.

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Disclosure: Nothing to disclose.

PP1062

THE INHIBITORY EFFECT OF KEISHI-KA-SHAKUYAKU-TO (TJ-60), A TRADITIONAL JAPANESE HERBAL MEDICINE, ON VISCERAL PAIN INDUCED BY COLORECTAL DISTENSION

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Introduction: Introduction: KeishI-ka-shakuyaku-to (TJ-60), a traditional Japanese herbal medicine, has been reported to relieve abdominal pain in patients with irritable bowel syndrome (IBS) and has been used to IBS patients in Japan. However, its precise mechanisms of action are not well understood.

Aims & Methods: Aims: The aim of this present study was to investigate the effects of TJ-60 on visceral pain induced colorectal distension (CRD) in mice. Knockout (KO) studies were employed to determine the involvement of transient receptor potential vanilloid1 (TRPV1) in mediating the effects of TJ-60. TRPV1 is a nonselective cation channel known to play an important role in visceral hypersensitivity and inflammation.

Methods: CRD was induced to assess visceral perception thresholds in the gut. The behavioral responses to CRD were evaluated by measuring the score of abdominal withdrawal reflex (AWR) in mice. The AWR score (AWR 0 to AWR 4) was measured by two blinded observers while inflating the plastic balloon inserted intrarectally into the distal colon, with air pressures of 10, 15, 20, 25, 30, 35, 40, 45, 50, and 55 mmHg for 30 seconds in C57BL wild mice (control) and TRPV1 KO mice. In order to let the mice recover from the previous distension, 3-minute rest was allowed between each distension. After 1g/kg TJ-60 was administrated for 7 days, CRD was induced to investigate the efficacy of TJ-60 in both control and TRPV1 KO mice.

Results: Results: CRD caused an increase in AWR scores in control (n=7) and TRPV1 KO mice (n=6), that was depended on the distension pressure. The higher the pressure of distension, the higher the score of AWR. TRPV1 KO mice exhibited reduced behavioral response scores to CRD at distension pressures of 15 and 20 mmHg when compared to control mice ($p<0.01$). AWR scores significantly decreased at distension pressures of 20, 25, and 30 mmHg following the administration of TJ-60 in control mice, while a distension pressure of more than 40 mmHg produced decreases in pain response after TJ-60 administration in TRPV1 KO mice ($p<0.05$).

Table 1 Mean changes in AWR score induced by CRD.

	distension pressure (mmHg)								
	10	15	20	25	30	35	40	45	50
Control	0	0.5	1.2	1.8	1.9	2.4	2.6	3.1	3.3
TRPV1 KO	0	0.1	0.3	0.5	1.6	2.0	2.5	3.1	3.5
Control+TJ-60	0	0.1	0.3	0.4	1.0	1.4	2.1	2.8	2.9
TRPV1 KO+TJ-60	0	0.1	0.7	0.7	1.2	1.6	1.8	2.2	2.8

Conclusion: Conclusions: TJ-60 inhibited the visceral pain responses. These results suggest that TJ-60 exerts an antinociceptive effect, which in part mediated by TRPV1 signal transduction.

Disclosure: Nothing to disclose.

PP1063

POOR AGREEMENT BETWEEN MANOMETRY-BASED AND BAROSTAT-BASED RECTAL SENSORY TESTING

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Introduction: Rectal sensory function plays a critical role in normal bowel function. For example, rectal hypersensitivity is associated with Irritable Bowel Syndrome (IBS), whereas rectal hyposensitivity is linked to constipation.

The International Anorectal Physiology Working Group (IAPWG) (1) has established a standardised investigation protocol for anorectal physiological function. According to this protocol, the rectal sensory function is evaluated by simple balloon distension using an elastic balloon during a standard high-resolution anorectal manometry investigation (HRAM).

However, the gold standard for rectal sensory assessment is the rectal barostat investigation, as described by the European COST action GENIEUR group (2).

The correlation between these two methods is largely unknown. The two methods use different balloons (elastic vs. non-elastic balloons, different size and shape). Moreover, the barostat is pressure-controlled whereas the HRAM is volume-controlled. For this reason, assessment of the level of agreement is not feasible.

Aims & Methods: We assessed the correlation between rectal sensory testing with the HRAM and rectal barostat investigations for each sensory threshold, in a group of healthy volunteers.

Twenty-six healthy volunteers (mean age 42 years, 50% females) were recruited and investigated using both HRAM according to the IAPWG protocol and rectal barostat using the GENIEUR protocol on the same day. Sensory thresholds for first sensation (FS), first urge (FU), intense urge (IU) and maximum tolerable volume (MTV) were recorded for both methods.

Spearman's rank correlation coefficient was used for analysis, since it does not assume normal distribution.

Results: Median values, along with the 1st and 3rd quartile are presented in Table 1.

There were statistically significant positive correlations between the sensory thresholds for first urge, intense urge and maximum tolerable volume. However, the correlation coefficients were generally weak, with only MTV showing a correlation coefficient above 0.5.

	First sensation		First urge		Intense urge		MTV	
Quartiles	HRAM	B	HRAM	B	HRAM	B	HRAM	B
1st	12.00	43.00	60.25	91.75	86.25	155.00	116.75	189.25
2nd	27.50	76.00	79.00	142.50	111.50	210.00	175.50	230.50
3rd	48.75	108.00	96.00	177.00	164.50	259.50	224.75	319.00
Spearman's rho	.151		.433		.400		.573	
p	.460		.026		.043		.002	

Table 1. Quartiles of the four sensory thresholds used and Spearman's correlation factor between HRAM and barostat based investigations.

Conclusion: There is a weak correlation between the two methods, suggesting that HRAM balloon distension and barostat cannot be used interchangeably with respect to rectal sensory testing. Standardisation of rectal sensory testing is warranted to improve the accuracy and reliability.

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Disclosure: Nothing to disclose.

PP1064

POOR SUBJECTIVE SLEEP QUALITY PREDICTS SYMPTOMS IN IRRITABLE BOWEL SYNDROME USING THE EXPERIENCE SAMPLING METHOD

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Introduction: Sleep disturbances are more common in individuals with Irritable Bowel Syndrome (IBS) compared to healthy subjects. Sleep quality is an independent factor affecting gastrointestinal (GI) symptoms but the directionality of effects is unknown.

Aims & Methods: Our aim was to investigate relationships between subjective sleep quality, objective sleep measures and GI symptoms using actigraphy and the Experience Sampling Method (ESM). Single-centre, prospective, cross-sectional study conducted at the Wingate Institute of Neurogastroenterology in London, from March 2020 to May 2021. IBS patients were recruited from a tertiary neurogastroenterology clinic and the community. GI symptoms and mood were recorded on a smartphone application, ten times per day, over seven consecutive days (*i.e.* ESM). Subjective sleep quality was recorded every morning to reflect the night before. Objective measures of sleep quality were estimated from wrist-worn actigraphy. Cross-lagged structural equation models were built to assess the directionality of sleep-symptom relationships over time.

Results: Eighty IBS patients completed the study (mean age: 37 (range 20 – 68), 89% female, 78% community). The median IBS - Symptom Severity Score (IBS-SSS) score indicated moderate IBS severity (279 (IQR: 237-350)). Sixty-six % had a Pittsburgh Sleep Quality Index (PSQI) score ≥ 8 indicating a clinically significant sleep disturbance. Eighty-two % (95% CI: 72-90) screened positive for a sleep disorder, most commonly insomnia. Sleep efficiency, measured by actigraphy, was at the lower end of normal range (median: 86% (CI 95%: 85-87). In cross-lagged analysis, poor subjective sleep quality predicted next day abdominal pain ($0.036 < p < 0.040$) and lower GI symptoms ($0.030 < p < 0.032$), but not vice versa. Although the direction of the effect was the same for abdominal pain and lower GI symptoms, it was not significant for upper GI symptoms. No significant relationship with GI symptoms was found for any objective sleep measure.

Conclusion: Poor subjective sleep quality is associated with higher next day abdominal pain and lower GI symptom scores in IBS patients, but not vice versa. Objective sleep measures did not predict next day abdominal symptoms, potentially supporting the conclusion that it is the perception of sleep quality which is most influential.

This study supports the use of real-time patient reported outcome measures when interpreting potential influencers of IBS symptoms and may be used to guide future research into the effect of sleep interventions on GI symptoms.

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PP1065

CHOLINERGIC MUSCARINIC RECEPTOR SIGNALING MODULATES COLONIC INTESTINAL STEM CELL ACTIVITY AND DIFFERENTIATION

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Introduction: Acetylcholine (*Ach*) is the main transmitter in the enteric nervous system, which is considered an essential component of the intestinal stem cell (ISC) niche. *Ach* modulates epithelial homeostasis and secretion predominantly via cholinergic, muscarinic G-protein coupled receptors such as M3R and M1R.

Aims & Methods: In our previous work, genetic ablation of M3R in the murine small intestine induced a significant reduction in Lgr5+ ISC and was sensed by Prox1+ progenitor cells, which orchestrated the selective, compensatory expansion of DCLK1+ tuft cells.

Surprisingly, this phenotype did not occur in the colon of the same mice, hence we here aimed to elucidate potential regional differences in the modulation of ISC homeostasis by cholinergic signaling in the murine intestine.

Immunohistochemical analysis and RT-PCR analysis of colonic tissues from transgenic Vil-Cre x M3R fl/fl mice and Vil-Cre x M1R fl/fl mice compared to WT mice were performed. Further experiments included in-situ hybridization for *Lgr5*, flow cytometry analysis of transgenic Lgr5-EGFP-IRES-CreERT2 and Prox1-CreERT2 mice, bulk RNA sequencing analysis and immunoblot analysis of key signaling pathways.

Results: Immunohistochemical analysis of small intestinal and colonic segments from Vil-Cre x M3R fl/fl mice showed significant differences in differentiation. In contrast to an expansion of DCLK1+ tuft cells in small intestine, these showed significantly reduced in the colon of Vil-Cre x M3R fl/fl mice, while p-EGFR+ tuft cells expanded. This pointed to potential differences in sensing cholinergic signaling interruption by ISC subtypes, which we currently investigate employing Lgr5-EGFP-IRES-CreERT2 x M3R fl/fl and Prox1-CreERT2 x M3R fl/fl mice.

Similar to small intestine, however, colonic Vil-Cre x M3R fl/fl tissues revealed a pronounced decrease in Lgr5+ ISC concomitant to increased mucosal *Ach* levels. Also, Vil-Cre x M3R fl/fl tissues showed a prominent upregulation of PI3K, which was abrogated in Vil-Cre x M3R fl/fl x M1R fl/fl mice.

In addition, RT-PCR and bulk RNA sequencing results from WT tissues or organoids showed more prominent expression of *Chrm1* (gene encoding M1R) in colonic epithelia than *Chrm3* (gene encoding M3R), and analysis of Vil-Cre x M1R fl/fl colonic tissues revealed more prominent changes to differentiation and Lgr5+ ISC compared to Vil-Cre x M3R fl/fl mice.

Conclusion: Our data point to prominent regional differences in the modulation of ISC by cholinergic muscarinic niche signaling and local ISC subtypes sensing cholinergic signaling interruption. Moreover, the receptor subtypes M3R and M1R appear to modulate distinct intracellular pathways, and M1R more prominently modulates colonic ISC. Hence, our data point to potentially distinct roles of cholinergic receptor subtype signaling in intestinal homeostasis and regeneration in small and large intestine.

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PP1066

ESTROGEN INCREASES THE EXPRESSION OF BK_{CA} AND IMPAIRS THE CONTRACTION OF COLON SMOOTH MUSCLE VIA UPREGULATION OF SPHINGOSINE KINASE 1

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Introduction: Strogen (E2) may impair the contraction of colonic smooth muscle leading to constipation. Large conductance Ca^{2+}-activated K^+ channels (BK_{Ca}) are widely expressed in the smooth muscle cells (SMCs) contributing to hyperpolarization and relaxation of SMCs. Sphingosine kinase 1 (SphK1) is known to influence the expression of BK_{Ca}.

Aims & Methods: We aimed to elucidate the potential underlying molecular mechanism of BK_{Ca} and SphK1 that may influence E2-induced colonic dysmotility. In ovariectomized rats, smooth muscle contraction and expression of BK_{Ca}, SphK1, sphingosine-1-phosphate receptor (S1PR) were analyzed after the treatment with vehicle, BSA-E2, E2, and estrogen receptor antagonist. The role of BK_{Ca}, SphK1, and S1PR in E2-induced smooth muscle dysmotility was investigated in rat colonic SMCs. The effect of SphK1 on smooth muscle contraction as well as on the expression of BK_{Ca} and S1PR was analyzed in *SphK1 knock-out* mutant mice and wild-type mice treated with or without E2.

Results: The E2-treated group exhibited a weak contraction of colonic smooth muscle and a delayed colonic transit. The treatment with E2 significantly upregulated the expression of BK_{Ca}, SphK1, S1PR1, and S1PR2, but not S1PR3, in colon smooth muscle and SMCs. Inhibition of BK_{Ca}, SphK1, S1PR1, and S1PR2 expression attenuated the effect of E2 on Ca^{2+} mobilization in rat colon SMCs. Wild-type mice treated with E2 showed impaired gastrointestinal motility and enhanced expression of BK_{Ca}, S1PR1, and S1PR2 compared with those without E2 treatment. Conversely, in *SphK1 knock-out* mice treated with E2, these effects were partially reversed. E2 increased the release of S1P which in turn could have activated S1PR1 and S1PR2. Loss of SphK1 attenuated the effect of E2 on the upregulation of S1PR1 and S1PR2 expression.

Conclusion: These findings indicated that E2 impaired the contraction of colon smooth muscle through activation of BK_{Ca} via the upregulation of SphK1 and the release of S1P. In the E2-induced BK_{Ca} upregulation, S1PR1 and S1PR2 might also be involved. These results may provide further insights into a therapeutic target and optional treatment approaches for patients with constipation.

Disclosure: Nothing to disclose.

PP1067

SEROTONIN RECEPTORS INVOLVEMENT IN RELAXANT PROPERTIES OF *SACCHAROMYCES BOULARDII* CNCM I-745. AN *EX-VIVO* MODEL RELEVANT TO IBS

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Introduction: Irritable bowel syndrome (IBS) is often associated with gastrointestinal motility disorders, these being modulated by the endogenous serotonin system through many serotonin receptor subtypes (Guzel, 2022). *Saccharomyces boulardii* CNCM I-745 is a probiotic yeast with antidiarrheal properties (Szajewska, 2020) and efficacy in IBS clinical studies (McFarland, 2021). It has been shown to inhibit gut motility through upregulation of the intestinal serotonin transporter (Gu, 2022). The present study explored the possible involvement of serotoninergic receptor subtypes in this effect in a rat isolated ileum model.

Aims & Methods: Isolated ileum from adult Wistar rat is incubated in organ bath (20 mL) containing Krebs (oxygenated with 95% O_2 and 5% CO_2 at 37°C) according to Briejer (1997). Contractions of the ileum are measured by an isotonic force transducer (Ugo Basile). Cumulative administration of serotonin or specific agonists induce concentration-dependent contractions. Serotonin antagonists or lyophilised *S. boulardii* are added into the bath 10 minutes before the various agonists. EC_{50} values determination from concentration-response curves and comparisons between treatments are made by GraphPad Prism.

Results: Serotonin induced a concentration-dependent contraction of the ileum with an EC_{50} value of 0.074 µM. This effect was inhibited by 5-HT_{1A} WAY100635, 5-HT_{2A} ketanserin and 5-HT_4 GR113808 antagonists, but not 5-HT_{2C} SB242084, 5-HT_3 tropisetron and ondansetron or 5-HT_7 SB266970 antagonists. *S. boulardii* at 0.05-0.15-0.5-1.5 mg/mL shifted the serotonin concentration-response curve to the right, with EC_{50} values of 0.13-0.19-1.0-2.1 µM respectively, suggesting an inhibitory effect. *S. boulardii* also inhibited contraction induced by 5-HT_{1A} 5-carboxamidotryptamine or 5-$HT_{2A/2B/2C}$ α-methyl-5-HT agonists. 1.5 mg/mL of *S. boulardii* significantly increased EC_{50} values of 5-carboxamidotryptamine (0.15 µM) and α-methyl-5-HT (0.27 µM) to 2.4 and 1.3 µM, respectively.

Conclusion: These results show that in our model, the effects of *S. boulardii* CNCM I-745 on intestinal motility are mainly mediated by serotonin 5-HT_{1A} and 5-$HT_{2A/2B/2C}$ receptor subtypes. Additional studies are currently needed to better explain S. *boulardii* mechanism of action in IBS motility disorders.

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Disclosure: I am an employee of Biocodex

PP1068

FUNCTIONAL AND MOLECULAR CHARACTERIZATION OF PATIENTS WITH PARKINSON'S DISEASE AND CHRONIC CONSTIPATION: ROLE OF THE INTESTINAL EPITHELIAL BARRIER

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Introduction: Chronic constipation (CC) is a prodromal and severe symptom in up to the 80% of Parkinson's disease (PD) patients (PD/CC) often refractory to standard laxative treatments. The molecular mechanisms underlying PD/CC are still unclear, although changes of enteric nervous system and intestinal epithelial barrier (IEB) have been thought to play a pathogenetic role.

Aims & Methods: In this study, PD/CC and chronic constipated (CCs) patients were functionally characterized, and possible abnormalities to IEB and the key neuromodulator vasoactive intestinal polypeptide (VIP) were investigated. N=12 PD/CCs (2 females; age range: 51-80 yrs), 20 CCs (15 females; 27-78; yrs) and 23 controls (Ctrls; 11 females; 32-74yrs) were enrolled. PD was diagnosed according to the United Kingdom Parkinson's Disease Society Brain Bank clinical diagnostic criteria, whereas CC was established following Rome IV criteria. Ctrls were otherwise asymptomatic subjects undergoing screening colonoscopy. Ten PD/CCs and 10 CCs were functionally characterized by anorectal manometry (AM) and transit time (TT). Colonic mucosal / submucosal biopsies were obtained in all patients / subjects and tested for gene, protein expression and localization of IEB tight junction markers claudin-4 (CLDN4), occludin-1 (OCCL-1) and zonula occludens-1 (ZO-1) and VIP, by RT-qPCR, immunoblot and immunofluorescence staining.

Results: PD/CCs were clustered in two groups: a) patients with delayed TT and altered AM (60%); b) those with altered AM only (13%). The evaluation of IEB markers on mucosal specimens showed an increase of CLDN4 mRNA in PD/CCs (1.26 ± 0.26) *vs.* Ctrls (1.00 ± 0.19) and CCs (0.95 ± 0.33), whereas a trend to CLDN4 protein reduction in PD/CCs (0.88 ± 0.33) *vs.* Ctrls (0.96 ± 0.25) and CCs (1.02 ± 0.51) was observed.

Moreover, the OCCL-1 transcript was significantly increased in PD/CCs (1.36 ± 0.36) *vs*. Ctrls (1.05 ± 0.33) and CCs (0.81 ± 0.18). ZO-1 mRNA relative levels were consistent with those of OCCL-1 showing a significant increase in PD/CCs (1.35 ± 0.38) *vs*. Ctrls (1.02± 0.27) and CCs (0.85 ± 0.24). Notably, both OCCL-1 and ZO-1 showed a tendency to be reduced in CCs *vs.* Ctrls. Immunofluorescence highlighted a decrease in OCCL-1 immunoreactivity

(IR) in PD/CCs (score= 1.5) *vs.* CCs and Ctrls (score= 4). Conversely, ZO-1-IR displayed an intense pattern (score=4) in both Ctrls and PD/CCs, but it was decreased in CCs (score= 2). VIP mRNA levels resulted significantly greater in CCs (3.98 ± 3.93, p<0.05) *vs.* Ctrls (1.52 ± 1.55) and PD/CCs (0.86 ± 1.056), whereas a decreasing trend was observed in PD/CCs *vs*. Ctrls (p>0.05). Both immunofluorescence and immunoblot confirmed this tendency showing a 15% drop of the VIP protein (PD/CCs 0.86 ± 0.43 *vs*. Ctrls 1.01 ± 0.56, p>0.05).

Conclusion: Transit and anorectal dysfunctions in PD/CCs are associated with ZO-1, OCCL-1, CLDN-4 and VIP changes, hence suggesting that a leaky IEB contributes to submucosal neurochemical abnormalities underlying PD/CC. These findings suggest that the expression of the IEB markers are subject to both transcriptional and post-translational regulatory mechanisms, presumably distinct in CC and PD/CC.

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Disclosure: Nothing to disclose.

PP1069

REGULATOR OF G PROTEIN SIGNALING (RGS) PROTEIN 6 BLUNTS THE EFFECT OF CANNABINOIDS ON INTESTINAL MOTILITY AND VISCERAL PAIN SENSATION

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Introduction: Agonists and antagonists of G protein-coupled receptors (GPCRs) are widely used medications that serve in the therapy of constipation, diarrhea, and pain. However, little is known about how the effect of those drugs is modulated by Regulator of G Protein Signaling (RGS) proteins which promote timely silencing of the GPCR responses. RGS proteins have been documented to regulate the magnitude and duration of signals initiated by several types of GPCRs occurring in the GI tract, including opioid and cannabinoid receptors. Serving as a central control point in GPCR signaling cascades, RGS proteins hold great promises as targets for the drug development however their expression profile and function in the gut constitute a major gap in the knowledge.

Aims & Methods: The major emphasis of this study is on elucidating the expression and function of RGS proteins in physiology and pathophysiology of the GI tract. We hypothesize that identification of RGS proteins and GPCR signaling pathways that they control will reveal novel molecular targets combating GI disorders. METHODS: We used total RNA sequencing to evaluate the expression profile of RGS proteins in the mouse ileum and colon. Then we confirmed the expression of the most abundant transcripts with the qPCR and measured the expression of proteins with Western blot. Then in the in vivo conditions we used an RGS6 knockout (RGS-/-) mouse model to evaluate the effect of this protein on intestinal motility, pain and inflammation in naïve mice as well in the presence of the cannabinoid agonist WIN 55,212-2.

Results: RNA sequencing showed similar profile of expression of RGS proteins in the ileum and colon. qPCR analyses showed that Rgs2, 5 and 6 are the most abundant transcripts in the colon. At the level of protein we observed that RGS6 exhibits the highest expression in the ileum colon as well as intestinal intraepithelial lymphocytes. Moreover we observed a significant increase in RGS6 expression in the mouse colon samples during intestinal inflammation. In vivo experiments showed that RGS6-/- animals exhibit increased intestinal motility in physiological conditions and resistance to stress-induced diarrhea. Moreover RGS6-/- animals exhibit anti-nociceptive phenotype and are more susceptible to the analgesic effect of WIN 55,212-2. We did not observe the impact of RGS6 on the severity of colitis in the DSS-induced model.

Conclusion: Here we present RGS6 protein as a novel candidate for drug targeting in the GI tract. Our study suggests that loss and perhaps also pharmacological blockade of RGS6 might be used as standalone or an adjunct treatment to increase the potency of cannabinoids in the gut. The project is ongoing and further experiments are pending.

Disclosure: Nothing to disclose.

PP1070

INTERMITTENT COLONIC EXOPERISTALSIS (ICE) REDUCES USE OF SUPPOSITORIES AND ORAL LAXATIVES IN WOMEN WITH FUNCTIONAL CONSTIPATION

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Introduction: Female sex and increasing age are risk factors for constipation. Studies have found colon transit times to be longer in women. When estrogens decrease, constipation appears or worsens among perimenopausal women. After recommendation of lifestyle changes, second-line treatment are pharmaceutical solutions such as laxatives. However, most laxative agents show limited efficacy for chronic use, especially in people with comorbid conditions or concomitant medication inducing constipation (antihypertensives, calcium supplements to prevent osteoporosis, ...) in addition to potential adverse effects.

Intermittent colonic exoperistalsis (ICE) administered with the MOWOOT medical device, is a non-invasive, non-pharmacological treatment for chronic constipation. It has been developed to facilitate natural bowel movements and reduce the side effects of laxatives, enemas, or other invasive approaches. ICE has been proven safe and effective in constipation from both neurogenic or idiopathic aetiology in a multicentric clinical trial. Here, its use among women with functional chronic constipation was evaluated.

Aims & Methods: Adult women with chronic functional constipation were recruited in 4 hospitals in Germany. The treatment consisted of using the ICE device for 15 to 30min daily, at home. Patient outcomes were self-reported through anonymous, structured feedbacks collected at baseline (F1) and after some time under ICE treatment (F2).

Results: Data resulted from n=17 women(6 aged 18-39 yr, and 11 aged 40-80 yr). Twelve of them had a previous diagnosis of slow colonic transit. The mean time of ICE treatment at F2-feedback collection was 6,60(5,21) months (min 0,5; max 16). No one reported any serious adverse event. Three patients described occasional low self-remitting adverse events which did not affect the treatment compliance.

		Baseline (F1)	Treatment (F2)	Change (F2-F1)	P
Suppositories	Yes(F1)/Same(F2)	*12*	*1*	*-11*	0,0002 [a]
	No(F1)/No or Less(F2)	5	*16*		
Oral Laxatives	Yes(F1)/Same(F2)	*15*	*6*	*-9*	0,0039 [a]
	No(F1)/No or Less(F2)	*2*	*11*		
Number Bowel Movements / week		2,65 (1,86)	5,75 (2,97)	3,10	<0,0001 [b]
Time (min) / Bowel Movement		110,4 (149,7)	52,4 (73,0)	-57,94	0,0314 [b]
Average Bristol scale (1-7)		2,65 (1,54)	3,75 (1,73)	1,25	0,0099 [c]

Results are shown as *N* or mean(SD). a: Chi² & Fisher's exact test; b: Student's t-Test for paired values; c: Wilcoxon matched-pairs test.

Of the 12 women using suppositories at F1, 11 (92%) had reduced its use at F2, including 9 (75%) that stopped completely. Of the 15 women using oral laxatives, 9 (60%) had reduced its use, including 4 (27%) that fully stopped.

Overall, 3 women (25%) had stopped both suppositories and oral laxatives, and only 1 (8%) maintained the same dose of both. In total, 80% (12/15) of women stopped or reduced some form of laxative (Table).

In addition to laxative reduction, bowel movements increased on average by more than 3 per week, fecal consistency ameliorated (Bristol scale), and time spent in each bowel movement was reduced by nearly 1h (Table).

Conclusion: The use of ICE treatment by chronically constipated adult women significantly improved their bowel function. Importantly, this amelioration was accompanied by a notable reduction in laxatives, with a high percentage of women stopping the use of suppositories.

This in-use structured feedback in the out-patient sector points to the clinical benefit of ICE treatment. Therefore, the ICE device has the potential to substitute more invasive and pharmacological approaches in bowel management strategies for women with functional constipation.

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4. Special SCI units involved in recruitment: BDH Klinik, Greifswald, GE; Werner-Wicker-Klinic, Bad Wildungen, GE; Zentralkinik, Bad Berka, GE; Klinken Beelitz, Beelitz-Heilstätten, GE.

Disclosure: IHF works as CSO at MOWOOT, USMIMA S.L., the manufacturer of the ICE device. The author would like to thank Dr J. Bremer, Dr. P. Kossmehl, Dr. I. Kurze and Dr. H. Lienhard for their support in the above-mentioned SCI hospitals, and R. Müller for his support regarding the logistics of the study.

PP1071

PREVALENCE AND BURDEN OF DISORDERS OF GUT-BRAIN INTERACTION AMONGST UK MEDICAL STUDENTS

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Introduction: Disorders of Gut-Brain Interaction (DGBI) are common, affecting 40% of the global population[1]. They are associated with psychological distress and somatisation, and detrimentally impact quality of life. The prevalence of DGBI is highest amongst young adults, with medical students reportedly having higher rates than the general population. However, data assessing the prevalence and burden of DGBI amongst medical students is mainly confined to studies from Asia and Africa.

Aims & Methods: We aimed to assess the prevalence and burden of DGBI amongst medical students within a UK based university. An internet-based, cross-sectional, anonymous health survey on physical and mental health was disseminated to medical students enrolled at the University of Sheffield (UK). Information on demographics, past medical history, and gastrointestinal symptoms were collected, the latter using the Rome IV diagnostic questionnaire to determine the presence of DGBI. Additional validated questionnaires screened for somatisation, psychological distress, eating disorders, quality of life, and burnout.

Results: The questionnaire was completed by 378 of 1621 medical students (mean age 21 years, 73% female, and 70% white). The prevalence of having at least one DGBI was 76% (n=289), of which two-of-three had multiple affected sites. The most frequently met diagnostic criteria for DGBI were gastroduodenal (57%), followed by bowel (49%), oesophageal (29%), and anorectal (26%) disorders. Approximately 50% of students with DGBI experienced painful gastrointestinal symptoms at least one day per week.

Compared to students without DGBI, those with DGBI had significantly higher anxiety and depression scores, increased somatic symptom reporting, reduced mental and physical quality of life, poorer eating habits, and more frequent medication use (p-values, all <0.05). They were also at significantly higher risk of burnout, including study exhaustion and disengagement. The greatest health impairment across these domains was seen in those with multiple, painful, DGBI. Only 23% and 5% of students with DGBI had consulted a primary care provider and gastroenterologist, respectively, for their gastrointestinal symptoms.

Conclusion: DGBI are common amongst UK medical students and are associated with psychological distress, somatisation, reduced quality of life, and burnout. However, students with DGBI infrequently seek help for gastrointestinal symptoms. Greater awareness of the high prevalence and burden of DGBI amongst medical students may lead to increased support, improvement in health status, and better study engagement.

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Disclosure: Nothing to disclose.

PP1072

OUTCOME PREDICTORS FOR SIGMOID VOLVULUS: A SINGLE-CENTER RETROSPECTIVE COHORT STUDY

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Introduction: Although sigmoid volvulus is potentially life-threatening condition in elderly patients, prognostic factors for sigmoid volvulus are not well known.

Aims & Methods: The aim of this study is to evaluate clinical outcomes and investigate prognostic factors for patients with sigmoid volvulus. We retrospectively reviewed 85 patients who were treated with sigmoid volvulus from January 2005 to January 2023 at a single tertiary referral center.

After exclusion of patients who received emergency bowel resection surgery or improved by conversative treatment alone, a total of 59 patients were included. Patient and abdominal computed tomography (CT)-related factors potentially associated with clinical outcomes were analyzed by logistic and Cox regression analyses.

Results: The mean age of the patients was 72.4 years, and 74.3% were male. 49 patients (83.1%) were improved on initial endoscopic decompression therapy. Regarding factors related with failure of initial endoscopic decompression therapy, suspected bowel ischemia on initial CT (odds ratio 8.847, 95% CI 0.666–117.462), age<65 (odds ratio 5.138, 95% CI 0.574–46.025), larger (>85 mm) cross-sectional diameter of distended colon (odds ratio 25.400, 95% CI 1.015–635.804) were related with endoscopic treatment failure. On the other hand, of the 35 patients without previous volvulus episode who improved after initial endoscopic decompression therapy, 14 patients (40.0%) had recurrence of sigmoid volvulus during a mean follow-up of 411 days. Patients showing larger cross-sectional diameter of distended colon (>85mm, hazard ratio 9.925, 95% CI 1.618–60.863), larger maximal long (>230mm, hazard ratio 4.456, 95% CI 0.931–21.327) and short (>150mm, hazard ratio 2.828, 95% CI 0.639–12.505) axis length of overall twisted sigmoid colon were related with volvulus recurrence.

Conclusion: Prognostic factors unravelled in our study may be useful in management of patients with sigmoid volvulus. Early surgical backup consultation may be needed in patients having factors related with failure of endoscopic decompression therapy. Meanwhile, elective surgical treatment after improvement on initial endoscopic therapy may be considered in patients showing high risk features for recurrence on CT scan.

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Disclosure: Nothing to disclose.

PP1073

IMPACT OF CEFIXIME AND PROBIOTICS ON FUNCTIONAL ABDOMINAL BLOATING: A PILOT STUDY

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Introduction: Abdominal bloating is a prevalent condition that affect up to 30% of the population. The aim of the current study was to investigate the impact of cefixime and probiotics on the bloating sensation among patients with functional abdominal bloating (FAB).

Aims & Methods: Of 763 patients with bloating 122 patients were diagnosed with FAB. Patients were, Group I treated by a combination of non-activated herbal charcoal and Silicone Dioxide with Dimethylpolysiloxane (conventional treatment group), group II treated by the same lines in group I in addition to cefixime 400 mg once daily for 6 days, and group III patients were treated by the same lines given to group I in addition to a probiotic formulation harboring the probiotic strain *Lactobacillus helveticus candisis* for 2 weeks. All patients were evaluated by history taking, clinical examination, lab assessment and relevant imaging and symptom questionnaire before and by the end of treatment.

Results: The prevalence of FAB was 15.9% (122/763). Most of the patients were females (58.1%). Patients treated with probiotics and cefixime reported significant improvement in the sense of bloating and the visible abdominal distension in comparison to conventional treatment (P 0.008 and 0.000 respectively). Abdominal pain, belching, bowel habits change, and nausea improved and were comparable among the three groups by the end of treatment. No adverse events related to the used medications.

Conclusion: Cefixime and probiotics exert significant improvement in the subjective sensation of bloating and objective abdominal distension among patient with FAB in comparison to the conventional anti-flatulence therapy.

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PP1074

COMPARISONS OF DIFFERENT CLINICAL PHENOTYPE AND FECAL MICROBIOME IN IRRITABLE BOWEL SYNDROME AND SMALL INTESTINAL BACTERIAL OVERGROWTH

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Introduction: Irritable bowel syndrome (IBS) is a prevalent functional gastrointestinal disorder characterized by abdominal pain and changes in bowel habits. Small intestinal bacterial overgrowth (SIBO) refers to a group of gastrointestinal syndromes caused by an excessive number of bacteria in the small intestine. Up to now, the relationship between IBS and SIBO remains contentious. So we set out to investigate the differences between these two conditions.

Aims & Methods: Participants who met the Rome III diagnostic criteria for IBS and had a negative lactulose hydrogen and methane breath test (LHMBT) were diagnosed with IBS. Those who presented with gastrointestinal symptoms and had a positive LHMBT were diagnosed with SIBO. Overlapping cases were excluded. Participants who had a negative LHMBT and no significant abdominal symptoms were classified as healthy controls (HC). All participants were instructed to provide fecal samples for 16S rRNA sequencing.

Results: Our results showed that a history of enteritis was more common in IBS patients, and the severity of gastrointestinal symptoms was significantly higher in IBS and SIBO groups compared to healthy controls. IBS patients also reported more severe symptoms than SIBO.

Additionally, IBS patients were more affected by their symptoms, while the SIBO group reported more dissatisfaction with bowel habits. We observed differences in dietary intake between the groups, with IBS patients having the highest total energy and protein intake, and the lowest dietary fiber intake. SIBO patients had higher fat intake and significantly lower carbohydrate intake compared to the other two groups. Regarding the fecal microbiome, both IBS and SIBO patients had higher structural diversity and lower functional diversity than the HC group. The abundance of *Firmicutes/Bacteroidetes* in the IBS group was significantly higher than in the other two groups.

Our analyses indicated that the fecal microbiome could significantly distinguish the three groups, and specific bacterial species were associated with different symptoms in each group. In SIBO, *Thalassospira* and *Christensenellaceae_group* were associated with intestinal motility abnormalities, while *Ruminococcaceae_group, Butyricimonas*, and *Oscillospira* were associated with gas production. In the IBS group, *Klebsiella* and *Mitsuokella* were associated with abdominal pain, and other bacteria such as *Escherichia_Shigella* and *Enterobacter* were generally associated with enteritis infection, abdominal pain, and diarrhea.

We also found that the predicted KEGG pathways were enriched in various nutrient metabolism pathways, with potential implications for elevated blood folate levels and vitamin B12 deficiency in SIBO patients. Protein bacterial motility and biofilm formation_ Escherichia coli, were mainly enhanced in IBS, and these functions were related to the mucosal barrier damage.

Conclusion: Our study shows that although IBS and SIBO share similar symptom spectra, they may be two distinct diseases. Despite the potential differences in the fecal flora of small intestinal flora in SIBO group, significant differences were found between IBS and SIBO in terms of clinical phenotype and fecal microbiome.

Further exclusion of SIBO using lactulose hydrogen and methane breath testing in patients who meet the diagnostic criteria for IBS is warranted, as the differences suggest that different treatment strategies may be needed for these two populations. Future studies are needed to explore the underlying mechanisms and potential therapies for these conditions, which may ultimately benefit patients with IBS and SIBO.

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PP1075

ADS051, AN ORAL, GUT-RESTRICTED, SMALL MOLECULE NEUTROPHIL MODULATOR IN PATIENTS WITH MODERATE-TO-SEVERE ULCERATIVE COLITIS RECEIVING MULTIPLE ASCENDING DOSES

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Introduction: Ulcerative colitis (UC) is characterized by inflammation of the colon, with neutrophils playing a key role in disease activity, prognosis, and response to therapies. Though several therapeutics are available for the treatment of UC, they have limited efficacy and potential for significant side effects, including infections and malignancy. Substantial unmet need remains for effective and safe therapies. ADS051 is a novel, oral, gut-restricted, small molecule derived from a cyclosporine A scaffold. It is specifically designed to inhibit both MRP2-driven neutrophil migration into the colon and FPR1-mediated neutrophil activation, without blocking T-cell activation, which limits off-target immunosuppression. Study NCT05084261 evaluated the safety, efficacy, and pharmacokinetics (PK) of ADS051 in patients with moderately to severely active UC.

Aims & Methods: Phase 1B, multiple ascending dose, randomized, placebo-controlled, double-blind, multicenter study enrolled patients with a complete Mayo score ≥6 and on stable treatment with aminosalicylates, thiopurines, and/or corticosteroids (≤20mg prednisone). Patients received oral ADS051 or placebo (3:1) once daily for 28 days (dose cohorts: 200mg, 800mg, and 3200mg) followed by 30 days off study drug.

Primary outcome was safety and tolerability of ADS051 with secondary efficacy endpoints at Day 28 of clinical remission (modified Mayo score ≤2, endoscopic subscore ≤1 point, stool frequency subscore ≤1 point, rectal bleeding subscore=0), endoscopic response (decrease in baseline UC endoscopic index of severity [UCEIS] ≥2 points), and histologic remission (Geboes score ≤2B.0 or Nancy index=0 OR Robarts histopathological index [RHI] ≤3).

Weekly assessments of PK, disease activity, and fecal calprotectin were performed during the treatment period. Safety was evaluated throughout the study. Endoscopy was performed at screening and Day 28.

Results: All 24 patients enrolled completed the study (8/cohort). 16.7% of patients on ADS051 vs 66.7% on placebo had at least 1 *treatment*-emergent adverse event (*TEAE).* No serious adverse events were reported. No TEAE resulted in dose modification or drug discontinuation. Concentrations of ADS051 achieved in stool were greater than IC_{50} for MRP2 and FPR1 targets at all dose levels. There was low systemic exposure, with <1% of daily dose of ADS051 excreted in urine. For pooled ADS051 and pooled placebo, clinical remission was achieved in 22% ADS051 vs 0% placebo at Day 28, and endoscopic response was achieved in 50% ADS051 vs 17% placebo at Day 28. Of the 4 patients on ADS051 with clinical remission, 3 achieved histologic remission.

Conclusion: Phase 1B study of ADS051, a novel, oral, gut-restricted neutrophil modulator, demonstrates favorable safety and tolerability with signals of pharmacologic activity, warranting additional investigation in larger studies.

Disclosure: J. Allegretti is a consultant for Janssen, Pfizer, Abbvie, Iterative Scopes, Finch Therapeutics, Seres Therapeutics, Ferring, Merck, Bristol Myer Squibb, Adiso; speaker for BMS, Abbvie, Janssen; research support from Pfizer and Merck.

A.S. Cheifetz is a consultant for Janssen, Abbvie, Protagonist, Spherix, Artizan, Food is Good, Clario, Pfizer, Fresenius Kabi, Takeda, Fzata, BMS, Procise, Prometheus, Samsung, Artugen, and Equillium.

P.S. Dulai is a consultant for Abbvie, Abivax, Adiso, Bristol Myers Squibb, GSK, Janssen, Lilly, Pfizer, Takeda, Roivant, Adiso; grant support from Bristol Myers Squibb, Janssen, Pfizer, Takeda; Licensing royalties from PreciDiag.

A. Stevens is a consultant to ClearB therapeutics and Surrozen. Previous clients include Artugen, Bacain, and Astria Therapeutics.

J. Chapas-Reed is an employee of Adiso Therapeutics, Inc. and has no disclosures to declare.

L. Chesnel is an employee of Adiso Therapeutics, Inc. and has no disclosures to declare.

B. Dixit is an employee of Adiso Therapeutics, Inc. and has no disclosures to declare.

R. Farquhar has ownership of shares in Adiso Therapeutics, Inc., paid employment by Bacainn, board membership of Bacainn and co-inventorship of Bacainn's Patent applications.

P. Ghahramani is a consultant to Adiso Therapeutics, Inc.

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C. Murphy is an employee of Adiso Therapeutics, Inc. with stock options. CKM is an inventor of patents owned by Adiso Therapeutics, Inc.

M. Quintas is an employee of Adiso Therapeutics, Inc. and has no disclosures to declare.

R. Tanase has no disclosures to declare.

T. Telia has no disclosures to declare.

B. Wozniak-Stolarska has no disclosures to declare.

R. Gupta is an employee of Adiso Therapeutics, Inc. and has no disclosures to declare.

PP1076

GASTROINTESTINAL AND NEUROLOGICAL EFFECTS OF PROBIOTICS IN PATIENTS WITH PARKINSON'S DISEASE AND CHRONIC CONSTIPATION: A PILOT STUDY

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Introduction: Chronic constipation (CC) is one of the most frequent non-motor features of Parkinson's Disease (PD). Previous studies highlighted the association of CC with PD duration and severity [1].

Furthermore, gut microbiota changes and brain-gut-axis (BGA) dysregulation are common in PD and these alterations are related with clinical manifestations [2,3]. For this reason, probiotics, balancing the gut microbiota, are emerging as a potential therapeutic approach in PD patients.

Aims & Methods: Objective*:* To evaluate the patients' satisfaction rates as well as gastroenterological and neurological effects of the administration of a synbiotic in PD patients with CC.

Methods*:* This study enrolled patients with stable PD who fulfilled Rome IV Criteria for CC or irritable bowel syndrome with constipation (IBS-C). Patients received a synbiotic treatment (Enterolactis ® duo, 4 sachets/day, containing probiotic Lactobacillus casei and prebiotic inulin) for 12 weeks. Two primary endpoints were chosen to monitor the satisfaction with therapy (SWT). SWT was defined when patients were satisfied (satisfaction score >4 on a 7-point Likert scale) or improved after therapy (increase in the global rating of change scale of at least two points on a -7 to +7 visual analogue scale). In addition, a gastrointestinal (GI) evaluation with the Patient Assessment of Constipation-symptoms questionnaire (PAC-SYM), number of complete bowel movements per week, Bristol stool Scale (BSS) were calculated before and after the treatment. The neuropsychological evaluation was performed by the Montreal Cognitive Assessment (MoCA), Movement Disorder Society-Sponsored Revision of Unified Parkinson's Disease Rating Scale (MDS-UPDRS), SCales for Outcomes in Parkinson's disease - Autonomic Dysfunction (SCOPA-AUT), Toronto Alexithymia Scale (TAS-20), Reading the Mind in the Eyes Test (RMET), Parkinson Anxiety Scale (PAS), State-Trait Anxiety Inventory (STAI-Y), Beck Depression Inventory (BDI II), Hamilton depression rating scale (HAM-D) pre- and post-intervention.

Results: 30 patients (10 F) were consecutively enrolled. Satisfaction >4 (endpoint 1) significantly changed from 17% to 60% patients after treatment, p = 0.002. The calculated satisfaction score significantly increased from 4(1) to 5(2) (median (IQR), p = 0.003. Improvement after treatment (endpoint 2) was achieved by 83% of patients. The Global Rating of Change Score changed significantly from 0(3) to 4(2)(median (IQR), p <0.001. Moreover, a beneficial effect of treatment was shown on GI symptoms. Specifically, PAC-SYM Questionnaire score changed from 1.42(0.94)

to 0.91(0.77), p < 0.001, number of complete bowel movements per week from 3(3.5) to 5.5(4.1) p < 0.001 and Bristol stool Scale (BSS) from 2(2) to 3(2) p < 0.001. After treatment PD patients performed better in motor and non-motor features. Specifically, the scores (median (IQR) of TAS-20 significantly changed from 55.0 (22) to 49.5 (21), p=0.03, SCOPA-AUT from 17.0 (7) to 13.5 (10), p = 0.002, MDS-UPDRS part 1 from 13.5 (13) to 9.0 (6), p = 0.001, HAM-D score from 12.5(10) to 9.0 (12), p = 0.045. PAS-A showed a trend towards significance from 7.0(6) to 5.0(7), p = 0.06.

Conclusion: Our results showed that a considerable number of PD patients with CC or IBS-C were satisfied with their defecation after treatment. GI symptoms as well as motor and non-motor features in PD patients improved. Our data suggest that the addition of a synbiotic Enterolactis ® duo may be a useful therapeutic approach in PD possibly acting on the gut-brain-gut axis.

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PP1077 WITHDRAWN

PP1078

RADIATION THERAPY INDUCED CHANGES OF SMOOTH MUSCLE MOTILITY IN HUMAN RECTUM

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Introduction: Radiation therapy is widely used in the treatment of carcinoma in the abdomen and pelvic cavity, but as a side effect, acute and chronic damage to the gastrointestinal tract may occur. It is well known that the rectum is more prone to radiation damage since it is fixed in the pelvis. Acute symptoms of radiation enteritis are mainly associated with inflammation of the intestinal mucosa and loss of normal mucosa, but changes in gastrointestinal motility due to exposure to high-concentration radiation may also be a cause. Previous studies are demonstrating that patients who received radiation therapy had increased bowel movements, symptoms of urgency, and decreased rectal compliance. But there are only limited studies investigated the pattern of changes in the motility of human rectal smooth muscle following irradiation.

Aims & Methods: This study was conducted to investigate changes in motility and their mechanisms after irradiation in human rectum.

Human rectal tissues were obtained immediately in the operating room from patients undergoing colorectal resection. After removing the mucosal layer of rectum, muscle layer was cut in strips of 5-6 mm in length and 2-3 mm in width. The muscle strips were mounted to an isometric force transducer (Biopac Systems, Inc., Goleta, CA, USA) and suspended in 10 ml organ bath containing aerated (97% O_2 and 3% CO_2) and warmed (36.5 ± 0.5°C) KRB solution. The area under the curve (AUC) for 5 min and tone of spontaneous contractions were analyzed to compared the responses to KCl, ACh (acethylcholine), SNP (sodium nitroprusside), a nitric oxide donor, and ATP (adenosine triphosphate), a purinergic receptor agonist. The mechanical responses were recorded and digitized using Acknowledge software (Biopac Systems, Inc., Goleta, CA, USA). Data were analyzed offline using Clampfit (version 10.2. Molecular devices, San Jose, CA, USA). qPCR was performed for expression of VChAT, NOS1 and PDGFRα to quantify cells mediating cholinergic, nitrergic and purinergic neurotransmission.

Results: KCl and ACh increased the tonic contraction and area under the curve (AUC) in a concentration-dependent manner in both normal and irradiated rectum. The difference in contractile pattern between the two groups was not statistically significant. SNP and ATP decreased AUC and reduced tonic contractions in a concentration-dependent manner in both normal and irradiated rectum. The response to SNP between the two groups was not statistically significant.

However, the response to ATP reduced significantly in irradiated rectum compared to normal rectum. In addition, expression of VAChT and NOS1 which are related with cholinergic and nitrergic neurotransmission was not different in both normal and irradiated rectum, however, PDGFRα expression which is related with purinergic neurotransmission was significantly decreased in irradiated rectum compared to normal rectum.

Conclusion: In this study, we analyzed contractile changes in irradiated rectum using neurotransmitters. There were no differences in contractile responses to KCl and ACh and in relaxation response to SNP, however, the relaxation response to ATP was significantly reduced in irradiated rectum. Cholinergic and nitrergic neurotransmission were not changed, however, purinergic neurotransmission was decreased in in irradiated rectum.

These results may explain one of the causes by which increased bowel movements, symptoms of urgency, and decreased rectal compliance in irradiated patients.

Disclosure: Nothing to disclose.

PP1079

LAXATIVE USE IS ASSOCIATED WITH CHRONIC DIARRHOEA IN OLDER ADULTS LIVING IN CARE: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Introduction: Chronic diarrhoea affects 5% of the general population and has negative impacts on quality of life, but the prevalence in vulnerable older adults living in care is unknown. This study aimed to ascertain the prevalence of chronic diarrhoea in New Zealand older adults living in residential care and to explore associations between diarrhoea and medication use.

Aims & Methods: In 2021 a two-part study was conducted involving healthcare-recorded data and self-reported data from residents. The first part was a cross-sectional observational study of daily nursing records of residents living in 32 Ryman Healthcare facilities over three months. Bowel motion, anthropometric, medication and quality of life data were extracted and analysed. The prevalence of chronic diarrhoea was determined using the Rome IV criteria (at least 25% of bowels motions are type 6 or 7 on the Bristol stool chart for the last 3 months). Residents in rest home and hospital level of care at six facilities were invited to participate in the second part of the study. Residents completed Hospital Anxiety and Depression scale (HADS), the EQ-5D-3L, bowel habit and gastrointestinal symptom (ROME IV) questionnaires. Data were analysed using independent two sample T-tests and chi-square tests, p<0.05 was defined as statistically significant.

Results: The nursing records of 2411 residents were available for analysis; mean age of 87 years (SD 6.8), 70% were females (n=1682). Most lived in rest home care (n= 1140, 47%), 31% lived in hospital level of care (n=

745) and 22% were residents with dementia living in special care units (n= 536). Chronic diarrhoea was experienced by 618 (26%) residents; mean age 88 years, 68% females (n= 420, 47%). The frequency of bowel motions over the three-month period was significantly greater for the diarrhoea cohort (mean 102 bowel motions, range 26-373) compared to the normal bowel cohort (mean 85 bowel motions, range 21 – 280) (p <0.001). Polypharmacy, defined as five or more medications daily, was more likely in the residents with diarrhoea compared to residents with a normal bowel state (84 vs 48%, p= <0.001). Laxatives were administered to 66% of residents with chronic diarrhoea (404/618), 37% of whom were charted two or more different types. The most common laxative was Docusate sodium. The prevalence of chronic diarrhoea not related to laxative use was 9% (n=214). Residents experiencing diarrhoea, including those taking laxatives, were more likely to experience lower mood (18% v 12%, P< 0.01), be more at risk of pressure injuries (4% v 13%, P<0.001) and less likely to enjoy time with friends and family than residents without diarrhoea (38% v 20%, P<0.001). Weight loss was more likely in the laxative-taking diarrhoea cohort than the constipation cohort (50% v 39%, P< 0.001).

Self-reported data were collected from 110 rest-home and hospital-level care residents (mean age 88 years, SD 7.4). Chronic diarrhoea was experienced by 23 (21%) residents. Laxatives were charted to more than half of those residents (n=12, 52%). The prevalence of chronic diarrhoea not associated with laxative use was 10%; mean age 89 years (SD 4.5), 60% men (n=14), 56% living in rest home level of care (n=13).

Conclusion: Chronic diarrhoea is prevalent in care facilities and in most cases is associated with laxative use which may be inappropriate. Experiencing diarrhoea is negatively associated with QOL, mood and pressure injury risk, irrespective of the cause of diarrhoea. Prevalence is similar when obtained from nursing records and directly from residents.

Disclosure: Nothing to disclose.

PP1080

SYMPTOMS COMPATIBLE WITH DISORDERS OF GUT-BRAIN INTERACTION (DGBI) IN PATIENTS WITH SELF-REPORTED ORGANIC GASTROINTESTINAL DISEASES AND DIABETES MELLITUS

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Introduction: Patients with organic gastrointestinal (GI) diseases and diabetes mellitus (DM) can have concomitant symptoms compatible with a disorder of gut-brain interaction (DGBI). The differentiation of symptoms related more to a DGBI than to the organic disease is important since this influences treatment strategies.

Aims & Methods: This study aimed to compare the global prevalence of symptoms compatible with DGBI in adults with and without self-reported organic GI diseases or DM. Data was collected in a population-based internet survey in 26 countries; the Rome Foundation Global Epidemiology Study (N=54,127). Adult subjects were asked if they had ever been diagnosed by a doctor with any of several organic diseases including gastroesophageal reflux disease (GERD), celiac disease (CeD), peptic ulcer, diverticulitis, inflammatory bowel disease (IBD), and DM. Individuals not reporting each respective organic diagnosis were considered as the reference group. DGBI-compatible symptoms were grouped in regional subgroups based on the diagnostic questions of the Rome IV Adult Diagnostic Questionnaire: esophageal, gastroduodenal, bowel, and anorectal with special focus on five of the most frequently reported DGBI in those groups

Symptoms compatible with *Odds ratio's: presence vs absence of the respective organic disorder.*	Global Prevalence *n = 54,127*	GERD *n = 7,148*	Peptic Ulcer *n = 1,613*	Celiac Disease *n = 323*	IBD *n = 993*	Diverticulitis *n = 902*	Diabetes *n = 3,884*
Esophageal DGBI	6.9 (6.7-7.1)	17.9 (17.0-18.8)	17.5 (15.6-19.3)	21.4 (16.9-25.8)	17.5 (15.2-19.9)	16.2 (13.8-18.6)	9.6 (8.6-10.5)
Odds ratio [95% CI]		*4.08 [3.78-4.40]*	*3.18 [2.77-3.65]*	*3.54 [2.70-4.63]*	*2.85 [2.40-3.37]*	*2.46 [2.05-2.95]*	*1.42 [1.27-1.59]*
Gastroduodenal DGBI	12.2 (11.9-12.5)	28.5 (27.4-29.5)	29.6 (27.3-31.8)	31.3 (26.2-36.3)	32.3 (29.4-35.2)	25.4 (22.5-28.2)	15.6 (14.4-16.7)
Odds ratio [95% CI]		*3.70 [3.48-3.94]*	*3.17 [2.83-3.55]*	*3.20 [2.52-4.06]*	*3.47 [3.03-3.99]*	*2.43 [2.08-2.84]*	*1.35 [1.23-1.48]*
Bowel Disorder DGBI	36.0 (35.6-36.4)	53.5 (52.4-54.7)	53.6 (51.2-56.1)	46.4 (48.1-59.0)	62.1 (59.1-65.2)	56.4 (53.2-59.7)	40.9 (39.3-42.4)
Odds ratio [95% CI]		*2.32 [2.20-2.44]*	*2.12 [1.92-2.34]*	*2.06 [1.66-2.57]*	*2.96 [2.60-3.38]*	*2.29 [2.00-2.61]*	*1.24 [1.16-1.33]*
Anorectal Disorder DGBI	8.8 (8.6-9.1)	18.4 (17.5-19.3)	19.5 (17.6-21.5)	22.6 (18.0-27.2)	28.0 (25.2-30.8)	23.1 (20.3-25.8)	13.2 (12.1-14.2)
Odds ratio [95% CI]		*2.71 [2.53-2.91]*	*2.71 [2.38-3.09]*	*2.93 [2.25-3.81]*	*4.03 [3.49-4.65]*	*3.10 [2.64-3.64]*	*1.59 [1.44-1.76]*
Functional Dyspepsia	8.5 (8.2-8.7)	19.7 (18.8-20.6)	22.5 (20.5-24.5)	24.8 (20.1-29.5)	25.9 (23.2-28.6)	18.3 (15.8-20.8)	10.9 (10.0-11.9)
Odds ratio [95% CI]		*3.41 [3.17-3.65]*	*3.39 (2.99-3.84)*	*3.51 [2.71-4.54]*	*3.88 [3.35-4.50]*	*2.35 [1.97-2.79]*	*1.35 [1.21-1.50]*
IBS	4.8 (4.7-5.0)	12.5 (11.7-13.3)	14.5 (12.8-16.2)	14.6 (10.7-18.4)	21.0 (18.5-23.6)	16.6 (14.2-19.1)	6.7 (5.9-7.5)
Odds ratio [95% CI]		*3.84 [3.52-4.20]*	*3.65 [3.15-4.24]*	*3.31 [2.42-4.53]*	*5.66 [4.82-6.65]*	*3.92 [3.27-4.71]*	*1.43 [1.25-1.64]*
Functional Constipation	12.4 (12.1-12.7)	15.3 (14.5-16.2)	14.4 (12.7-16.2)	13.9 (10.2-17.7)	13.7 (11.6-15.8)	14.5 (12.2-16.8)	11.4 (10.4-12.4)
Odds ratio [95% CI]		*1.35 [1.25-1.44]*	*1.16 [1.01-1.34]*	*1.18 [0.86-1.61]*	*1.14 [0.95-1.37]*	*1.24 [1.03-1.50]*	*0.92 [0.83-1.02]*
Functional Diarrhea	5.1 (4.9-5.3)	7.1 (6.5-7.7)	6.9 (5.6-8.1)	6.2 (3.6-8.8)	8.1 (6.4-9.7)	7.9 (6.1-9.6)	8.5 (7.6-9.4)
Odds ratio [95% CI]		*1.53 [1.38-1.69]*	*1.39 [1.14-1.70]*	*1.23 [0.78-1.95]*	*1.57 [1.24-1.98]*	*1.51 [1.18-1.94]*	*1.81 [1.60-2.04]*
Functional Bloating/Distension	3.3 (3.1-3.4)	4.6 (4.1-5.1)	3.8 (2.9-4.8)	4.3 (2.1-6.6)	3.8 (2.6-5.0)	3.7 (2.4-4.9)	3.1 (2.5-3.6)
Odds ratio [95% CI]		*1.47 [1.30-1.67]*	*1.35 [1.04-1.76]*	*1.30 [0.76-2.24]*	*1.24 [0.89-1.72]*	*1.03 [0.73-1.47]*	*0.92 [0.76-1.11]*

PP1080 Table 1. Prevalence rates as % (95% confidence intervals) of symptoms compatible with DGBI in self-reported organic GI diseases and DM.

(functional dyspepsia (FD), irritable bowel syndrome (IBS), functional constipation, functional diarrhea and functional abdominal bloating)[1]. Mixed logistic regression, with country as random intercept, was used to calculate the odds ratios (ORs, including [95% confidence interval]) of having DGBI-compatible symptoms, comparing every respective organic disease to their reference group.

Results: The total prevalence rates of a self-reported history of organic disease were 13.2% (n=7,148) for GERD, 3.0% (n=1,613) for peptic ulcer, 0.6% (n=323) for CeD, 1.8% (n=993) for IBD, 1.7% (n=902) for diverticulitis, and 7.1% (n=3,884) for DM. Having any organic GI disease of interest increased the odds of symptoms compatible with a DGBI (prevalence 63.4% vs 43.0% in the reference group, OR 2.76 [2.64-2.90]), which was stronger than for DM (48.5% vs 43.0%, OR 1.26 [1.18-1.35]). Among the individual DGBI, symptoms compatible with IBS and FD were most commonly seen in all organic GI diseases. Increased OR for having symptoms compatible with DGBI were seen across the organic GI diseases. Expected strong links between the organic GI disease and DGBI were seen in the corresponding regions for the disease pathology (e.g. IBD and bowel DGBI, GERD and esophageal DGBI), but also with other regions (e.g. IBD and esophageal DGBI, GERD and anorectal DGBI) (Table 1).

Conclusion: DGBI-compatible symptoms are more common in patients with self-reported organic GI diseases and, to lesser extent, DM compared to the general population. Since this difference is also seen between organic disorders and DGBI-compatible symptoms where not expected, this may influence the focus of treatment strategies.

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Disclosure: Nothing to disclose.

PP1081

SYMPTOMS OF AVOIDANT/RESTRICTIVE FOOD INTAKE DISORDER (ARFID) AND OTHER EATING DISORDERS IN ADULTS IN THE GENERAL POPULATION WITH BOWEL SYMPTOMS

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Introduction: Disordered eating is reported to be common in disorders of gut-brain interaction. In this study, we aimed to identify symptoms compatible with disordered eating, including ARFID and other eating disorders (i.e., anorexia and bulimia nervosa) in a large population-based cohort with bowel symptoms.

Aims & Methods: An internet-based survey was completed by individuals (18-70 years) who met symptom thresholds to diagnose a functional bowel disorder. The survey included self-report measures for quality of life (QoL), bowel and gastroduodenal disorders of gut-brain interaction, gastrointestinal (GI) symptom severity, body mass index, non-GI symptoms, GI-specific anxiety, general anxiety, depression, symptoms of ARFID (NIAS), and screening for anorexia and bulimia nervosa (SCOFF). Validated cutoffs for NIAS (≥10 Picky eating; ≥ 9 Appetite; ≥10 Fear) and SCOFF (total score ≥2) were used to detect ARFID and other eating disorders, respectively. Hence, we identified three groups: 1) ARFID (≥ cutoff for any NIAS subscale and SCOFF <2); 2) eating disorder (SCOFF ≥2); 3) no disordered eating.

Results: In total, 825 adults participated (age 34.0±15.0 years (mean ± SD); 66.2% females). Of these, 65.1% fulfilled the Rome IV criteria for a FBD, and 15.5% met the criteria for functional dyspepsia. A positive screening for anorexia and bulimia was more common among participants with FD and overlapping FBD and FD compared to participants with only FBD (44.7% and 50.6% respectively vs 30.3%, p<.001), which in turn was higher compared to participants that did not fulfill diagnostic criteria for FBD or FD (14.9%, p<.001). Symptoms of ARFID were more common among participants with overlapping FBD and FD compared to participants with only FD, only FBD or participants who did not fulfill diagnostic criteria for FBD or FD (27.2% vs 14.9%, 9.9% and 14.1% respectively, p<.001). Both groups with disordered eating consisted of more females and reported more severe non-GI somatic and GI symptoms, general anxiety, depression as well as lower QoL compared to the group with no disordered eating (Table). Body weight/shape related disordered eating had also more GI-specific anxiety whilst symptoms of ARFID was associated with a lower body weight.

	No disordered eating (n=481)	ARFID (n=108)	Eating disorder (n=236)	P
Female sex, %	60.1*	75.9§	74.2#	<0.001
Age (years)	40.2 ± 15.4	36.8 ± 14.4§	31.8 ± 12.5#	<0.001
BMI (kg/m^2)	26.5 ± 6.0*	24.5 ± 6.7§	27.3 ± 6.2	<0.001
Non-GI somatic symptoms (PHQ-12)	7.5 ± 3.8*	9.4 ± 4.7	10.5 ± 4.5#	<0.001
GI-specific anxiety (VSI)	33.3 ± 17.0	36.4 ± 16.6	37.7 ± 13.1#	.001
Anxiety (PHQ-4)	1.5 ± 1.7*	2.4 ± 2.1	2.9 ± 1.9#	<0.001
Depressive symptoms (PHQ-4)	1.5 ± 1.6*	2.5 ± 2.0	3.0 ± 2.0#	<0.001
Overall GI symptom severity (IBS-SSS)	90.3 ± 99.8*	132.0 ± 116.1	156.5 ± 111.8#	<0.001
Quality of life (EQ-5D)	0.89 ± 0.11*	0.83 ± 0.16	0.82 ± 0.14#	<0.001

Data are mean ± SD or proportions (%) and groups were compared by Chi-square tests and ANOVA with pairwise comparisons (Bonferroni correction).
* P<0.05, No disordered eating vs. ARFID;
§ P<0.05, ARFID vs. eating disorder;
# P<0.05, No disordered eating vs. eating disorder.

Table. Demographics and symptoms in adults with bowel symptoms grouped by presence or absence of disordered eating.

Conclusion: Symptoms of ARFID and other eating disorders are very common in adults with bowel symptoms. Presence of disordered eating is associated with comorbid functional dyspepsia, more severe GI, non-GI, and psychological symptoms, as well as reduced quality of life. It is important to identify these individuals to optimize their medical, psychological, and dietary treatment.

Disclosure: Nothing to disclose.

PP1082

EFFICACY OF LUBIPROSTONE FOR TREATMENT OF CHILDHOOD FUNCTIONAL CONSTIPATION: AN OPEN LABEL RANDOMIZED CONTROLLED TRIAL

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Introduction: Up to 30% of the under 18 years age group suffer from functional constipation with significant impact on health-related quality of life. In addition to lifestyle and dietary modifications, the currently available medication (e.g. polyethylene glycol, lactulose, stimulant laxatives) have low response rates, frequent side-effects, and non-sustained effects. Lubiprostone is an oral chloride channel-2 activator that stimulates gastrointestinal fluid secretion, softens stools, and facilitates bowel movements. It is approved in the United States for the treatment of chronic idiopathic constipation in adults. The evidence about the effectiveness and safety of lubiprostone in pediatric age group is still limited, representing a gap in clinical practice.

Aims & Methods: Aim: To evaluation of the effectiveness and safety of lubiprostone in children and adolescents with functional constipation.

Patients and Methods: In an open label, randomized, controlled trial, we included 277 patients in the age group 8-18 years diagnosed as functional constipation (FC). The diagnosis of FC was dependent on ROME IV criteria. After physical evaluation, patients were randomly (Simple randomization) assigned to one of 2 arms.

First arm (*n* =137): patients received lubiprostone at doses of 24 mcg/day on divided doses or 24 mcg BID if weighing < 50 kg or ≥ 50 kg, respectively. Second arm (control, *n* = 140): patients received Bisacodyl, lactulose, or Sodium Picosulfate in appropriate doses. Treatment extended for 12 weeks followed by 4 weeks follow-up after treatment cessation (week 16). Evaluation during the study was done at baseline, weeks 2, 8, 12, and 16 of the study.

The primary endpoint was spontaneous bowel movements (SBM) at week 12 and 16 compared to baseline. Improvement in the constipation was defined as increased SBM ≥ 1 SBM/week in frequency compared with baseline and maintaining ≥ 3 SBMs/week for at least 8 weeks (including the last 4 study weeks and the 4 weeks of follow-up). Safety assessment was done at clinic visits and by telephone as well as recording of patient-reported AEs.

Results: The two arms were matched as regards the mean ± SD of SBM at baseline (1.23 ± 0.37 motions/week for lubiprostone vs. 1.19 ± 0.28 motions/ week for control, P = 0.24). the primary endpoint was achieved in 128 (93.4%) patients of lubiprostone group, and in 48 (34.3%) patients of the control group (p < 0.001, χ^2 = 105.42). In subgroup analysis, lubiprostone was superior to different laxatives in the control arm (p< 0.001, F = 95.6). At 12 weeks, the mean SMB in lubiprostone arm was (4.78 ± 0.99 motion/week) vs. (2.70 ± 1.04 /week) for control group (P <0.001).

This difference was sustained for 4 weeks follow-up in lubiprostone group only. The overall side-effects occurred among 46% of lubiprostone group, and 48% in control group (p = 0.99). The most common adverse event in lubiprostone group were colicky abdominal pain (26%), and headache (14%), There was no life-threatening drug-related adverse events.

	Lubiprostone, n = 137	control, n = 140	P
Spontaneous bowel motion baseline	1.23 ± 0.37	1.19 ± 0.28	0.24
Spontaneous bowel motion 2 weeks	3.05 ± 0.94	2.64 ± 1.58	0.008
Spontaneous bowel motion 8 weeks	4.24 ± 0.97	2.97 ± 1.32	< 0.001
Spontaneous bowel motion 12 weeks	4.78 ± 0.99	2.70 ± 1.04	< 0.001
Spontaneous bowel motion 16 weeks	4.73 ± 1.14	2.25 ± 1.01	< 0.001

Conclusion: Lubiprostone is superior to conventional laxatives, and well tolerated treatment for functional constipation in pediatric and adolescent age groups.

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Disclosure: Nothing to declare

PP1083

IRREGULAR BOWEL HABIT INCREASES THE RISK OF ANXIETY AND DEPRESSION

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Introduction: It is known that the irregular rhythm of defecation in the form of constipation increases the risk of colorectal cancer by almost 2 times [1-3]. Constipation increases the risk of cardiovascular mortality by 39% - 56% [4 - 6]. Irregular bowel habit increases the risk of obesity, stroke and comorbidity [6 - 8]. However, the effect of irregular bowel habits on the risk of anxiety and depression remains poorly understood.

Aims & Methods: The aim was to screen irregularity of the circadian rhythm of defecation and the occurrence of anxiety and depression in cardiological patients.

We used the method of "Chronoenterography" – weekly monitoring of the regularity of the rhythm of defecation and the study of the level of Anxiety and Depression using a special questionnaire HADS and took into account the level of quality of life (SF-36). 66 patients (38 women and 28 men aged 40-79 years) who were hospitalized for metabolic syndrome in a cardiology clinic were examined.

Results: Irregular Bowel Habit (IBH) occurred in 65% of the examined patients (in 43 out of 66). Regular Bowel Habit (RBH) was detected in 35% of patients (in 23 out of 66). 3 stages of IBH have been identified. The first stage (mild, 5-6 bm/w) occurred in 61% of patients. The second stage (moderate, 3-4 bm/w) – in 30% of patients. The third stage of IBH (severe, 1-2 bm/w) – in 9% of patients. It should be noted that the first two stages of IBH were almost 10 times more common than the third (constipation stage). Anxiety and depression were not detected in patients with RBH.

Subclinical anxiety in patients with mild stage of IBH was detected in 12% of cases, in patients with moderate stage of IBH – in 33% of cases, in patients with severe stage of IBH – in 57% of cases. Subclinical depression in patients with mild stage of IBH was diagnosed in 12% of cases, in patients with moderate stage of IBH – in 17% of cases, in patients with severe stage of IBH – in 43% of cases. Consequently, a progressive dependence of the level of anxiety and depression on the stage of severity of IBH was revealed. In patients with a Regular Bowel Habit, an "excellent" quality of life was found in 55% of cases. Among patients with IBH, "Excellent" quality of life was found in 10% of cases. Consequently, the probability of an "Excellent" quality of life in patients with RBH was 5 times higher than in patients with IBH. Patients with IBH have an almost 5-fold increased risk of deterioration in the quality of life.

Conclusion: 1. Irregular Bowel Habit was detected in 63% of cardiac patients.

2. Irregular Bowel Habit increases the risk of subclinical anxiety gradually from mild to moderate and severe stages of this habit (12%, 33% and 57%, respectively).

3. Irregular Bowel Habit increases the risk of subclinical depression gradually from mild to moderate and severe stages of this habit (12%, 17% and 43%, respectively).

4. A high level of quality of life in patients with a regular (daily) Bowel Habit was 5 times more common than in patients with an Irregular Bowel Habit.

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research in gastroenterology. 2022, P.1081. P1003.

Disclosure: Nothing to disclose.

PP1084

ARTIFICIAL INTELLIGENCE AND ANORECTAL MANOMETRY: AUTOMATIC DETECTION AND DIFFERENTIATION OF ANORECTAL MOTILITY PATTERNS - A PROOF OF CONCEPT STUDY

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Introduction: Anorectal disorders, causing fecal incontinence or evacuation dysfunction are common, affecting up to 5% of the general population (1).

Most of these disorders result from an intricate combination of disturbances, including neurologic and pelvic floor musculature dysfunction, and have a significant impact in the quality of life of patients (2,3).

Anorectal manometry (ARM) is the gold standard for the evaluation of anorectal functional disorders. Nevertheless, the accessibility to this exam is limited, and the complexity of data analysis and report is a significant drawback (4).

Aims & Methods: This pilot study aimed to develop and validate an artificial intelligence (AI) model to automatically differentiate motility patterns of fecal incontinence (FI) from obstructed defecation (OD) using ARM data.

We included ARM exams performed at a large gastrointestinal motility clinic in Brazil (Pelvia – Gastrointestinal Motility and Continence, Paraná, Brazil) between 2015 and 2021. All ARM procedures were performed using water-perfused probes with eight radial transducers with a distal latex balloon.

We developed and tested multiple machine learning algorithms for the automatic interpretation of ARM data. Four models were tested: k-nearest neighbors (KNN), support vector machines (SVM), random forests (RF) and gradient boosting (xGB). These models were trained using a stratified 5-fold strategy. Their performance was assessed after fine-tuning of each model's hyperparameters, using 90% of data for training and 10% of data for testing.

Results: A total of 827 ARM exams were used in this study, 493 of patients diagnosed with obstructed defecation (OD), while the remaining 334 presented FI. The performance marks of the different tuned models, including the precision, sensitivity and the F1-score, is summarized on table 1.

After fine-tuning, the xGB model presented an overall accuracy (84.6 ± 2.9%), similar to that of RF (82.7 ± 4.8%) and SVM (81.0 ± 8.0%), and higher that of KNN (74.4 ± 3.8%). The xGB models showed the highest discriminating performance between OD and FI, with an area under the curve of 0.939.

Model	Class	Precision (mean % ± SD)	Sensitivity (mean % ± SD)	F1-score (mean % ± SD)
KNN (K-Nearest Neighbors)	OD	79.6 ± 2.7	76.6 ± 5.4	78.0 ± 3.7
	FI	68.0 ± 5.1	72.0 ± 3.7	69.8 ± 3.6
SVM (Support Vector Machines)	OD	85.0 ± 6.1	82.2 ± 8.8	83.6 ± 7.4
	FI	75.6 ± 10.2	79.4 ± 8.0	77.6 ± 8.9
RF (Random Forests)	OD	81.8 ± 1.6	90.0 ± 7.3	85.6 ± 4.4
	FI	84.0 ± 10.5	71.6 ± 1.3	76.8 ± 4.7
xGB (Gradient Boosts)	OD	83.6 ± 4.3	92.4 ± 3.6	87.6 ± 2.2
	FI	87.4 ± 4.8	73.6 ± 8.2	79.6 ± 4.6

Table 1.

Conclusion: The tested machine learning algorithms, particularly the xGB model, accurately differentiated between FI and OD manometric patterns. Subsequent development of these tools may optimize the access to ARM studies, which may significantly impact on the management of patients with anorectal functional diseases.

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PP1085

PROXY MEASURES FOR SOCIOCULTURAL RISK FACTORS AND THE PREVALENCE OF FUNCTIONAL DIARRHEA: AN ECOLOGICAL STUDY

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Introduction: Functional diarrhea (FDr) is a disorder of gut-brain interaction (DGBI) characterized by chronic or recurrent diarrhea, not explained by structural or biochemical abnormalities. It is distinct from diarrhea predominant irritable bowel syndrome (IBS) with recurrent symptoms and notably the absence of pain. While functional conditions present with complex, likely heterogenous pathophysiology, we aimed to investigate if proxy measures of sociocultural risk factors have any association with the prevalence of FDr in populations across the world.

Aims & Methods: We performed an ecological study utilising peer-reviewed published datasets reporting country prevalence of FDr[1], Helicobacter pylori (H.p) prevalence[2] as proxy measures for orofecal infections, and the density of quick service restaurants (QSR) per population as proxy measure for processed food exposure. In addition, we used proxy measures of development including household size, median age, gross domestic product (GDP) per capita. The data were retrieved from publicly accessible datasets (United Nations, CIA, World Bank, commercial/financial reports of a global QSR chain). Spearman rank correlations were used to test univariate associations.

Results: The prevalence of FDr in 33 countries was negatively correlated with both the number of people per QSR (r= -0.44, p= 0.02), and household size (r= -0.69, p <0.0001), while positively correlated with median age (r= 0.58, p= 0.004) and GDP/capita (r= 0.56, p= 0.006). Assocaitions with H.Pylori infection did not reach significance (r= -0.27, p= 0.16).

Conclusion: Utilising publicly available data, the prevalence of FDr across diverse countries are linked to various markers of social development and a proxy marker of processed food consumption.

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Disclosure: Nothing to disclose.

PP1086

EFFECT ON CLINICAL SEVERITY AND QUALITY OF LIFE OF SPECIFIC TREATMENTS FOR SOFT STOOLS IN WOMEN WITH FECAL INCONTINENCE

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Introduction:
Fecal incontinence (FI) has a strong impact on quality of life (QoL). The main treatments focus on the rehabilitation of anorectal function. In a previous study we found that sphincter dysfunctions were severe and similar in patients with or without soft stools, but their presence worsened clinical severity and QoL significantly, requiring a specific diagnostic and therapeutic approach. FI and diarrhea are strongly associated, and treatment of the latter may be an effective method to ameliorate FI.
Some studies show that loperamide or fiber supplements in these patients is effective at least in the short term, although effective long-term and specific treatments aimed at the cause of diarrhea need to be identified.

Aims & Methods: To assess the impact on clinical severity and QoL of specific treatments for soft stools or diarrhea in patients with FI and diarrhea. Quasi-experimental study. We assessed anorectal function with high-resolution anorectal manometry, fecal consistency (Bristol Stool Chart), clinical severity (Wexner Score) and QoL (FIQL/EQ5D) in women with FI, and feces with Bristol≥5; patients underwent a breath-test to detect lactose, fructose/sorbitol malabsorption and SIBO, as potential causes of diarrhea, and an empirical test using cholestyramine to assess the presence of malabsorption of bile salts. Patients with SIBO were treated with Rifaximin 1200mg/day for 15 days. Those intolerant to lactose and fructose/sorbitol were given an exclusion diet. Those who did not show intolerances were administered Resincholestyramine 4g/12 hours for 15 days. Bristol, QoL and clinical severity were re-assessed in a follow-up visit one month later.

Results: Seventy-four women with FI and soft stools completed the study; mean age was 64.92±11.70 years. Of them, 59.18% had dysfunction of the external anal sphincter, 51.02% of the internal sphincter and 15.59% of both. Rectal hypersensitivity was shown in 12% of patients and 20% had hyposensitivity. Cough reflex was altered in 41.7%. Regarding the origin of the diarrhea, 43.9% showed bile salt malabsorption, 26.6% fructose/sorbitol intolerance, 17.1% SIBO and 12.2% lactose malabsorption. After one month of specific pharmacological treatment or exclusion diet we observed that 92.9% of the patients improved fecal consistency (Bristol 3-4). Clinical severity (Wexner) was reduced by 66% (11.61±3.64 pre-treatment vs 3.89±4.05 post-treatment; p<0.001). QoL improved in all dimensions of the FIQL score (pre/post-treatment): Lifestyle (2.69±0.91/3.40±0.72 p<0.01), coping (2.32±0.88/3.03±0.78 p<0.01), depression/self-perception (2.77±0.70/3.33±0.56 p<0.01) and embarrassment (2.77±0.90/3.33±0.77 p<0.01). Health perception (EQ5D) also improved after the treatment (61.96±15.91/70±7.39 p=0.017).

Conclusion: Presence of soft stools or diarrhea is a very prevalent and important risk factor in women with IF in addition to sphincteric and anorectal alterations. Our findings suggest that specific treatment aimed at the cause of diarrhea can be highly effective in improving patient outcomes

and QoL, regardless of disorders of the anorectal function. We suggest that rehabilitation strategies must start after stool assessment. This study highlights the importance of continued research in this area to help improve treatment options for this debilitating condition.

Disclosure: Nothing to disclose.

PP1087

STUDY OF CORTICO-ANO-RECTAL NEUROPHYSIOLOGY IN WOMEN WITH FECAL INCONTINENCE

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Introduction: Fecal incontinence (FI) is a very prevalent health condition, affecting up to 15% of community-dwellers, 24% in the case of women. While the pathophysiological aspects of pelvic biomechanics associated with FI have been extensively studied, recent research has shown that neurophysiological alterations at a higher level (cortical or spinal) can also be present. The neurophysiology of the entire cortico-anal motor pathway and its possible dysfunction in FI is rather unknown.

Aims & Methods: To characterize the integrity of the cortico-spino-anorectal efferent pathways in women with FI, and compare them with age-matched healthy volunteers (AM-HV), and young nulliparous healthy volunteers (Y-HV), 18-35 years of age.

Observational study on 18 women with FI and a mean age of 63.4±11.5 years in whom sphincter function and structure were assessed with high-resolution anorectal manometry (HRAM) and endoanal ultrasound (EUS); neurophysiology was assessed by pudendal nerve terminal motor latency (PNTML) and anal and rectal motor evoked potentials (MEP) after transcraneal and translumbosacral magnetic stimulation (TMS and TLSMS) (efferent pathways). The main parameters evaluated were PNTML latency/amplitude of the action potential; and latency and amplitude of the anorectal MEPs in the cortico-ano-rectal segment, and lumbo-ano-rectal and sacro-anorectal segments, on both sides. In addition, the neurophysiology of a cohort of 15 AM-HV (60.7±9.01 years old) and 15 Y-HV (24.8±5.59 years old) was also studied.

Results: a) Structure and function. HRAM: 83.24% of patients with FI had impairment of the external anal sphincter (EAE), 40% of the internal (IAS), and 23.57% of both. EUS: 11.76% had injuries on the puborectalis, 58.82% showed tears in the EAE and 11.76% IAS disruptions.

b) Neurophysiology. Efferent motor pathways: mean left PNTML of the patients was 2.37±0.32; for HV was 2.29±0.29, and for YHV 1.9±0.33 (significant between patients and YHV; $p<0.05$). Right PNTML was 2.11 ± 0.34 and 2.14 ± 0.41 for patients and HV, respectively (ns).

Among the patients, 20% showed motor neuropathy in at least one branch of the pudendal nerve. Motor pathways (MEP): Patients showed longer MEPs latencies compared to HV in several neural segments (cortico-spinal, lumbo-anal right, Lumbo-rectal right, and Sacro-anal right; ($p<0.05$).

We also found statistically significant differences between all sacral segments between HV and YHV. Taking the reference values from HV, 50% of patients with FI had impairments in the cortico-spinal segment, also 50% in the lumbo-anal and 44.4% in the sacral segment.

Overall, we found that 82.4% of patients showed delayed latencies in at least one of the cortico-ano-rectal segments studied.

Conclusion: We found a high prevalence of motor efferent cortico-anorectal pathway impairments in women with FI, with delayed latencies in most segments, beyond the pelvic floor. These findings suggest a complex pathophysiology of FI, which involves impairment of neural pathways at a higher level. Future treatment strategies based on neural stimulation at cortical or spinal level might be key in the rehabilitation of these patients.

Disclosure: Nothing to disclose.

PP1088

EFFECTIVENESS OF *SACCHAROMYCES BOULARDII* CNCM I-745 IN ADULT PATIENTS WITH DIARRHOEA – A RETROSPECTIVE, MULTICENTER, COMPARATIVE STUDY FROM INDIA

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Introduction: Diarrhoea is a common condition caused by bacterial, viral, protozoal infection and certain medications.[1,2] Management of diarrhoea involves maintenance of hydration by oral or intravenous fluids, antidiarrheal drugs, probiotics etc.[3,4] *Saccharomyces boulardii* (*S. boulardii*) CNCM I-745 is a probiotic which has been found to be effective in controlling pathogenic as well as antibiotic associated diarrhoea.[5,6,7]

The efficacy of S boulardii CNCM I-745 was evaluated and confirmed through multiple RCTs across the globe.[8]

Though there are few real world studies from Western countries which have evaluated the effectiveness of *S. boulardii* CNCM I-745 in reducing duration as well as frequency of diarrhoea, such studies are scarce in the Indian population.

Aims & Methods: Aims: Primary objective was to evaluate the effectiveness of *Saccharomyces boulardii (S. boulardii)* CNCM I-745 in adult patients with diarrhoea. Secondary objective was to compare the effectiveness of *S. boulardii* CNCM I-745 and treatment modalities other than probiotics in adult patients with diarrhoea and also in subset of patients who were using concomitant antibiotics.

Methods: This is a retrospective, multicenter, comparative study analyzing electronic medical records (EMR) of 1727 adult patients with diarrhoea in India.

From the EMR database, the total number of adult patients diagnosed with diarrhoea at baseline and administered *S. boulardii* CNCM I-745 (test group) was 270. A control group was formed of 1457 patients who were administered any anti-diarrhoeal and /or oral rehydration therapy for managing diarrhoea excluding probiotics. Patients were enrolled at baseline with complaints of diarrhoea or loose motions with one follow up visit within 15 days. A total of 112 patients with diarrhoea at baseline in test group, and 392 patients with diarrhoea in control group, were noted to have been administered concomitant antibiotics.

Results: For the test group, the mean age was noted to be 48.54 + 16 years and for control group it was 45.84 + 16.08 years. There was female preponderance in both the control and test group (56.7% Vs 51.5%).

At follow-up, 22.2% patients in test group complained of diarrhoea Vs 84.2% in control group. Thus proportion of patients with continued diarrhoea at follow-up was significantly lower in the S Boulardii group versus the control group ($p<0.05$). The odds ratio for noting absence of diarrhea in test group versus control group was 18.7, with 95% confidence interval of 13.6 to 25.7.

Amongst the subset of patients who received concomitant antibiotics, 23.2% patients in test group complained of diarrhoea Vs 81.6% in control group, at follow up visit. The proportion of patients receiving concomitant antibiotics with continued diarrhoea at follow-up was significantly lower in the test group versus the control group ($p<0.05$). The odds ratio for noting absence of diarrhea in test group versus control group receiving concomitant antibiotics was 14.7, with 95% confidence interval of 8.8 to 24.4.

Conclusion: The effect of *S. boulardii* CNCM I-745 probiotic in controlling diarrhoea in Indian patients was better than anti-diarrhoeal and/or oral rehydration therapy in real-world setting, irrespective of concomitant antibiotic usage.

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Disclosure: Nothing to disclose.

PP1089

NALOXEGOL RESTORES CODEINE-INDUCED INHIBITION OF HIGH-AMPLITUDE PROPAGATING CONTRACTIONS AND INCREASE OF RETROGRADE CONTRACTIONS IN A RANDOMIZED, THREE-WAY CROSSOVER COLONIC HIGH-RESOLUTION MANOMETRY STUDY IN HEALTHY VOLUNTEERS

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Introduction: Opioid-induced constipation (OIC) is a highly prevalent condition among patients treated with opioids for chronic pain. Although constipation and other gastrointestinal side effects can present in 40-90% of opioid users, their effects on colonic motor function and their reversal by opioid antagonists are poorly understood.

Aims & Methods: Our aim was to evaluate the effects of opioids and the reversal effects of a peripheral-acting mu-opioid receptor antagonist (PAMORA) on colonic motor patterns in healthy volunteers (HV), using colonic high-resolution colonic manometry.

We invited 15 healthy volunteers for our randomized, placebo-controlled, double-blind crossover study. The combination of naloxegol/placebo, placebo/codeine, or naloxegol/codeine was administered during three study visits, each separated by at least 1 week of wash-out. Participants underwent a colonoscopy after a half dose of standard PEG preparation for colonic manometry catheter (40-sensor high-resolution manometry catheter 2.5 cm spacing, Laborie, Mississauga, Canada with attached perfusion catheter) placement. Colonic pressure waves (PWs) were evaluated during sleep (1h), in the fasted state (1h), after a standardized bread meal (645 kcal) (2h), and after intraluminal administration of 10 mg bisacodyl (1h). We analyzed the number and direction of propagation of short PWs (over 3-4 sensors), long PWs (>4 sensors), and high-amplitude propagating contractions (HAPCs; long PWs with an amplitude of ≥100 mmHg for at least 1 sensor and 2 sensors of ≥90 mmHg). Upon awakening, participants received 25 mg of naloxegol or matching placebo. In addition, placebo or 60 mg codeine was administered orally, followed by another intake of half this dose one-hour post-prandial. Statistical analyses used a Friedman test and corrected for multiple testing.

Results: Fifteen HV (6 men/9 women, 31.9±3.6 years) finalized all three study visits; one participant was omitted from the analysis because of a missing trace. Both short and long synchronous PWs did not occur statistically significantly more or less in one of the 3 conditions, for all time periods. The same result was found for the antegrade PWs in all time periods. Postprandially, long retrograde PWs occurred statistically significantly less often with naloxegol/placebo compared to placebo/codeine (p=0.04). Additionally, short retrograde PWs occurred less often with naloxegol/placebo than with placebo/codeine (p=0.03). Post bisacodyl administration, both short and long retrograde PWs occurred more often with placebo/codeine, and HAPCs occurred less compared to both naloxegol conditions (Table).

	naloxegol/placebo	placebo/codeine	naloxegol/codeine	p-value
Long synchronous	19.00 (7.75-37.25)	10.00 (2.75-36.75)	9.50 (5.75-41)	0.49
Long retrograde	10.00 (3.75-19.50)	24.50 (3.75-43.00)	9.50 (2.75-16.50)*	0.02
Long anterograde	6.00 (4.00-8.00)	3.00 (0.75-12.25)	6.00 (1.75-9.50)	0.67
Short synchronous	21.50 (15.75-37.00)	25.50 (14.50-32.25)	18.00 (13.00-28.75)	0.75
Short retrograde	16.50 (11.00-20.25)*	41.50 (21.50-74.25)	19.00 (8.75-25.50)*	0.01
Short anterograde	12.00 (8.75-20.50)	18.00 (12.00-26.25)	13.50 (9.00-18.00)	0.66
HAPCs	7.00 (5.75-13.25)*	0.00 (0.00-0.00)	7.50 (1.50-9.75)*	0.0003

Table.

Median (25-75% interquartile range) number of colonic pressure waves in the post bisacodyl period (n=14). * significantly different from placebo/codeine with the Friedman statistical test and correction for multiple testing (p<0.05).

Conclusion: Codeine administration enhances retrograde contractions and inhibits high-amplitude propagating contractions after intraluminal bisacodyl administration in healthy volunteers and these effects are reversed by the PAMORA naloxegol. These observations enhance our understanding of the mechanisms underlying OIC and its treatment with naloxegol.

Disclosure: Nothing to disclose.

PP1090

THE EFFECT OF S-ADEMETIONINE ON PLASMA CITRULLINE LEVEL IN PATIENTS WITH CHRONIC LYMPHOPROLIFERATIVE DISORDERS WITH CHEMOTHERAPY-INDUCED DIARRHEA

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Introduction: The principal treatment option for treating chronic lymphoproliferative disorders (CLPD) is chemotherapy. The central concept in chemotherapy (CT) is adherence to the dose and drug administration regimens. It is impotent that infusion of CT agents in high doses is associated with an increased risk of chemotherapy-induced injury of the entire gastrointestinal tract (GIT).

The clinical manifestations of chemotherapy-induced mucositis are diarrhea. The presence of chemotherapy-induced injury mucositis can be assessed by the level of N-acetylneuraminic acid (NANA) and citrulline in the blood. The primary mechanism of the cytotoxic influence of CT agents is strongly associated with oxidative stress.

Aims & Methods: The aim is to investigate the effect of S-ademetionine on plasma NANA and citrulline levels in patients with CLPD during chemotherapy-induced injury The aim is to investigate the effect of S-ademetionine on plasma NANA and citrulline levels in patients with CLPD during chemotherapy-induced injury GIT.

Materials and methods: 24 patients with CLPD were examined (15 (75%) patients with B-cell chronic lymphocytic leukemia and 10 (25%) patients with Small B-cell non-Hodgkin lymphoma, 7 (28 %) females and 18 (72 %) males, ages 30-76. The inclusion criteria were the progression of B-CLL, Small B-NHL, and diarrheal syndrome on the background of CT. The examinations were conducted twice: before CT and after 3 courses of CT. Patients were analyzed the concentration of NANA in the blood, and the concentration of the citrulline in the plasma.

All patients received CT: BR (bendamustine, rituximab), FCR (fludarabine, cyclophosphamide, rituximab), R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone). Depending on the inclusion of S-ademetionine as an adjuvant treatment, patients were divided into groups: I (n=13) – patients with CLPD, who received only CT. II (n=14) – patients with CLPD, who received S-ademetionine at a dose of 1000 mg/day intravenously for 10 days, then 500 mg twice a day for 20 days. III (n=20) – the control group of 20 practically healthy individuals (9 (45 %) females and 11 (55 %) males, ages 22-26).

Results: Patients in both groups with CLPD had pre-existed mucosal injury characterized by 1.25 (p=0.0025) and 1.26 times (p=0.006) higher blood NANA concentration than the control group. The conduction of CT was associated with injury enterocytes, which was characterized by 1,66 times (p=0,0002) lower plasma citrulline level in patients of group I compared to the initial examination. The infusion of S-ademetionine attenuated intestinal dysfunction associated with 1,23 times (p=0,0005) higher blood citrulline level after the CT compared to group I.

Conclusion: The infusion of S-ademetionine as adjuvant treatment in patients with CLPD provided effective prophylaxis of GIT injury that was associated with higher blood citrulline levels after the conduction of CT.

Disclosure: Nothing to disclose.

PP1091

UTILITY OF CT COLONOGRAPHY AS A DIAGNOSTIC PROCEDURE FOR IRRITABLE BOWEL SYNDROME

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Introduction: Computed tomography colonography (CTC) has been developed as a less invasive alternative method to colonoscopy for colorectal cancer screening. Some subjects who underwent CTC reported abdominal pain induced by carbon dioxide gas injection during examination. We speculated that pain perception during CTC might reflect visceral hypersensitivity related to irritable bowel syndrome (IBS).

Aims & Methods: In this study, we investigated whether pain perception induced by carbon dioxide gas injection during CTC is different between patients with IBS and healthy controls. Furthermore, we evaluated the correlation between the pain score during CTC and the severity of the IBS symptom or the quality of life of patients with IBS. A prospective study of consecutively registered patients who underwent CTC for colorectal cancer screening in a single medical center was conducted. IBS was diagnosed using the Rome IV criteria, and patients with IBS were classified into IBS subgroups according to the predominant stool pattern experienced by the patient. In addition, all subjects completed the IBS Severity Scale (IBS-SS) and IBS-QOL questionnaire. Pain perception during CTC was quantified using the visual analog scale (VAS) at six time points during the CTC as follows: (1) before CTC, (2) immediately after carbon dioxide gas injection, (3) until the injection pressure reached a plateau (18 mmHg), (4) in the prone position after carbon dioxide gas injection, (5) in the supine position after carbon dioxide gas injection, and (6) after CTC. We also evaluated the association between the VAS and IBS-SS scores.

Results: One hundred twenty-three subjects who underwent CTC were enrolled in this study. Thirteen subjects were excluded because of incomplete questionnaires (n = 10) or a diagnosis of colorectal cancer with CTC (n = 3). Fifteen patients were diagnosed as having IBS on the basis of the Rome IV criteria for IBS. Patients with IBS were classified into the following groups: IBS with diarrhea (IBS-D, n = 1), IBS with constipation (IBS-C, n = 3), mixed IBS (IBS-M, n = 3), and unspecified IBS (IBS-U, n = 8). No significant differences in background characteristics, including age, sex, alcohol consumption, and smoking habit, were found between the IBS and control groups. The volume of carbon dioxide gas injected during CTC did not show a significant difference between the two groups. The total colon length was not significantly different between the two groups. The VAS score of the IBS groups was significantly higher than that of the control group at two time points, (2) immediately after carbon dioxide gas injection ($p < 0.01$) and (3) until the injection pressure reached a plateau (18 mmHg; $p < 0.01$). The maximum VAS score during CTC was also significantly higher in the IBS groups than in the control group ($p < 0.05$). Although the IBS-SS score was significantly higher in the IBS groups than in the control group, we found no significant correlation between the VAS and IBS-SS scores in the IBS groups. The IBS-QOL score also did not show any significant correlation with the VAS score.

Conclusion: Our study indicates that pain perception evaluated using the VAS during CTC might be a potential diagnostic method for IBS. Further study is necessary to clarify the association between pain perception induced by CTC and IBS severity.

Disclosure: Nothing to disclose.

PP1092

TEMPORAL STABILITY OF FECAL METABOLOMIC PROFILES IN IRRITABLE BOWEL SYNDROME

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Introduction: Previous studies indicate that patients with irritable bowel syndrome (IBS) may present with altered fecal microbiota and metabolite profiles. While changes in bowel habits seem to not influence the microbiota dynamics, the stability of fecal metabolites in IBS patients has not been addressed yet.

Aims & Methods: This study aimed to assess the stability of the fecal metabolite profile over time, and its link with fluctuations of stool consistency. It used fecal samples from two cohorts (A and B) comprising healthy subjects and patients with IBS diagnosed according to either Rome III (Cohort A) or Rome IV (Cohort B) and subtyped using the Bristol Stool Form (BSF) scale. Cohort A collected fecal samples for 5 consecutive days that were analyzed by gas chromatography-tandem mass spectrometry (GC-MS/MS).

Additionally, IBS patients collected up to 3 additional samples within one of those days. Cohort B collected fecal samples at week 0 (healthy and IBS) and week 4 (only IBS), later analyzed by liquid chromatography-MS (LC-MS).

All participants reported stool consistency using BSF scale. Metabolome variation based on the metabolite intensity signals was assessed by Bray-Curtis dissimilarity in R (version 4.2.1). Additional statistical analyses were conducted in GraphPad (version 9.4.1).

Results: Cohort A (7 healthy subjects and 8 IBS patients with mixed bowel habits, IBS-M) provided 66 fecal samples. Twenty-nine samples were collected from Cohort B (7 healthy subjects, 3 IBS-M, and 8 IBS patients with predominant diarrhea). The metabolome of Cohort A (n=155 spectral features) at day 1 showed similar composition with a tendency towards a higher Bray-Curtis dissimilarity in the IBS group (0.026 (0.023-0.028) vs 0.028(0.025-0.032); p=0.10).

Over a period of 5 days, metabolome dissimilarities were higher between- than within- individuals (Table 1) and fluctuated minimally over time for both healthy subjects and IBS patients. The stool type however changed more over time in the IBS than the healthy group (p<0.001).

Consecutive samples taken within the same day showed higher compositional variance between- than within- IBS patients (Table 1). At individual level, the metabolomic profiles remained stable despite changes in the BSF score. In Cohort B, the metabolome profile comprised 6 999 spectral features.

The metabolome dissimilarity was higher in IBS patients as compared to healthy subjects at week 0 (0.045(0.040-0.048) vs 0.048(0.042-0.054); p<0.05). In the IBS group, the metabolome was stable between week 0 and week 4 regardless of stool form and differed more between- than within-patients (Table 1).

Cohort A		Within-individuals	Between-individuals	P value
Healthy	*Over 5 days*	0.020 (0.018-0.024)	0.028 (0.025-0.32)	<0.0001
IBS	*Over 5 days*	0.021 (0.016-0.029)	0.029 (0.026-0.033)	<0.0001
	Within a day	0.017 (0.015-0.033)	0.034 (0.031-0.036)	<0.01
Cohort B: *IBS*	Over 4 weeks	0.028 (0.023-0.038)	0.048 (0.042-0.054)	<0.0001

Table 1. Fecal metabolome variation in healthy subjects and IBS patients using Bray-curtis dissimilarity analysis. Dissimilarity index ranges from 0 (identical composition) to 1 (totally different composition).

Conclusion: The metabolite profile of fecal samples remains stable over time within an individual IBS patient independently of the variation in stool consistency. This study suggests the use of fecal metabolites as a potential non-invasive diagnostic tool in IBS.

Disclosure: Nothing to disclose.

PP1093

A CASE-BASED SURVEY ON THE CUSTOMARY MANAGEMENT OF IBS IN PRIMARY CARE AND AMONG GASTRO-ENTEROLOGISTS

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Introduction: Irritable bowel syndrome (IBS) is a highly prevalent disorder. According to Rome IV, the diagnosis relies on the presence of abdominal pain in association with a change in stool consistency or frequency. Guidelines recommend minimal testing to exclude other diseases, while advising on therapeutic options. However, the actual application of these guidelines into practice needs confirmation.

Aims & Methods: This study aims to assess the management of IBS by general practitioners (GP) and gastro-enterologists (GE) in their daily practice. Methods: Belgian GP and GE completed an online vignette-based survey between January and July 2022. Apart from data about years of experience, participants indicated their preferred diagnostic modality or therapeutic option for eight cases of diarrhoea-predominant IBS. Cases varied in age (25, 48 and 65 years), cardinal symptom (pain, discomfort, or diarrhoea) and availability of test results (none, limited to biochemistry and ultrasound, or extensive including endoscopy), while stressing out the prolonged duration of the symptoms and the absence of red flags. Frequencies were compared by Chi-square. The main determinants to the diagnosis of IBS were assessed by logistic regression.

Results: Sixty-four gastroenterologists and 31 general practitioners completed the survey. When considering pain and discomfort as cardinal symptoms in a young patient, 87.4% and 84.1% of participants diagnosed IBS, which decreased to 58.3% with diarrhoea. The diagnosis of IBS dropped to 26.8% for a patient of 65 years. In those cases, GP less frequently diagnosed IBS (all p<0.05), except with diarrhoea as cardinal symptom (p=0.78). According to logistic regression, diagnosing IBS was related to patient age, cardinal symptom, availability of prior test results and specialty, and only borderline related to the experience of the practitioner (p<.001, R^2=.293). Even when diagnosing IBS, 89.5% ordered one or more additional tests (77.9% biochemistry, 59.3% stool culture and parasites, 60.5% faecal occult blood testing, 17.4% breath testing, 12.8% imaging, 9.3% endoscopy). Upon normal results, 57% would not order further investigations. Both GP and GE opted for spasmolytics (62.3%) and dietary interventions (28.3%) as the preferred first-line treatment for IBS. Second-line treatment consisted of referral to a specialist or colleague (19.4%), dietary intervention (22.6%), neuromodulators (19.4%) and spasmolytics (14.5%). In second-line, GP favoured referral (61.1%) and dietary intervention (22.2%), while GE preferred neuromodulators (27.3%) and spasmolytics (18.2%). No GP initiated modulators. Similar figures were obtained in third-line.

Conclusion: In Belgium, abdominal pain or discomfort are equivalent cardinal symptoms when diagnosing IBS. Diarrhoea as cardinal symptom, older age and absence of prior testing lowered the preference for IBS, especially in GPs. Even when diagnosing IBS, healthcare providers order a large variety of tests. Spasmolytics and dietary interventions are favoured in first-line. Upon failure, only GE prescribe neuromodulators, while GP opt for referral. Future education of GP and GE should focus on harmonising the diagnostic approach and medical treatment of IBS with existing guidelines.

Disclosure: Consultancy for Truvion Healthcare.

PP1094

CORRELATION BETWEEN ULTRASONOGRAPHIC LARGE BOWEL WALL THICKNESS AND FECAL CALPROTECTIN IN PATIENTS WITH IRRITABLE BOWEL SYNDROME

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Introduction: Irritable bowel syndrome (IBS) is a chronic functional gastrointestinal disorder with recurrent symptoms but without any known radiological feature or biomarker test to diagnose it. Intestinal ultrasound (IUS) has been used to measure the bowel wall thickness (BWT) of the colon with a cut-off value >3mm indicating active inflammation (1).

IUS has increased sensitivity and specificity for detection of disease activity when combining BWT with fecal calprotectin measurements (2).

Aims & Methods: The aim was to measure BWT of the colon in patients with diarrhea-predominant irritable bowel syndrome (IBS-D) using ultrasound and to correlate it with fecal calprotectin measurement during IBS exacerbation.

The study included 50 IBS-D patients (25 females and 25 males) according to Rome IV criteria. The patients were examined with a 10 MHz linear array ultrasound transducer to measure the BWT in the ascending and descending colon and to assess bowel wall vascularity using color Doppler ultrasound where Limberg score 2 or above is considered abnormal (3).

Blood test and stool analysis with culture were performed. Fecal calprotectin was measured during the same day of the ultrasonographic examination. Colonoscopy with colon biopsy samples was performed within 48 hours to rule out any pathology.

Results: The IBS severity scoring system (mean±SEM) was 285±15. The value for fecal calprotectin was 260±46. Blood test and stool analysis with culture were normal. Colonoscopy was normal macroscopically but showed edematous lamina propria microscopically. Intestinal ultrasound showed that the BWT of the descending and ascending colon in millimeters (mean±SEM) were 3.0±0.11 and 1.2±0.08, respectively, with a significant difference (P<0.0001) between them. Significant correlation was found between fecal calprotectin and BWT of descending colon (r 0.45, P 0.0012) but not between BWT of ascending colon (r 0.18, P 0.3). Further measurements of the layers of the descending colon showed a significant correlation (r 0.50, P 0.0005) between fecal calprotectin and thickness of the submucosal layer (1.4±0.09) but not the other layers (mucosa and proper muscle). Color Doppler ultrasound showed no mural flow of the thickened bowel wall, assessed as grade 1 of the Limberg score.

Conclusion: Patients with IBS-D during symptom exacerbation with elevated fecal calprotectin exhibit thickened BWT in the descending colon without increased vascularity. Fecal calprotectin correlated with wall thickening of the descending colon especially of the submucosal layer.

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Disclosure: Nothing to disclose.

PP1095

SIBO AND IMO IN IBS: THE PREVALENCE DEPENDS ON THE SUBSTRATE USED AND THE CUT-OFF VALUES OF BREATH TESTS

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Introduction: Glucose (GBT) and lactulose (LBT) breath tests have been recommended by international consensus for the indirect diagnosis of small intestinal bacterial overgrowth (SIBO) and the newly introduced intestinal methanogen overgrowth (IMO), based on the variations of respectively hydrogen and methane concentrations in breath avec ingestion of the above-mentioned sugars.

UEG consensus has recommended preferring glucose, due to the difficulty to differentiate, with lactulose as substrate, between rapid intestinal transit and true SIBO (1,2).

Aims & Methods: The aims of this retrospective study were to compare the positivity of GBT and LBT in a population of well-characterized patients with IBS. Among 995 glucose (75 grs) or lactulose (10 grs) breath tests performed in our unit between January 2021 and January 2023, we extracted a cohort of 287 patients with typical IBS according to Rome IV criteria, after exclusion of patients with a past history of digestive surgery (except appendectomy and cholecystectomy), diabetes, neurological diseases, active or in remission IBD, scleroderma and other connective tissue disorders, chronic intestinal pseudo-obstruction, cirrhosis.

Breath tests were performed after a 8 hour fast, and a strict no fiber and fermentable food the day before. GBT or LBT were performed according to the physician request. During the test, patients filled in a standardized questionnaire to evaluate digestive symptoms, anxiety and depression, and food intake disorders.

Various cutoffs for the positivy of the tests were used, according to recommendations: + 12 ppm or +20 ppm for hydrogen variations over baseline (SIBO), and values greater than 10ppm for methane (IMO). For LBT, values were considered only between baseline and 90 minutes after sugar ingestion, to limit false positive results in relation with colonic fermentation of lactulose (120 minutes for GBT) (3).

Results: 155 GBT and 132 LBT were performed in IBS patients (71% women, mean age 45, mean BMI: 22.6 kg/m^2). There was no difference between both groups in terms of demographics, IBS type, severity of symptoms, anxiety and depression.

Results were clearly different for the positivity of tests: LBT was 10 times more frequently positive than GBT with the +20 ppm cut-off for hydrogen. There was no difference for the positivity of both tests for methane (table 1).

	Glucose (N=155)	Lactulose (N=132)	p value
Hydrogen +12 ppm	12 (8%)	72 (55%)	0.0001
Hydrogen +20 ppm	7 (4.5%)	62 (47%)	0.0001
Methane ≥10 ppm	52 (34%)	45 (34%)	1.000

Table 1.

There was no significant association between symptoms and the positivity and negativity of the tests, whatever the substrate or the cut-offs. Methane levels were lower in IBS-D patients, and in patients complaining of diarrhea as the predominant symptom (p<0.04).

Conclusion: GBT and LBT are not comparable for the diagnosis of SIBO, in a population of well-characterized IBS patients, without comorbidities The very high prevalence of positive LBT (around 50% of IBS patients would be considered SIBO positive) does not make this test acceptable for this diagnosis. Furthermore, the positivity of both tests for SIBO were not correlated with symptoms, which may indicate a poor clinical significance of this diagnosis in IBS. With regards to IMO, both tests give similar results, mainly because baseline values are taken into account: the prevalence of IMO according to these tests is also rather high, and inversely correlated with diarrhea. The significance of the association between IMO and IBS should be tested in prospective interventional studies.

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Disclosure: Nothing to disclose.

PP1096

ACCURACY OF INTESTINAL ULTRASOUND IN DISCRIMINATING BETWEEN IRRITABLE BOWEL SYNDROME AND CROHN'S DISEASE WITH SIMILAR CLINICAL PRESENTATION

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Introduction: Intestinal ultrasound (IUS) is a non-invasive, reproducible, low-cost technique for the assessment of intestinal diseases.[1]

Crohn's disease (CD) and irritable bowel syndrome (IBS) are two of the major causes of chronic diarrhoea and abdominal pain in high-income countries.[2] IBS, especially in the diarrheal (IBS-D) or mixed (IBS-M) variants, has clinical features similar to those of CD.

The role of IUS in the diagnosis and monitoring of CD is well established,[3,4] whereas only scanty data are available on IBS. Current IBS guidelines do not recommend the use of IUS even to distinguish between IBS-D or IBS-M and CD.[5,6]

Aims & Methods: The aim of this two-gate diagnostic study was to assess the accuracy of IUS in discriminating between IBS-D or IBS-M and CD in patients presenting with similar symptoms.

In a high-volume tertiary Centre, consecutive patients symptomatic for chronic diarrhoea and abdominal pain underwent IUS performed by three experienced gastroenterologists.

In the group with clinically active CD, patients had a previous diagnosis based on clinical, biochemical, endoscopic, radiologic and histologic criteria, while in the IBS group subjects had a previous diagnosis based on Rome IV Criteria.

Bowel wall thickness (BWT) of the terminal ileum, ascending colon, transverse colon and descending colon/sigma was evaluated using two cut-offs of 3 mm and 4 mm.[7] Enlarged lymph nodes, mesenteric fat hypertrophy, bowel wall stratification and submucosal vascularity were also assessed.

The diagnostic accuracy of IUS in discriminating between the two groups was estimated in terms of sensitivity, specificity, positive and negative likelihood ratios (LR+ and LR-) and overall accuracy (OA) (Table 1).

Results: A total of 50 patients with IBS (62% female, mean age 41 years, SD ± 13 years, 54% IBS-D) and 50 subjects with CD (44% female, mean age 47 years, SD ± 17 years) were enrolled.

Forty-nine patients with IBS (98%) and 8 patients with CD (16%) and had a BWT < 3 mm. 49 patient with IBS (98%) and 12 patients with CD (24%) had a BWT < 4 mm.

Sensibility, specificity, LR+ and LR- of BWT < 3 mm were 98%, 84%, 6.13 and 0.02, respectively.

Sensibility, specificity, LR+ and LR- of BWT < 4 mm were 98%, 76%, 4.08 and 0.03, respectively.

BWT with 3 mm and 4 mm cut-offs showed an OA in discriminating between CD and IBS-D or IBS-M of 91% and 87%.

The absence of altered IUS parameters had 94% OA in discriminating between CD and IBS (Table 1).

Intestinal ultrasound parameters	IBS-D / IBS-M n.50 (%)	CD n.50 (%)	Sensibility	Specificity	Positive likelyhood ratio	Negative likelyhood ratio	Overall accuracy
BW thickness < 3 mm	49 (98)	8 (16)	98%	84%	6.13	0.02	91%
BW thickness < 4 mm	49 (98)	12 (24)	98%	76%	4.08	0.03	87%
Enlarged lymph nodes (absence)	49 (98)	36 (72)	98%	28%	1.29	0.07	63%
Mesenteric fat hypertrophy (absence)	50 (100)	39 (78)	100%	22%	1.28	0.004	61%
Maintained BW stratification	49 (98)	34 (68)	98%	32%	1.44	0.06	65%
Normal BW vascularity	50 (100)	31 (62)	100%	38%	1.61	0.002	69%
Normal ultrasound parameters	48 (96)	4 (8)	96%	92%	12.0	0.04	94%

Table 1. Intestinal ultrasound parameters used to discriminate between IBS-D or IBS-M and clinically active CD with similar clinical presentation IBS: irritable bowel syndrome; CD: Crohn's disease; BW: bowel wall.

Conclusion: IUS seems able to discriminate between IBS-D or IBS-M and CD in patients with chronic diarrhoea and abdominal pain. Particularly, a BWT < 3 mm may rule out the presence of clinically active CD and support the diagnosis of IBS. On the other hand, a BWT > 3 mm or a single altered ultrasound parameter might raise suspicion of CD and justify further testing. Cross-sectional studies are needed to confirm these preliminary results.

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PP1097

SYSTEMIC INFLAMMATORY PROTEIN PROFILES OF IRRITABLE BOWEL SYNDROME PATIENTS - A PRELIMINARY STUDY

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Introduction: Irritable Bowel Syndrome (IBS) is a complex gastrointestinal functional disorder characterized by abdominal pain or discomfort and altered bowel habits. Despite its prevalence, and often chronic relapsing nature, the underlying pathophysiology of IBS remains incompletely understood. The etiology is likely multifactorial. Chronic low-grade subclinical inflammation has been implicated in the disease process and thought to perpetuate the symptoms of IBS.

Through previous studies on the serum proteomic profiles of IBS patients, it was seen that some inflammatory proteins are overexpressed in IBS, giving rise to a different serum proteome signature in IBS compared to healthy controls. [1,2]

Systemic inflammatory protein profiles have also been used to distinguish patients with ulcerative colitis from IBS patients. [3]

This suggests that proteomic profiling can potentially give us more insight into understanding the inflammatory mechanisms driving IBS.

Aims & Methods: This study aims to determine if systemic inflammatory protein profiles differ between patients with IBS and healthy controls.

Serum inflammatory proteins from 42 asymptomatic healthy controls undergoing screening colonoscopy with no colonic pathology, and 41 IBS patients fulfilling ROME IV criteria were analyzed using the Olink Target 96 Inflammation Panel. A partial-least square discriminant analysis was undertaken to identify additional discriminative inflammatory proteins. Univariate t-test analyses, with false discovery rate correction, were also performed to identify proteins unique to varying subtypes of IBS.

Results: Among IBS patients, the mean age was 48.6 years (SD +/- 15.5), while 31.7% were male. Among the controls, the mean age was 61.6 years (SD +/- 7) and 50% were male. There were 18 (43.9%), 14 (34.1%), 8 (19.5%) and 1 (2.4%) IBS patients with IBS-D, IBS-M, IBS-C and IBS-U respectively. 73.2% of IBS patients and 90.5% of controls were Chinese, with the rest being Indians, Malays or others.

Majority of the proteins (n=88, 96%) were prevalent in >40% of the study participants. Of which, 6 proteins (AXIN1, CCL19, CCL28, CD8A, EN-RAGE, MMP10) were differentially abundant ($p<0.05$) in IBS patients. Participants with IBS-C displayed higher levels of CD8A, while participants with IBS-D showed higher levels of AXIN1 and EN-RAGE (Table 1).

Interestingly, a recent study showed that CCL28 is elevated in IBS patients, which is consistent with our findings. [4]

EN-RAGE has also been studied to be elevated in several digestive diseases including IBS, inflammatory bowel disease, digestive tract cancers, necrotizing enterocolitis and gastroenteritis. [5]

Immunoprotein Marker	Molecular function	Biological Processes	Selectively differentially abundant IBS subtypes ($p<0.05$)
Axin-1 (AXIN1)	Developmental protein	Apoptosis WNT signaling pathway	IBS-D, IBS-M
C-C motif chemokine 19 (CCL19)	Cytokine	Chemotaxis Inflammatory response	
C-C motif chemokine 28 (CCL28)	Cytokine	Chemotaxis	
T-cell surface glycoprotein CD8 alpha chain (CD8A)	Glycoprotein	Adaptive immunity	IBS-C, IBS-M
S100A12 (EN-RAGE)	Antibiotic Antimicrobial Fungicide	Innate immunity Inflammatory response	IBS-D, IBS-M
Stromelysin-2 (MMP-10)	Hydrolase Metalloprotease Protease	Collagen degradation	

Table 1. Differentially abundant immunoproteins in IBS

Conclusion: We conclude that the serum cytokine profiles of IBS patients differ from that of healthy controls. We identified 6 immunoproteins that distinguish IBS from controls, and found that the levels of these immunoproteins also differ amongst the IBS subtypes. As this was a pilot study, the data collected was preliminary and limited by a small sample size. Future larger scale studies on proteomic profiling can potentially help with understanding the immune dysregulatory mechanisms driving IBS, and guide the diagnosis of and differentiation between subtypes.

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PP1098

UNVEILING HIDDEN LINKS: MACHINE LEARNING MAY UNLOCK COMORBIDITIES OF IRRITABLE BOWEL SYNDROME IN A CLINICAL DATASET

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Introduction: Irritable bowel syndrome (IBS) is a bothersome condition with long term pain and bowel symptoms and the most common cause of referral to gastroenterologists in the United Kingdom. Despite this, IBS is poorly understood as a clinical entity. Furthermore, IBS has numerous comorbidities but the full spectrum of these and how they relate to IBS has not been studied.

Aims & Methods: Using clustering analysis on the UK Biobank dataset, an adult cohort (age > 40 years), we aimed to define the top co-morbidities associated with IBS and develop a machine learning model to predict IBS. Co-morbidities in patients based on ICD-10 Summary Diagnosis codes 2 years prior to and 2 years following diagnosis with IBS were assessed and clusters defined.

These were compared with a control group of non-IBS patients. Several machine learning algorithms (K-Means, Linear Discriminant Analysis, Gaussian Mixture Models) were compared for accuracy.

Results: Amongst 18000 total adults (aged over 40), 8168 patients coded for IBS, 75% of whom were female. The top ten comorbidities (Table 1) found in IBS patients included diverticular disease, hypertension, hernia, haemorrhoids, osteoarthritis, asthma, gastro-oesophageal reflux disease without oesophagitis, history of psychoactive substance abuse, hypercholesterolaemia, and cholelithiasis. K-Means achieved the highest accuracy (83%) for predicting IBS based on the co-morbidity profile.

Comorbidities	Importance(%)
Diverticular disease	16.68
Hypertension	5.69
Hernia	4.64
Haemorrhoids	4.42
Osteoarthritis	3.29
Asthma	2.82
Gastro-oesophageal reflux disease without oesophagitis	2.74
Personal history of psychoactive substance abuse	2.51
Pure hypercholesterolaemia	2.38
Cholelithiasis	2.20

Conclusion: Most clusters identified contained obesity, hypercholesterolemia, and hypertension, indicating a possible link with metabolic syndrome. Asthma and allergies suggest a possible cohort of IBS patients with atopy.

Further research is needed to establish these links. In clinical practice, this could help both in predicting development of IBS, and also identify the cohorts of IBS on which certain therapies are more likely to work.

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PP1099

THE EFFECT OF DUAL *BIFIDOBACTERIUM LONGUM* PROBIOTIC STRAINS 35624 AND 1714 ON PHYSICAL AND PSYCHOSOCIAL SYMPTOMS IN ADULTS WITH IRRITABLE BOWEL SYNDROME IN REAL-WORLD SETTINGS

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Introduction: Irritable bowel syndrome (IBS) is a disorder of gut-brain interaction, commonly associated with psychosocial comorbidities[1]. Probiotics targeting the gut-brain axis are a potential component of the clinical management of IBS[1]. Clinical research has suggested improved gastrointestinal (GI) and psychosocial symptoms with a probiotic supplement containing a combination of *Bifidobacterium longum* strains 35624 and 1714 in adults with IBS[2].

Aims & Methods: A prospective, observational study with 133 adults (recruited via a product sampling service in UK) with IBS (ROME IV) and ≥1 psychosocial comorbidity, evaluating symptoms before and after 12 weeks of daily supplementation with a probiotic containing a combination of *Bifidobacterium longum* 35624 and 1714 strains ($1x10^9$ colony forming units in total combined). Participants rated severity and frequency of their GI (abdominal pain, urgency to empty bowels, diarrhoea, constipation, bloating, flatulence) and psychosocial (feelings of stress, anxiousness, low mood and fatigue; difficulty sleeping) symptoms over the previous week via online surveys. Paired sample t-tests compared mean scores from baseline and week 12. Data are presented as mean±SD and percentage of participants experiencing improvement by week 12. Participants also rated their wellbeing (1=*least* to 10=*most*), time until symptom improvement (1-12 weeks) and likelihood to recommend the probiotic (5-point Likert scale, *very likely* to *very unlikely)*.

Results: 84% completed both surveys and were included in the analysis (n=111; 84% female; 96% 18-54y). At 12 weeks, all GI and psychosocial symptoms were significantly reduced in severity and/or frequency from baseline (table). Improvements in the frequency and severity ratings for difficulty sleeping and feelings of fatigue were also observed by 12 weeks (all *P*<.001 vs. baseline). Sub-analysis showed participants with severe (rated 6-10) or more frequent (5-7 days) symptoms at baseline experienced greater reductions in severity and frequency for all symptoms by week 12 (all *P*<.001 vs. baseline). Wellbeing significantly improved (6.93±2.05 vs. 4.81±1.56; *P*<.001), 77% of participants reported symptom improvement within 4 weeks, and 72% would recommend the probiotic to others.

Symptom	Baseline Severity Rating	Week 12 Severity Rating	Participants improved (%)	Baseline Frequency	Week 12 Frequency	Participants improved (%)
Abdominal pain	4.46 ± 2.13	2.85 ± 2.38†	68	3.57 ± 1.80	1.42 ± 1.78†	77
Urgency to empty bowels	4.58 ± 2.63	4.05 ± 3.32	52	3.4 ± 2.02	1.46 ± 1.71†	78
Diarrhoea	3.73 ± 2.77	3.49 ± 3.36	45	1.98 ± 1.95	0.84 ± 1.50†	54
Constipation	4.36 ± 2.75	3.45 ± 3.20‡	56	2.61 ± 2.11	1.10 ± 1.67†	63
Abdominal bloating	5.46 ± 2.20	3.98 ± 3.01†	64	4.32 ± 1.79	4.32 ± 2.42	38
Flatulence	5.70 ± 2.41	4.01 ± 3.12†	66	5.18 ± 1.65	2.56 ± 2.13†	38
Feelings of stress	6.28 ± 2.15	4.22 ± 2.98†	68	5.15 ± 1.80	2.31 ± 2.06†	86
Feelings of anxiousness	6.21 ± 2.22	4.32 ± 3.00†	64	4.90 ± 1.98	2.09 ± 2.06†	86
Feelings of low mood	5.98 ± 2.61	4.21 ± 3.11†	65	4.39 ± 2.18	2.05 ± 2.09†	76

*Severity rated 1=*least* to 10=*most*; frequency rated as number of days, 0=none to 7=all; †*P* <.001 versus baseline; ‡*P*=.009 versus baseline.

*Table. Mean±SD severity and frequency of symptoms before and after 12 week probiotic supplementation period**

Conclusion: These real-world data suggest supplementation with a dual strain probiotic containing *Bifidobacterium longum* strains 35624 and 1714 may significantly improve the GI and psychosocial symptoms of IBS, confirming the findings of previous clinical research[2].

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Disclosure: F. Kinnear, K. Sorensen and M. Olsen are employed by Novozymes, the company which manufactures the *Bifidobacterium longum* 35624 and 1714 strains and funded this research. E. Quigley is a consultant to Novozymes.

PP1100

PROMOTION OF PHYSICAL ACTIVITY WITH A MOBILE APP IS SUPERIOR TO PRESCRIPTION ALONE IN IMPROVING SYMPTOMS IN PATIENTS WITH IRRITABLE BOWEL SYNDROME: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Irritable bowel syndrome (IBS) is a highly prevalent chronic gastrointestinal disorder.[1] Physical activity (PA) improves IBS symptoms[2] and may be recommended among first-line interventions.[3]

Digital Apps may increase PA,[4] but whether this intervention can improve symptoms in patients with IBS has not yet been investigated.

Aims & Methods: The aim of this randomized controlled trial was to evaluate the effects of PA prescription with the use of a mobile App in comparison with PA prescription alone on IBS symptoms and PA levels in patients with IBS.

From June to October 2022, we enrolled 97 consecutive patients with IBS defined according to the Roma IV criteria. 22 patients aged <18 or >60 years or with comorbidities limiting PA were excluded.

Patients were randomized to two intervention groups: 1) (Not APP) PA prescription with 10 min counselling according to the recommendations for IBS of *Exercise is Medicine*[5] or 2) (APP) the same PA prescription with the indication to use the mobile App Google Fit (Google, Mountain View, USA) after a brief explanation. This App is free and with no advertisements, available both for IOS and android, and available in different languages including Italian. It promotes PA according to the latest World Health Organization (WHO) guidelines and it has been already used and validated in other studies.[6,7] Other treatments for IBS were allowed in both groups. Patients were evaluated at the first visit (T0) and after 3 months (T3).

The severity of IBS symptoms (primary endpoint) was assessed by the Irritable Bowel Severity Scoring System (IBS-SSS). The Structured Assessment of Gastrointestinal Symptoms Scale (SAGIS), the Hospital Anxiety and Depression Scale (HADS), and the Bristol Stool Scale (BSS) were also used. The adherence to WHO guidelines for aerobic physical activity, and PA levels, were measured as Metabolic Equivalent of the Task (MET) minutes per week through the International Physical Activity Questionnaire-Short Form (IPAQ-SF).

Statistical analysis was performed with R 4.2.3.

Results: Seventy-five patients with IBS (mean age 41, SD ± 11.7 years; 70 % female) were randomized. Baseline characteristics of the two groups (age, sex, IBS subtypes, other treatments, IBS-SSS, SAGIS, HADS and BSS scores and PA levels) were not significantly different (data not reported). Three patients dropped out of the trial in the Not APP group.

The improvement in IBS-SSS and in SAGIS total score in the App group were significantly greater than in the Not APP group, whereas the difference of the improvement in HADS between groups remained at borderline significance level (Table 1). Normalization of stool form was observed in

21% of patients in the Not APP group and in 41% of patients in the APP group (P= 0.077). Although PA increased in both groups, the increase was greater in the APP than in the Not APP group (MET min global activity at IPAQ-SF=791±1026 vs 262 ± 807; P=0.025) as well as the adherence to the WHO indications (41% vs 15 %, P=0.048). The increase of PA was significantly correlated with the improvement of IBS-SSS (r=0.33, P=0.03).

	APP (n=39)	Not APP (n=33)	P value
IBS-SSS	88.2 ± 67.5	47.6 ± 72.0	0.021
SAGIS	9.2 ± 8.7	4.1 ± 8.7	0.021
HADS	4.3 ± 5.0	2.3 ± 3.7	0.065

mean ± SD

Table 1. Improvement (T3-T0 scores) of the IBS-SSS, SAGIS and HADS in the two groups after three months

Conclusion: Prescription of a digital APP promoting PA improved symptoms compared to PA counselling alone, suggesting that such Apps may be useful tools in the treatment of IBS.

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PP1101

A MEDITERRANEAN DIET IS FEASIBLE IN PATIENTS WITH IRRITABLE BOWEL SYNDROME: A RANDOMISED CONTROLLED TRIAL

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Introduction: Gut-brain dysregulation and microbiome dysfunction are central to the pathogenesis of irritable bowel syndrome (IBS). Depressive and anxiety symptoms are highly prevalent and contribute to disease burden but are not commonly addressed in practice. The low FODMAP diet is efficacious for managing gastrointestinal symptoms but may not be appropriate in those with psychological comorbidity due to its complexity. A Mediterranean diet (MD), rich in vegetables, pulses, wholegrains and olive oil, has potential benefit in IBS as it leads to positive shifts in microbiome composition and function, and RCTs have demonstrated antidepressant effects.

Aims & Methods: The TANDIM trial aimed to assess the feasibility of a MD in patients with IBS and psychological comorbidity. Adults aged 18-65 years with Rome IV IBS and mild or moderate anxiety and/or depressive symptoms were recruited to a 6-week RCT. Significant medical or mental health conditions (e.g. inflammatory bowel disease, bipolar disorder) and recent change in IBS or psychotropic treatment were excluded. Patients were randomised to MD advice from a dietitian or advice to continue habitual diet. MD advice was individualised and incorporated advice regarding gradual reintroduction of high fibre or high FODMAP foods in individuals in which these components were restricted. Habitual diet controls undertook identical research activities to MD but were not provided dietary advice. Diet adherence was measured using a Mediterranean diet adherence screener (MEDAS) and 3-day diet records were collected at baseline and follow up. Gastrointestinal symptoms (IBS-SSS), psychological symptoms (HADS) and quality of life (IBS-QOL) data were collected at baseline and follow up. Stool samples were collected for metagenomic sequencing. Data were analysed on an intention-to-treat basis. For continuous variables, analysis of covariance with adjustment for baseline was used; for categorical data, Fisher's exact tests were used. Between group differences in diversity and differential abundance of taxa and potential functions of the microbiome were analysed using linear mixed effects models and FDR correction.

Results: In total, 59 individuals were randomised (29 MD, 30 control) and 48 completed the trial. Seven of 11 withdrawals were due to antibiotic commencement. The MEDAS score was higher, indicating better adherence to MD, at week 6 in MD vs controls (7.5 [95% CI: 6.9, 8.0] vs 5.7 [5.2, 6.3], p<0.001) and there was no difference in total FODMAP intake (p=0.51). There was a lower IBS-SSS at week 6 in MD vs controls (168 [95% CI: 146, 191] vs 260 [95% CI: 238, 282], p<0.001) and a greater proportion of IBS-SSS responders in MD vs controls (≥50-point reduction; 83% vs 37%, p<0.001). There was also a greater proportion of HADS-D responders (52% vs 20%, p=0.015) and IBS-QOL responders (≥14-point reduction 62% vs 23%, p=0.004). Gastrointestinal adverse events were similar between groups (p=0.588). There were no differences between groups in change in microbiome alpha diversity (richness, Shannon Index), beta diversity, relative abundance of taxa, or functional potential.

Conclusion: The MD is a feasible and potentially therapeutic dietary intervention for reducing gut and psychological symptom burden in IBS. The broader health benefits with a MD style eating pattern provide further impetus for studying its effects in IBS. Larger blinded RCTs, in which influence of expectation bias is minimised, are required.

Disclosure: Nothing to disclose.

PP1102

IS MICROBIOTA CHARACTERIZATION A USEFUL TOOL IN CLINICAL PRACTICE? AN EXPLORATORY ANALYSIS OF PATIENTS FROM THE IBS. CONSTANT-CARE E-HEALTH MONITORING INITIATIVE

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Introduction: Intestinal microbiota are prominent in the etiology of irritable bowel syndrome (IBS). In this exploratory study, we investigated short- and long-term changes in the microbiota of IBS patients after intervening with a low-FODMAP diet (LFD) or probiotics (an 8 strains lactobacilla) using a standardized microbiota characterization test intended for routine use.

Aims & Methods: We analyzed data and fecal samples collected in a previous trial from non-comorbid IBS patients before treatment, and then again after four weeks and one year of treatment. Response to treatment was defined by a reduction in the IBS-SSS score, and the gut microbiota were characterized using the standardized and GA-map® Dysbiosis Test Lx.

Results: Of the 25 responders to either treatment, two of the 22 with fecal samples available were dysbiotic at baseline, increasing to eight out of 19 after four weeks; after one year all responders providing a sample were normobiotic (n=15).

After four weeks, the abundance of Bacilli, *Lactobacillus* spp. and *Streptococcus salivarius* ssp. *thermophilus* were temporarily increased in the probiotic responder group ($p<0.05$), while for LFD responders *Anaerobutyricum hallii* had decreased. There was a greater abundance of R. gnavus at baseline in those responding to probiotics than in those responding to LFD.

Conclusion: In addition to improving IBS symptoms, sustained LFD or repeat probiotics tended to temporarily alter the microbiota profile in responders. Microbiota characterization is a promising tool for monitoring IBS treatments; however, more extensive studies are needed.

Disclosure: Marwah Al-sheikh, Dorit Vedel Ankersen and Mette Bennedsen declare no conflict of interest

Christina Casén is an employee of Genetic Analysis AS and owns stocks and shares in Genetic Analysis AS.

Kristin Gravdal and Graceline Tina Kirubakaran are employees of Genetic Analysis AS.

Johan Burisch reports personal fees from AbbVie, grants and personal fees from Janssen-Cilag, personal fees from Celgene, grants and personal fees from MSD, personal fees from Pfizer, grants and personal fees from Takeda, grants and personal fees from Tillots Pharma, personal fees from Samsung Bioepis, grants and personal fees from Bristol Myers Squibb, grants from Novo Nordisk, personal fees from Pharmacosmos, personal fees from Ferring, personal fees from Galapagos, outside the submitted work.

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PP1103

BALLOON-DILATION TEST: NEW HORIZONS IN EVALUATING PHARMACOTHERAPY OF IRRITABLE BOWEL SYNDROME

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Introduction: Irritable bowel syndrome (IBS) is a common functional disorder caused by an imbalance in the brain-gut axis. Visceral hypersensitivity (VHS) plays a leading role in the pathogenesis of IBS, leading to pain syndrome. To assess pain syndrome in IBS, researchers usually rely on subjective patient reports using a visual analogue scale (VAS), which does not reflect VHS and does not allow for an objective evaluation of clinical manifestations of the disease or the effectiveness of therapy.

Aims & Methods: Aim: To study the value of the balloon-dilation test (BDT) in determining the threshold of visceral sensitivity and its potential for evaluating therapy effectiveness in patients with IBS with diarrhea (IBS-D). Materials and methods: 46 patients with severe IBS-D (Drossman DA, 1999) were examined, including 24 women with a median age of 31 (25;39) years and 22 men with a median age of 28.5 (23;35) years. The diagnosis corresponded to Rome IV criteria. Pain syndrome in IBS-D was evaluated using a 10-point VAS. BDT was performed to determine the threshold of visceral sensitivity. Patients were consulted by a psychiatrist to identify mental status disorders and prescribe antidepressants. Therapy effectiveness was evaluated after 8 weeks. Statistical analysis was performed using Statistica 12 software (StatSoft Inc., USA). The level of significance was set at $p<0.05$.

Results: In all patients with IBS-D, the severity of pain (VAS) reached 8 (7;10) points. BDT revealed a violation of all visceral sensitivity parameters (VSP) (see Table 1). Mental status disorders were detected in all patients: 56.4% had anxiety, 26.12% had anxiety-depression, and 17.48% had depressive disorders. After 8 weeks of therapy, a significant decrease in the level of pain syndrome from 8 (7;10) to 1 (0;3) points on VAS was noted ($p<0.05$).

Indicator (ml)	Before treatment	After treatment	Wilcoxon, p-value
	Me (25%; 75%)		
First urge	32(21;43)	78 (72;86)	p <0,05
Intense urge	40(30;54)	98(86;113)	p <0,05
Maximally tolerated volume	59 (50;71)	134(116;198)	p <0,05

Table 1. Dynamics of visceral sensitivity parameters according to BDT

According to BDT, the threshold of VHS significantly improved in all patients: the maximal tolerable volume of air in the balloon increased, and the first urge to defecate occurred later (see Table 1). After antidepressant therapy, the mental status of patients improved: anxiety disorders were alleviated, anxiety-depressive disorders persisted in 8.7%, and depressive disorders in 10.9% with minimal severity.

Conclusion: BDT allows for an objective characterization of VHS and provides a quantitative assessment of pain syndrome in IBS, unlike the subjective VAS scale. In the examined group of patients with IBS-D, an increase in the threshold of VHS was noted after antidepressant therapy, leading to pain syndrome remission. Manifestations of mental disorders decreased, leading to IBS-D remission.

Disclosure: Nothing to disclose.

PP1104

PSYCHOLOGICAL PREDICTORS OF SYMPTOM AND QUALITY OF LIFE RESPONSE TO THE LOW FERMENTABLE OLIGOSACCHARIDE, DISACCHARIDE, MONOSACCHARIDE AND POLYOL DIET IN IRRITABLE BOWEL SYNDROME

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Introduction: Irritable bowel syndrome (IBS) is a heterogeneous disorder of gut-brain interactions characterised by pain and altered bowel habits[1]. The low fermentable oligosaccharide, disaccharide, monosaccharide and polyol (FODMAP) diet is efficacious for improving symptoms and quality of life (QoL)[2], however not all individuals will have a therapeutic response resulting in adequate symptom relief[3]. Behavioural, emotional and cognitive predictors of response have been explored in psychological therapies, but not in dietary treatments of IBS[4].

Aims & Methods: The aim of this study was to identify psychological predictors of treatment response to the low FODMAP diet. Participants underwent a three-phase dietitian-led low FODMAP diet between August 2018 and July 2021. Participants completed questionnaires to obtain scores for psychological factors and symptoms (predictor variables). Data on depression, anxiety, gastrointestinal (GI) specific anxiety, somatic symptoms, illness perceptions, behavioural avoidance, treatment beliefs and expectations, symptom severity and QoL was collected at five time points; pre dietitian (week 0), post dietitian (week 1), post FODMAP restriction (week 5), post FODMAP reintroduction (week 13) and personalisation (week 25). Linear mixed models (LMM) were used to test the effect of baseline psychological scores on IBS symptoms and QoL over time. Cross lag panel models (CLPM) were used to identify directional relationships between predictor variables on the one hand, and IBS symptoms and QoL on the other.

Results: 112 participants, (89% female, median age 30 ± 17 years) were included. LMM showed that higher treatment beliefs predicted a stronger initial symptom response (effect on linear slope p=0.036). Of the illness perceptions, lower emotional representations predicted a stronger initial and later QoL response (effect on linear (p=0.006) and quadratic (p=0.049) slopes). Increased cyclical time beliefs predicted poorer initial and later QoL response (effect on linear (p=0.015) and quadratic (p=0.029) slopes). CLPM showed that lower GI specific anxiety predicted a stronger reduction in symptoms from week 0 to 25. Of the illness perceptions, positive perceptions relating to higher personal and treatment control predicted a stronger reduction in symptoms from week 0 to week 25. Increased QoL predicted reductions in GI specific anxiety and stress from week 0 to week 25 and week 1 to week 25, respectively. Increased personal and treatment control predicted improved QoL across all time points.

Conclusion: Negative illness perceptions were associated with poorer symptom and QoL response, whereas positive illness perceptions and treatment beliefs predicted better QoL and symptom responses to the low FODMAP diet in adults with IBS. Illness perceptions and treatment beliefs can be easily assessed in clinical practice and should be considered when determining if the low FODMAP diet is a suitable treatment, and may serve as targets to enhance treatment response.

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PP1105

DOMINO TRIAL POST – HOC ANALYSIS: EVALUATION OF THE DIET EFFECTS ON SYMPTOMS IN IBS SUBTYPES

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Introduction: IBS is a functional disorder of the gut-brain axis characterized by recurrent abdominal pain related to defecation and/or to a change in bowel habits [1]. According to stool type, 4 IBS-subtypes can be recognized: constipation prevalent (IBS-C), diarrhea prevalent (IBS-D), mixed (IBS-M) and unspecified (IBS-U) [2]. As a majority of IBS patients report symptom exacerbation by food, it is important to find a nutritional approach that could effectively reduce symptoms [3]. The present work is a post hoc analysis of the previously published DOMINO trial [4] conducted in Belgium in primary care. It showed that a FODMAP - lowering diet provided by a smartphone application was more effective than otilonium bromide after an 8-week treatment.

Aims & Methods: For this post hoc analysis, the diet arm population was stratified according to IBS subtype, with the aim of reporting a detailed evaluation of symptoms and psychosocial aspects with this new dietary intervention. 222 primary care IBS patients (85 IBS–M, 62 IBS–D, 44 IBS-C, and 31 IBS–U) followed a FODMAP-lowering diet for 8 weeks with the support of a smartphone application. Two follow up visits were scheduled after 16 and 24 weeks. IBS-Symptoms Severity Score (IBS-SSS), somatisation (PHQ 15), depression (PHQ 9), anxiety (GAD 7) and Quality of Life (QoL) status were evaluated. A One-way ANOVA with Dunnett's post hoc test was conducted to assess differences between each time and the baseline. Significance was assessed with a $p<0.05$.

Results: After 8 weeks, IBS-SSS improved in all IBS-subtypes ($p<0.0001$) and this result was maintained until week 24 ($p<0.0001$). At week 8 the responder rate was 72% and it remained high (70%) until the end of the study. Evaluating each single subtype at week 8, IBS-C showed a responder rate of 79%, followed by IBS-U (74%), IBS-D (70%) and IBS-M (67%). After 8 weeks, PHQ-15 improved only in the IBS-D subgroup ($p<0.05$) and this result was maintained until week 24 ($p<0.0001$). PHQ-9 and GAD-7 did not show any significant differences after 8 weeks but they both significantly

	IBS-SSS			PHQ-15			PHQ-9			GAD-7			QoL		
	V0	8 weeks	24 weeks	V0	8 weeks	24 weeks	V0	8 weeks	24 weeks	V0	8 weeks	24 weeks	V0	8 weeks	24 weeks
IBS-C	295.9 ± 94.1	184.0 ± 112.5[b]	184.0 ± 97.6[b]	13.2 ± 5.3	10.7 ± 5.7	10.8 ± 4.05	7.7 ± 5.9	6.2 ± 5.4	5.0 ± 3.9	7.3 ± 5.2	5.7 ± 4.6	4.7 ± 3.6	79.6 ± 27.4	70.4 ± 27.1	63.4 ± 19.0[a]
IBS-D	264.8 ± 89.2	161.6 ± 93.8[b]	147.9 ± 112.7[b]	13.1 ± 4.6	9.9 ± 5.0[a]	8.6 ± 4.3[b]	6.6 ± 4.5	4.9 ± 3.7	4.3 ± 3.3[a]	7.0 ± 5.1	5.2 ± 4.3	4.4 ± 3.8[a]	75.6 ± 20.6	65.2 ± 19.6[a]	58.6 ± 15.1[a]
IBS-M	269.2 ± 102.7	184.5 ± 123.4[b]	170.9 ± 116.0[b]	13.0 ± 5.7	10.9 ± 5.7	10.6 ± 5.9	6.8 ± 4.7	5.8 ± 5.1	5.8 ± 5.4	6.6 ± 4.7	5.9 ± 4.9	5.2 ± 4.7	78.9 ± 22.5	67.3 ± 24.3[a]	62.1± 19.0[b]
IBS-U	224.8 ± 79.8	128.1 ± 82.0[b]	119.2 ± 74.9[b]	11.1 ± 5.2	9.2 ± 4.1	9.4 ± 6.1	7.3 ± 5.4	5.0 ± 4.1	4.7 ± 4.9	6.6 ± 4.5	5.0 ± 4.2	5.7 ± 4.7	68.1 ± 18.0	59.0 ± 18.4	54.4 ± 19.6[a]

PP1105 Table 1. Symptoms Scores in the whole population; legend: a) p<0.05; b) p<0.0001.

improved at the end of the follow up period (p<0.05) in the IBS-D subtype. QoL improved both in the IBS-D and IBS-M (p<0.05) subtypes after 8 weeks while at the end of the follow up the improvement was observed in all subtypes (p<0.05 in IBS-C, IBS–D and IBS-U and p<0.0001 in IBS-M) (Table 1).

Conclusion: Symptom severity improves significantly in all IBS subtypes when using a smartphone app-based FODMAP lowering diet intervention, and improved QoL especially in IBS-D and IBS-M subtypes. The DOMINO app-based dietary intervention should be considered the first-line treatment choice for primary care in IBS.

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Disclosure: Nothing to disclose.

PP1106

EVIDENCE OF JEJUNAL LONGITUDINAL MUSCLE ATROPHY AND VASCULAR ABNORMALITIES IN PATIENTS WITH IDIOPATHIC CHRONIC INTESTINAL PSEUDO-OBSTRUCTION

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Introduction: Chronic intestinal pseudo-obstruction (CIPO) is a rare syndrome characterized by severe gastrointestinal (GI) dysmotility that mimics a GI obstruction in the absence of any detectable mechanical cause [1]. CIPO can be classified as primary (e.g. linked to a genetic disorder), secondary (to a wide array of conditions) or idiopathic.

We recently demonstrated that jejunal longitudinal muscle layer abnormalities associated to vascular changes can contribute to GI dysfunction in a genetically driven form of CIPO [2].

Aims & Methods: The aim of this study was to investigate the presence of jejunal longitudinal muscle layer atrophy and vascular alterations in idiopathic forms of CIPO. Full thickness jejunal biopsies were collected from n=27 well characterized patients and n=10 controls. Formalin fixed-paraffin embedded (FFPE) tissue sections were stained with Sirius Red/Fast Green-collagen-assay to measure longitudinal muscle layer thickness and to spectrophotometrically determine fibrosis. FFPE full thickness jejunal sections were also stained with orcein to quantify and measure blood vessel size. The blood vessels were subdivided in >300µm (large), 300-101µm (medium), 100-51µm (small) and <50µm (very small). Frozen full-thickness tissue was used to assess by western blot the expression of HIF-1α as marker of hypoxia and of thymidine phosphorylase (TP), as this enzyme is involved in the pathophysiology of angiogenesis and is found absent in previously documented CIPO secondary to a genetic disorder [3].

Finally, jejunal muscle thickness was correlated with patients' clinical data.

Results: Idiopathic CIPO patients showed 1.87 times (431.9±192.2 vs. 837.2±446.4 µm; P=0.0026) decreased thickness of the jejunal longitudinal muscle layer and a higher fibrosis index compared to controls. Idiopathic CIPO patients displayed a lower vascular area with more submucosal ves-

sels/mm² *vs.* controls; vessels <50 µm increased at the expense of medium and large vessels. Moreover, the jejunum of idiopathic CIPO patients presented an increased HIF-1α expression indicative of hypoxia and a lower TP enzyme expression suggesting alterations in local angiogenesis. Finally, from a clinical standpoint, the jejunal muscle thickness was inversely correlated to the number of sub-obstructive episodes, abdominal distension and pain.

Conclusion: In addition to genetic CIPO, also idiopathic forms of this syndrome exhibit significant changes, *i.e.* muscular atrophy and fibrosis associated with major vascular remodeling likely dependent to hypoxia and a lower local TP protein expression. These data are clinically relevant as reduced muscular thickness correlates with worse clinical phenotypes of idiopathic CIPO.

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PP1107

UNDERWATER TECHNIQUE IN COMPLICATED DIVERTICULAR DISEASE: INITIAL EXPERIENCE

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Introduction: The underwater immersion technique has so far been used for the resection of sessile polyps, with satisfactory results in terms of efficacy and complications (due to the use of water instead of medical air (CO2) and the absence of fluid substances in the submucosa.

Aims & Methods: The aim of this work is to demonstrate the effectiveness of the underwater technique for diagnostic purposes, in patients suffering from diverticular disease with insurmountable stenosis at traditional colonoscopy.A cohort of 50 patients (20 D and 30 U - mean age 72 years) with incomplete colonoscopy due to stenosing diverticular disease (DICA 4) confirmed by CT colon (virtual colonoscopy) examination was enrolled. Previously, all the patients had been evaluated at other endoscopy centers , and studied at the Gastroenterology and Digestive Endoscopy Center of the Benevento ASL, subsequently for the detection, in at least 15 patients, of lesions compatible with polyps > 6 mm on the colon CT scan. All patients underwent colonoscopy under conscious sedation with a thin colonoscope (Olympus PTH PF 190), filling the stenotic lumen with water instead.

Results: In 41 patients, the use of the UW technique allowed the stenotic section to be overcome, allowing the examination to be completed; in the remaining 9 the stenosis was insurmountable. In the 15 patients with lesions compatible with polyps > 6 mm on colon CT, only 5 pts were positive, 2 of which with the finding of polypoid formations > 1 cm in sections other than those reported on colon CT. No complications were recorded both in the diagnostic phase and in the operative phase.

Conclusion: The UNDERWATER technique can represent an alternative method in the diagnosis of certain pathological and inflammatory conditions with a high risk of perforation. The irrigation of the colonic lumen with water also allows the magnification of the mucosa, improving the identification and treatment of polypoid lesions (particularly the sessile ones).

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Disclosure: Nothing to disclose.

PP1108

SEGMENTAL COLITIS ASSOCIATED WITH DIVERTICULOSIS (SCAD) IN A COLORECTAL CANCER SCREENING POPULATION: ENDOSCOPIC FEATURES AND ONCOLOGICAL OUTCOMES

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Introduction: Segmental colitis associated with diverticulosis (SCAD) is an increasingly recognized clinical and pathological disorder, characterized by a chronic inflammatory response involving the inter-diverticular mucosa of a colonic segment, sparing the rectum and the right colon. However, its prevalence and outcome in the setting of colorectal cancer (CRC) screening is unknown.

Aims & Methods: Aims: to assess the prevalence of SCAD in the setting of a CRC screening program and to evaluate the differences in terms of oncological outcomes between SCAD and "simple" diverticulosis. We performed a retrospective analysis from a prospectively-maintained database including all subjects undergoing first screening colonoscopy according to regional CRC program from 2019 to 2022. Patients with incomplete colonoscopy, inadequate bowel preparation or known diagnosis of SCAD or CRC were excluded. Endoscopic signs of SCAD were registered as "crescentic fold disease", "mild-to-moderate UC-like", "Crohn's disease-like" and "Severe UC-like". The number of adenomas (ADR) and cancers was also recorded. Statistical analysis included chi-square, Student's t-test and odds ratio (OR) with 95% confidence interval (CI) when indicated.

Results: a total of 1518 patients were included (males 51.8%, mean age 63.48±6.39). Adenomas were detected in 638 patients (ADR 42%), while CRC was diagnosed in 86 cases (5.7%). Diverticulosis was described in 570/1518 patients (37.5%), while SCAD was endoscopically diagnosed in 69 patients (4.5%). Among them, 48 (69.6%) presented a crescentic fold disease, 14 (20.3%) a mild-to-moderate UC-like pattern, 6 (8.7%) a CD-like pattern and 1 (1.4%) had a severe UC-like pattern. When SCAD patients were compared to subjects with simple diverticulosis (501 patients), we found no differences in terms of gender (males 55.1% vs 50.7%, p=0.46) or age (63.86±6.45 vs 64.45±6.38, p=0.47). Interestingly, the use of anticoagulant/antiplatelet (28.9% vs 30.1%, p=0.79), anti-hypertensive (46.4% vs

48.1%, p=0.89) or anti-hyperglycemic drugs (36.2% vs 41.1%, p=0.52) had no effect on SCAD onset as compared with patients with diverticulosis. However, patients with SCAD had significant lower rate of adenomas (ADR 31.9% vs 47.3%, p=0.018, OR 0.52, 95%CI 0.31-0.89), and lower –but not significant– rate of CRC (1.4% vs 6.2%, p=0.14, OR 0.22, 95%CI 0.02-1.66). Most patients were successfully treated with 5-ASA and none needed surgery for SCAD.

Conclusion: SCAD can be diagnosed in about 5% of population undergoing screening colonoscopy and in about 12% of those with diverticulosis. SCAD seems to be associated with a reduced rate of adenomas or CRC as compared with diverticulosis.

Disclosure: Nothing to disclose.

PP1109

THE USE OF SELF-ASSEMBLING PEPTIDES (PURASTAT) HAS NO ADDITIONAL EFFECTS

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Introduction: A self-assembling peptide solution (PuraStat) is a new hemostatic agent for gastrointestinal bleeding just by smearing through an endoscope. Recently PuraStat has been reported to be useful for hemostasis of gastrointestinal bleeding. In colonic diverticular hemorrhage, endoscopic clipping was often used, because of its simplicity and safety. Although PuraStat is expected to useful for hemorrhage, there is no study of its usefulness of hemostasis and hemostatic effects such as rebleeding were unknown.

Aims & Methods: The objective was to investigate the usefulness of PuraStat in diverticular hemorrhage. This study was a retrospective case-control study conducted by at Kochi Red Cross Hospital in between April 2021 and January 2023 under ethical approval. The study included with 57 patients with colonic diverticular hemorrhage who were treated with only endoscopic clipping (Group A: 43 patients) or endoscopic clipping with PuraStat (Group B: 14 patients). The success rate for endoscopic hemostasis, the rate of rebleeding, the rate of transition to arterial embolization and time to rebleeding were evaluated in each group, and differences between two groups were also examined by Fisher's exact test or Student's t-test.

Results: Total procedure times both Group A and Group B were 16.3 min and 27.5 min. This study in Group A and Group B showed 90.1% and 100% for success rate (p=0.563), 32.5% and 42.9% for the rate of rebleeding (p=0.530), 7.0% and 12.5% for the rate of transition to arterial embolization (p=0.587), 26 h and 33 h for time to rebleeding (p=0.438) respectively. Treatment result is not improved by a combination of clipping and Purastat.

Conclusion: The combination treatment endoscopic clipping of PuraStat has no additional effects in colonic diverticular hemorrhage than endoscopic clipping alone.

Disclosure: Nothing to disclose.

PP1110

COMPARATIVE ANALYSIS OF DIETARY AND LIFESTYLE HABITS BETWEEN PATIENTS WITH AND WITHOUT DIVERTICULAR DISEASE

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Introduction: A sedentary lifestyle, poor fiber intake and other unhealthy dietary habits have been associated with diverticular disease (DD). On the contrary, the Mediterranean Diet (MD), which involves factors such as consuming locally grown food products, family meals, conviviality, involvement in the preparation of meals, as well as high intake of vegetables, legumes, fruit and cereals, medium intake of fish, low intake of meat and saturated fat, high intake of unsaturated fat (particularly olive oil), a medium-low intake of dairy products (yogurt and cheese), and a moderate intake of wine, seems to protect against DD. Moreover, populations that follow the MD pattern show a 50% lower rate of cardiovascular mortality due to cardiovascular disease and show highest longevity[1].

Aims & Methods: Aim: to compare adherence to MD as a whole and its different components in subjects with and without diverticular disease. Materials and methods: all patients undergoing colonoscopy at our Endoscopy Unit of a Tertiary Hospital in Northeastern Italy from January to June 2022 were invited to participate in the study, completing three questionnaires including personal/medical history and medications, symptoms, physical activity questionnaire, and Medi-Lite (ML) questionnaire for the assessment of adherence to MD. Subjects were then divided in two groups based on the endoscopic diagnosis of diverticular disease (DD).

Results: A total of 3757 patients underwent colonoscopy at our center during the 6-month study period, 1112 of whom completed the questionnaires and therefore constituted the study population. Overweight (BMI>25 kg/cm^2) was observed in 61% of males and 40.2% of females, and correlated inversely (OR<1) with higher education attainment, daily physical activity of at least 30 minutes, and, in females, the performance of a structured physical activity/sport for at least 60 minutes a week. Moreover, being married or widowed and consuming meals preferably at home, as opposed to consuming meals at restaurants or cafeterias, were significantly associated with overweight (OR>1), especially in female patients. In the overall population, normal weight was more frequently associated with consumption of meat, while in females, it is associated with greater consumption of raw vegetables. Overweight was more frequently associated with consumption of salami and cheese, especially in the female population, and it correlated with the presence of cardiovascular diseases (especially hypertension). DD was present in 400/1112 (35.9%) of subjects and this condition was significantly associated with (OR>1) male sex, older age (61-75 years), overweight (BMI>25 kg/cm^2), cardiovascular disease, polypharmacy, cigarette smoking, alcohol use, cheese consumption, abdominal pain as the chief complaint, and lower education attainment. No correlation was found between DD and the MD score or its components. In patients with DD, abdominal pain was inversely and significantly associated with an elevated ML score (OR=0.085) and consumption of meat (OR=0,096) and legumes (OR=0,079) (p<0.05).

Conclusion: Subjects undergoing colonoscopy share similar dietary and lifestyle habits, while in the presence of DD, ingestion of certain products seems to have an impact on symptoms.

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Disclosure: Nothing to disclose.

PP1111

CHARACTERISTICS OF LOWER ABDOMINAL PAIN IN PATIENTS WITH DIVERTICULAR DISEASE AND OVERLAP WITH IRRITABLE BOWEL SYNDROME

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Introduction: Lower abdominal pain in patients with diverticular disease (DD) can be very challenging in clinical practice. In fact, it is matter of debate whether symptomatic uncomplicated diverticular disease (SUDD) could be considered a disease its own or it represents the coexistence of irritable bowel syndrome (IBS) in patients with colonic diverticulosis. Moreover, after an episode of acute diverticulitis, patients may complain of chronic-recurrent lower abdominal pain, only sometimes related to a recurrent diverticulitis.

Aims & Methods: We aimed to assess clinical features of lower abdominal pain, in terms of presence, severity and characteristics of short-lasting and long-lasting, and the possible overlap with IBS in patients with SUDD and previous diverticulitis (PD). We utilized baseline data from the REMAD (Diverticular Disease Registry), a 5-yr prospective, observational, cohort study, involving 47 Italian centres. Patients who fulfilled criteria for diagnosis of SUDD (n=300) and PD (n=212) were asked to fill in questionnaires for characterization of abdominal pain in the past 6 months:
i. Questionnaire for short-lasting abdominal pain (<24 hours);
ii. Questionnaire for long-lasting abdominal pain (>24hours);
iii. Questionnaire for IBS following Rome III Criteria.

Results: One hundred and forty-eight SUDD and 118 PD patients fulfilled all questionnaires. Seventy-five patients out of 266 (28.2%) fulfilled criteria for IBS diagnosis following Rome III Criteria. IBS criteria were reported more frequently in SUDD (37.2%) compared to PD patients (17.1%) (p<0.001). The prevalent IBS subtype was the diarrhoea-one (IBS-D), that was more frequent in SUDD compared to PD (22.3% vs 10.2%, p=0.009), followed by the constipation subtype (IBS-C: 12.2% vs 5.9%, p=0.084) and mixed subtype (IBS-M: 2.7% vs 0.8%, p=0.268). Considering the abdominal pain pattern, several differences were found between SUDD and PD in terms of long-lasting abdominal pain characteristics. The number of episodes was significantly higher in SUDD (6.6±11.9) compared to PD patients (3.4± 6.9) (p <0.001). PD patients reported long-lasting pain more frequently localized in the lower left abdomen (p <0.001), while in SUDD it was more frequently diffuse (p= 0.008) or localized in the lower right quadrant (p=0.016). Features associated with long-lasting abdominal pain were more often reported in patients with PD than SUDD [fever (p<0.001), confinement to bed (p=0.021), medical consultations (p=0.026), antibiotic therapy (p<0.001), and hospitalization (p<0.001)]. Compared to PD, SUDD patients reported a significantly more frequent amelioration of pain with antispasmodics use (43.8% vs 36.1%, p=0.003) and a more frequent onset of long-lasting pain after acute gastrointestinal symptoms (i.e. fever, vomit or diarrhoea) (90.8% vs 72.4% p=0.002). Episodes of short-lasting abdominal pain were significantly more frequently reported in SUDD than in PD patients (90.5% vs 78.8% p = 0.007), although there were no significant differences in terms of severity, localization, and pain's relief with defecation between the two groups of patients.

Conclusion: This study shows that less than a third of patients with diverticular disease reported an overlap with IBS. Moreover, SUDD patients have a different pattern of lower abdominal pain compared to PD (i.e. length of pain, number of episodes, localization, amelioration with antispasmodics, associated features). Recognizing these differences could help clinician's through a correct differential diagnosis addressing the diagnostic approach and therapeutic management.

Disclosure: Nothing to disclose.

PP1112

LEVEL OF FECAL CALPROTECTIN AS PREDICTOR OF COLONIC DIVERTICULOSIS SEVERITY

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Introduction: Diverticulosis was once regarded as an uncommon anatomic variant with different types of complication, Faecal calprotectin (FC) is a cytoplasmic antimicrobial
compound prominent in granulocytes, monocytes, and macrophages (1).

Aims & Methods: we aim to assess the fecal calprotectin values in colonic diferticulosis as a non invasive marker of disease severity.

Results: We enrolled in this study 360 consecutive patients who had undergone a total colonoscopy and MSCT on Abdomen and complete laboratory investigation including fecal calportectin, Age was distributed as 46.61±11.57 with minimum 15 and maximum 80 years and regard sex distribution female were majority with 59.7% fecal calportectin significantly positive correlated with CRP, NIS and Hinchey classification. Mild diverticulosis showed Significant area under curve with cutoff >65 and with sensitivity 97.0%and specificity 82.8%. moderate diverticuosis showed Significant area under curve with cutoff >162 <175 and with sensitivity 83.3%and specificity 96.0%. Severe Significant area under curve with cutoff >175 and with sensitivity 85.0%and specificity 92.5%.

Conclusion: Faecal calprotectin (FC) is inflammatory marker considered as a stronger predictor of diverticulosis diseases in Non IBD Patients.

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Disclosure: Nothing to disclose.

PP1113

CIRCULATING OXIDATIVE STRESS AND PLATELET ACTIVATION BIOMARKERS IN DIVERTICULAR DISEASE

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Introduction: Ischemic damage, caused by the compression of vascular structures in the neck of diverticular task has been proposed as one of the pathogenetic mechanisms diverticular disease (DD). However, as suggested for other gastrointestinal chronic diseases, another factor that can contribute to ischemia might be the activated platelet-dependent throm-

bosis through an oxidative imbalance mediated by arachidonic acid (AA) metabolism. The dominant oxidative imbalance described ex vivo in colonic wall human models of diverticulosis and diverticular disease supports this ischemic hypothesis.

Aims & Methods: Aim of the study was to assess the presence of relative circulating biomarkers that could be potentially useful to clarify DD pathogenesis and to highlight possible new target therapies. A cross-sectional study including 30 patients (Male=15; age:60.5±2.4years) referred to the DD outpatient clinic and sex- and age-matched healthy subjects (HS) (n=10) has been designed. Patients were subdivided in asymptomatic diverticulosis (DIV), symptomatic uncomplicated and complicated DD (SUDD and cDD) (n=10 per group). Circulating oxidative stress markers such as soluble Nox2-derived peptide (sNox2-dp), a direct marker of NADPH oxidase activation, hydrogen peroxide (H_2O_2) and isoprostanes production, together with antioxidant capacity (HBA) were evaluated by ELISA and colorimetric assay. Moreover, thromboxane B (2) (TxB2), generated as isoprostanes, upon arachidonic acid (AA) metabolism-derived platelet activation, as well as TNF-α and LPS were determined using the ELISA method. Gut permeability was assessed by evaluation of circulating levels of zonulin. Data (mean±SE) were expressed as fold variations from HS, $p<0.05$ was considered significant.

Results: The analysis of circulating biomarkers reflected the oxidative imbalance observed in DD colonic tissues. In respect to HS, a significant progressive increase from asymptomatic to symptomatic DD was observed both for H_2O_2 (DIV:1.68±0.26, SUDD:2.48±0.35, cDD:2.99±0.21) and isoprostanes (DIV: 2.53±0.35, SUDD: 3.46±0.21, cDD: 3.57±0.2), counteracted by a significant progressive decrease in HBA (DIV:0.74±0.04, SUDD:0.63±0.04, cDD:0.57±0.03). The AA-driven metabolites isoprostanes and TxB2 resulted significantly correlated to the progressive increase in sNox2-dp levels (DIV:1.69±0.13, SUDD:2.68±0.22, cDD:2.92±0.18) (r=0.61, 95%CI:0.37-0.77; r=0.73, 95%CI:0.55-0.85 respectively) supporting the involvement of platelet activation. TxB2, similarly to isoprostanes, progressively increased from asymptomatic (2.42±0.13) to symptomatic DD (SUDD: 4.44±0.13 and cDD:4.25±0.52). A significant progressive increase was also observed in the known platelet activators TNF-α (DIV: 1.39±0.08, SUDD:2.04±0.19, cDD:2.03±0.11) and LPS (DIV:1.59±0.17, SUDD:2.59±0.14, cDD:2.78±0.13). LPS increase correlated to that of zonulin (r=0.59, 95%CI:0.35-0.76, $p<0.0001$) highlighting the presence of low-grade endotoxemia related to increased permeability.

Conclusion: These preliminary results showed a progressive increase of circulating oxidative biomarkers from asymptomatic to symptomatic DD opening a new pathogenic scenario in diverticular disease. The evidence of a pathogenic role of platelet activation and increased intestinal permeability in DD oxidative imbalance deserves further studies. Circulating oxidative biomarkers might represent a useful clinical tool in the management of this disease.

Disclosure: Nothing to disclose.

PP1114

ACCELERATION OF WOUND HEALING AFTER TOPICAL APPLICATION OF HYALURONIC ACID-SOAKED COTTON TO HEMORRHOIDECTOMY WOUNDS IN A RAT MODEL

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Introduction: Anal wounds resulting from hemorrhoidectomy cause severe pain, with the possibility of postoperative bleeding. Therefore, the recovery rate of anal wounds is closely associated with the degree of patient recovery and, furthermore, quality of life. By accelerating cell migration and proliferation, hyaluronic acid (HA) stimulates tissue regeneration and accelerates wound healing.

Aims & Methods: This study aimed to investigate differences in wound healing rate and completeness of recovery of perianal wounds topically treated with HA-soaked cotton in rat model animals.

Forty-eight, 8-week-old Sprague-Dawley rats with perianal wounds created using a biopsy punch were divided into 2 groups: simple dressing with gauze (control); and topical dressing with HA-soaked cotton. A single application of HA-soaked cotton was performed following surgery. The wound healing rate and completeness of recovery were evaluated by measuring the healed area and histological analyses.

Results: The time required for complete wound healing in the HA-cotton group was shorter than in the control group (13.9 vs 16.4 days; $p=0.031$). The difference in wound healing area between the two groups was the largest on postoperative day 2 (51.6% vs 28.8%; $p<0.001$). Upon complete wound healing, fewer cases of granulation tissue (2 vs 5 cases) or redness (0 vs 3 cases) were observed in the HA-cotton group. Compared with the control group, the HA-cotton group exhibited histologically accelerated re-epithelialization, rapid shift to lymphocyte-dominant inflammation, enhanced fibroblast proliferation, and greater collagen deposition.

Conclusion: In a rat model study, HA-soaked cotton topically applied to perianal wounds resulted in an accelerated wound healing rate, especially in the initial stage, and the completeness of recovery improved. These results suggest that the topical application of HA-soaked cotton to hemorrhoidectomy wounds in human patients may improve the wound recovery rate.

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PP1115

POLIDOCANOL FOAM SCLEROTHERAPY: A BREATH OF FRESH AIR FOR THE TREATMENT OF HEMORRHOIDAL DISEASE IN PATIENTS WITH BLEEDING DISORDERS

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Introduction: The treatment of symptomatic hemorrhoidal disease (HD) in patients with bleeding disorders (BD) is challenging. This vulnerable group benefits the most from less invasive office-based procedures associated with low bleeding complications, namely polidocanol foam sclerotherapy (PFS).

Aims & Methods: The present study aimed to compare the efficacy and safety of polidocanol foam sclerotherapy (PFS) in the treatment of hemorrhoidal disease (HD) in patients with and without bleeding disorders (BD). This was a prospective, multicentric, cohort study that enrolled patients with symptomatic internal HD grades I-III with BD (group B) and without BD (group A) following a 18-months period. HD baseline severity was assessed using the Goligher classification, the hemorrhoidal disease bleeding grade (HDBG) and the Sodergren hemorrhoid symptom severity (SHSS) scoring system. Both groups were treated with PFS prepared according to the Tessari's technique. Patients with congenital BD did not perform prior bleeding prophylaxis and patients with acquired BD due to antithrombotic drugs did not discontinue therapy.

The efficacy outcomes included therapeutic success (defined by an improvement of HDBG and SHSS score over baseline) and recurrence of HD (defined by HDBG and SHSS score greater than at the end of the intervention period) during a 12-months follow-up period. The safety outcomes comprised the rate and severity of complications related to PFS.

Results: The study included 228 patients (Group A: 155; Group B: 73). At baseline, the group B presented higher HDBG ($p<0.001$) and SHSS ($p=0.019$). The overall therapeutic success rate was 93.4% with an average number of sessions of 1.51±0.74, significantly higher for group B (1.68±0.86 *vs* 1.43±0.65, $p=0.013$). A 11.4% complications rate was reported, the majority were mild (96.2%); bleeding complications occurred in 4.8% of the patients. No significant differences were reported between the two groups concerning therapeutic success, recurrence rate, and complications rate.

Conclusion: Patients with BD may present with more symptomatic HD at baseline. Nevertheless, PFS decreased hemorrhoidal bleeding and symptom severity with low incidence of complications in these patients, demonstrating similar effectiveness and safety comparing to patients without BD. Notably, performing PFS did not expose patients with BD to an increased thrombotic risk.

Disclosure: Nothing to disclose.

PP1116

EFFICACY OF ADALIMUMAB IN PATIENTS WITH PERIANAL CROHN'S DISEASE: A PROSPECTIVE RANDOMIZED TRIAL

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Introduction: Adalimumabe (ADA) 160/80 mg is efficacious for induction of clinical remission in patients with intestinal Crohn's disease (CD), but data on its long-term efficacy for perianal CD are more limited.

Aims & Methods: To determine whether treatment with Adalimumab is effectiveness in patients with perianal CD. A prospective randomized study , from January 2019 until January 2023 was enrolled with 100 patients (38f/62m, mean age 41, 15 smokers). The patients presented (trans or suprasphinteric, horse-shoes, multiple with or without rectal involvement), perianal fistulising disease or resistant to immunosuppressive. All patients received 160/80 mg of Adalimumab as induction dose. Immunosupressive therapy was suspended at the start of treatment and steroid dose was reduced of 5 mg/week after the induction phase. The study was performed in a reference public/medical school hospital in Porto Velho, north region of Brazil

Definition of remission: complete closure of the fistula assessed with colonoscopy and magnetic resonance imaging (MRI).

Results: Medical charts of 100 patients with perianal CD receiving Adalimumab were investigated. Among them, 42 had infliximab failure, 67/100 colonic disease, 82/100 rectal involvement, 42/100 were also using steroid. At week 6, 18/100 patients (18%), were in remission; at week 30, 29/100 patients (29%) were in remission; at week 52, 66/100 (66%), were in remission and at 3 years, 77/96 patients (80%) were in remission. 4 patients loss response and moved to a temporary loop-ileostomy. No serious adverse events were registered.

Conclusion: Adalimumabe treatment was effective in the remission of perianal CD in 80% of the patients after a 4 years follow-up, showing the effectiveness of adalimumabe.

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Disclosure: Nothing to disclose.

PP1117

DIAGNOSTIC ACCURACY OF LONDON PROTOCOL RECORDING PERIOD CHANGES APPLIED TO HIGH-DEFINITION ANORECTAL MANOMETRY IN CHRONIC CONSTIPATION

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Introduction: Anorectal manometry (ARM) is the most widely established diagnostic tool for studying defecation disorders. The London protocol and classification provide a standardized format for performing and interpreting High Resolution ARM. However, these are not based on clinical evidence, but only on expert consensus.

Aims & Methods: The aims of our study were to assess the impact of protocol modification on diagnostic agreement, focusing on resting pressure and push using the High Definition-ARM (HD-ARM) probe. A retrospective analysis was conducted of HD-ARM recordings performed in patients with chronic constipation at our digestive pathophysiology laboratory from January to October 2022. Evaluation of recordings was performed by applying both the London protocol and the proposed changes, as reported below. Resting pressure was assessed by combining modifications in both the baseline rest period (60, 50, 40, 30, 20 and 10 s) and stabilization period (3, 2 and 1 min). Each of the pushes was evaluated for 10 s, selecting the most qualitatively normal one for analysis. The diagnostic agreement between the standard protocol and the proposed modifications was compared by using Cohen's Kappa (k).

Results: Recordings of 69 patients with chronic constipation (53 F, mean age 53 [SD: ± 17]) were analyzed. At resting pressure assessment, performed according to the London protocol and classification, 30% and 27% of patients presented with anal hypotonia and hypertonia, respectively. As recording periods gradually changed, there was a concomitant change in some diagnoses; up to a stabilization period of 2 min and a baseline rest period of 30 s, a strong agreement with the standard protocol was maintained (κ = 0.823). Correlation was perfect between pushes assessed at 15 and 10 s (k = 1.000), respectively.

	Mean anal pressure, (SD) mmHg	Mean rectal pressure, (SD) mmHg	Abnormal expulsion with dyssynergia, n	Abnormal expulsion with poor propulsion, n	Abnormal expulsion with poor propulsion and dyssynergia, n	Abnormal expulsion with normal manometric pattern of rectoanal coordination, n	Normal expulsion with abnormal manometric pattern of rectoanal coordination, n	No disorder of rectoanal coordination, n	Cohen's Kappa
Push 15 s	79.7 (40.5)	43.3 (26.6)	24	8	15	5	13	4	/
Push 10 s	82.7 (43.0)	44.2 (27.4)	24	8	15	5	13	4	1.000

Conclusion: A 2-min stabilization period, 30-s baseline rest period, and 10-s push analysis allow a reduction of 105 s in study duration, thus obtaining very good diagnostic accuracy compared to the London protocol. In conclusion, we provide the first evidence-based study of a modified HD-ARM probe protocol (focusing on resting pressure and push) by analyzing recordings of patients with chronic constipation.

Disclosure: Nothing to disclose.

PP1118

EVALUATION OF THE IMPROVEMENT IN THE QUALITY OF LIFE OF PATIENTS SUBMITTED TO INSTRUMENTAL TREATMENT OF HEMORRHOID DISEASE

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Introduction: Hemorrhoidal disease is one of the most common diseases of the lower gastrointestinal tract and related complications are one of the most frequent reasons for seeking medical help. Symptoms associated with hemorrhoidal disease may occur in 5% to 50% of the adult population. The aim of treatment is to reduce blood flow to the hemorrhoidal plexuses, partially obliterate the plexus, and form a connective tissue scar that prevents its prolapse.

This process can be achieved through medical therapy and behavioral measures, instrumentation or surgical intervention in severe or refractory cases.

Aims & Methods: We carried out a prospective study in order to assess the improvement in symptoms and quality of life in patients undergoing medical therapy and instrumentation with the application of elastic bands or sclerotherapy with foamy polidocanol.

Two validated questionnaires for the classification of symptoms of hemorrhoidal disease (HDSS) and the Short Health Scale of Hemorrhoidal Disease (SHS-HD) were applied to patients seen in a proctology consultation in the year of 2022. The inclusion criteria in the study were patients with at least one initial assessment and a subsequent one during the period in which it took place, with understanding of the purpose of the study and reliable completion of the scales.

Results: A total of 65 patients were selected. Of these, 15 patients were excluded due to the presence of confounding comorbidities, such as anal fissure. Of the 50 patients, 42% (n=21) underwent rubber band ligation and 58% (n=29) underwent sclerotherapy. Among the evaluated patients, 98% (n=49) reported global improvement in symptoms. Of these, 86% (n=43) reported complete resolution of hematochezia, while the remaining 14% (n=7) reported a decrease in the frequency of these symptoms. 58% (n=29) reported complete resolution of the prolapse and 34% (n=17) a decrease in the frequency of the prolapse.

Only 1 patient reported continued complaints, which we associate with non-compliance with conservative and behavioral measures. In terms of quality of life, all patients reported a significant improvement, mainly in the components of "general feeling of well-being" and "interference in activities of daily life".

Conclusion: Our study demonstrates an overall improvement in symptoms and quality of life for patients undergoing instrumental treatment associated with medical measures. We emphasize, however, the fact that these are preliminary data from a prospective study in progress, so that the data and their interpretation are limited by the sample size and poor adherence. We also emphasize that some patients have not yet been discharged from the consultation because they still have some symptoms, and will still be subject to additional instrumental treatments.

With the increase in sampling, we intend to obtain more information about the improvement in symptoms and quality of life of these patients, the differences between the application of each instrumental method, the comparison with the use of combined strategies and the validation of these scales for the Portuguese population.

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Disclosure: Nothing to disclose.

PP1119

PARITY SIGNIFICANTLY AFFECTS BASAL ANAL TONE, BUT NOT OTHER PARAMETERS OF ANAL SPHINCTER FUNCTION IN PATIENTS WITH FECAL INCONTINENCE: A SINGLE CENTRE EXPERIENCE

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Introduction: Fecal incontinence frequently affects multiparous women. The aim of this study was to evaluate the relationship of parity and anal sphincter function in female patients with fecal incontinence.
Aims & Methods: 36 patients underwent HRAM procedure. Manometry was performed in the left lateral decubitus position. Reusable solid state HRAM catheter (MMS, the Netherlands) with 8 circumferential and one balloon pressure was used. We analyzed resting, squeeze and residual pressure in push test, cough pressure and rectal sensations (first sensation, urgency and intense urgency). Demographic data were also obtained and evaluated. ANOVA analysis was used to determine the relationship between parameters of anal sphincter function and parity, with post-hoc Tukey HSD test when appropriate. Significance was set at a $p<0.05$. The statistical package "R" was used for the analysis.
Results: 36 females with fecal incontinence were included in the study. Median age was 63 years (25-82), parity 2 children (0-4), anal resting pressure 45.5mmHg (3-96), squeeze pressure 86mmHg (30-270), endurance pressure 88mmHg (18.6-716), push pressure 37.50mmHg (-4-100) and cough pressure 107.5mmHg (26-716). Median for the first sensation was 40ml of inflated air (20-360), urgency 80ml (40-390) and intense urgency 110ml (50-390). We found statistically significant difference for the resting pressure (F-value=3.06, p-value =0.031), with Tukey's HSD test which found significant difference between group with four children and no children (p=0.02), as well as between group with four children and one child (p=0.029). There was no statistically significant difference between groups for any other pressure variable (p=0.294, p=0.69, p=0.214, p=0.8 for squeeze, endurance, push and cough pressure, respectively) or sensation (p=0.938, p=0.453 and p=0.5 for the first sensation, urgency or intense urgency, respectively).
Conclusion: Our results show that parity significantly affects basal anal tone in women who have more than three children. We found no relationship of parity to other parameters, which could be due to a relatively small number of patients investigated. There is also a high need to incorporate other variables which potentially alter anal sphincter function such as is the age at delivery, fetal weight and other comorbidities, mainly spinal injuries throughout life and obstetric tears.
Disclosure: Nothing to disclose.

PP1120

WIRELESS MONITORING OF GASTROINTESTINAL TRANSIT TIME, INTRA-LUMINAL PH, PRESSURE AND TEMPERATURE IN EXPERIMENTAL PIGS: A PILOT STUDY. METHODS AND INITIAL EXPERIENCE

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Introduction: Motility function of the entire gastrointestinal tract belongs to the most complex and most fragile systems in human body. There is no single gold standard for its investigation. Usually, it is necessary to combine several methods. Wireless motility monitoring involves a novel concept which provides a complex information on gastrointestinal function (gastrointestinal transit time, intra-luminal pH, pressure and temperature). Gastrointestinal motility functions of experimental pigs are very similar to those of humans. That is why porcine studies have already provided suitable experimental models for several preclinical projects.
Aims & Methods: The aim of our study was to adopt methods of non-invasive wireless monitoring of gastrointestinal functions (Ref. 1) to our own porcine experimental setting. Studies on gastrointestinal motility are of utmost importance, especially in the context of side effects induced by drugs, e.g. medication used for treatment of dementia and malignancies. Five experimental adult female pigs (4-month-old; mean weight 41.2±5.5 kg; median 39.5 kg) were enrolled into the study. Medetomidine 0.1 mg/kg i.m., butorphanol 0.3 mg/kg i.m. and midazolam 0.3 mg/kg i.m. were used as an induction of anaesthesia. Subsequent short-term general anaesthesia was maintained by i.v. propofol (repeated one-mL boluses per 20 mg, in total less than 5 mL; time < 10 min.). Wireless motility capsules (SmartPill, Medtronic, Dublin, Republic of Ireland) were delivered into the middle part of the gastric body endoscopically. After full recovery from a short-term general anaesthesia, animals were free to move in unlimited manner with an unrestricted access to water. Food intake was allowed from four hours onwards. Data from wireless motility capsules were recorded for five days continuously, and these were available for subsequent detailed analysis.
Results: Records of animals provided good (3 pigs) or very good quality files (2 pigs). Mean time of overall recording was 6,537±712 min. (median 6,538 min.). In total, 31,150 variables were evaluated. Mean time of the presence of capsules in the stomach was 926±295 min. (median 1,091 min.), transfer of a capsule from the stomach into the duodenum lasted 5 - 34 min. (median 8 min.). Capsules migrated back from the duodenum into the stomach spontaneously three times (for 13, 14 and 63 min.). Mean small intestinal transit time was 251±43 min. (median 233 min.). Food intake was associated with an increase of gastric luminal temperature and a decrease of intra-gastric pressure. The highest intra-luminal pH was present in the ileum. The highest temperature and the lowest intra-luminal pressure were found in the colon. All data displayed a substantial inter-individual variability.

Conclusion: This pilot study has proven that a long-term function monitoring of the gastrointestinal tract by means of wireless motility capsules in experimental pigs is feasible. This will enable future experimental studies on gastrointestinal side effects of oncology chemotherapy. It will also facilitate further research of acetylcholinesterase inhibitors, modulators and reactivators and last but not least will extend possibilities of preclinical pharmacokinetic projects.

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Disclosure: Nothing to disclose.

PP1121

REGIONAL PILOT COLORECTAL CANCER SCREENING PROGRAM IN ROMANIA: DATA ON QUANTITATIVE FECAL IMMUNOCHEMICAL TEST (FIT)

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Introduction: Romania has started in 2020 four regional EU-funded pilot programs for colorectal cancer (CRC) screening (ROCCAS projects). The program was developed with FIT as first tool of screening, followed by a colonoscopy invitation for FIT positive cases. By the end of December 2023 a cohort of 200.000 individuals is supposed to be tested with FIT (50.000 from each region).

Aims & Methods: Three out of four involved regions were screened using OC Sensor™ as FIT (South-Muntenia, Bucharest-Ilfov, South-East). Persons aged between 50-74 years were invited to participate to the screening program. Initially, they completed a risk-assessment survey in order to stratify the cohort into two subgroups: average and high risk for CRC. This survey was conducted by the family doctor which then provided FIT for persons with average risk. Individuals belonging to the high risk group were directly invited to perform a colonoscopy. A FIT cut-off of 20 µg Hb/g feces was chosen and a colonoscopy was proposed to positive patients. The following quality parameters for FIT screening were evaluated: FIT return rate and colonoscopy acceptance rate according to age category, sex, and region of provenience. Data were retrieved from the ROCCAS national electronic register, managed by the Romanian National Public Health Institute.

Results: Between January 2022 and March 2023 a number of 79860 FIT were offered. A total of 70989 FIT were returned (preliminary return rate 88.8%). The overall return rate was similar between males (87.17%) and females (89.94%) independently from the region of origin and similarly distributed in the two considered age categories (Age<65= 88.22%; Age≥65=89.9%).

At the moment of data analysis the laboratory results were available for 70008 FIT: 5.61% positive FIT and 2.13% inconclusive, the rest 92.26% being negative. No difference in FIT positivity was observed among the three regions, while inconclusive tests were 2.67% and 2.31% in Bucharest Ilfov and South Muntenia respectively, the Sud-East region reported only 1%. The initial acceptability rate for colonoscopy was 52.3 %, however patients have a 6 month delay in which they can decide to undergo the procedure. Obviously, there is a delay between FIT processing, colonoscopy scheduling and data processing that needs to be taken into consideration.

Conclusion: In these preliminary results there was a high return rate when compared to other EU country reports. We consider that the high return rate is due to the direct involvement of the family doctors and probably it will diminish with the roll-out national extension. The FIT positivity interval between 5 and 6 % during this entire period was considered acceptable and the FIT cut-off was maintained.

Our preliminary data are within EU recommended quality parameters and create beneficial premises for the expansion into the future national screening program beyond 2024. On the other hand, we need to make important efforts in order to increase the colonoscopy acceptance rate.

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Disclosure: Nothing to disclose.

PP1122

COST-EFFECTIVENESS OF PERSONALIZED SCREENING FOR COLORECTAL CANCER BASED ON PRIOR HEMOGLOBIN LEVELS

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Introduction: There is growing evidence that the balance of harms and benefits of colorectal cancer (CRC) screening can be improved by risk stratification. One way to stratify participants is to assign a personalized invitation interval based on prior screening test results. Previous studies have shown that prior hemoglobin (Hb) concentrations determined by fecal immunochemical test (FIT), have greater predictive power for the detection of CRC in the next screening round than age and sex (1-3).

Therefore, a randomized controlled trial, the PERFECT-FIT study (4), was initiated within the Dutch national CRC screening program in which participants with a prior negative FIT are invited using tailored invitation intervals (1,2 or 3 years) based on prior Hb concentrations.

We aimed to investigate long-term outcomes of such personalized CRC screening based on prior Hb concentrations and to compare those to uniform CRC screening.

Aims & Methods: We simulated the Dutch national CRC screening program using a microsimulation model, MISCAN-Colon, to mimic the natural history of CRC and long-term outcomes of CRC screening interventions. We added a module to MISCAN-Colon that explicitly simulates a Hb concentration for every participant based on their age, sex, CRC state and an individual risk factor. Next, to mimic the PERFECT-FIT study, all participants with a negative FIT got assigned to either the low (0 µg Hb/g), intermediate (>0-15 µg Hb/g) or high (>15-<47 µg Hb/g) risk category.

We evaluated different invitation intervals (ranging between 0.5 and 4 years) for each risk category and estimated short- and long-term effects of the different screening strategies. We compared each personalized screening strategy to uniform biennial screening. Using cost-effectiveness analysis with a willingness-to-pay threshold per QALY gained of €20,000,-,

we determined optimal invitation intervals for each risk category, assuming (i) unlimited colonoscopy capacity and (ii) current colonoscopy capacity levels.

Results: Uniform biennial screening resulted in 177 QALYs gained and €101,852 saved compared to no screening per 1,000 individuals (Table 1). The PERFECT-FIT strategy resulted in 162 QALYs gained and €111,248 saved. The optimal invitation interval was 1 year for the low-risk group and 6 months for the intermediate and high-risk groups with 209 QALYs gained and €19,828 saved. With limited colonoscopy capacity, the optimal invitation interval changed to 2.5 years for the low-risk group, 1 year for the intermediate-risk group and 6 months for the high-risk group with 180 QALYs gained and €124,640 saved.

Strategy*	FITs	Colono-scopies	CRC diagnoses	CRC death	Cost**	QALYs gained**	ICER
No screening	0	0	86	38	0	0	Dominated
Uniform 2 – 2 – 2	8,781	549	57	18	-101,852	177	Dominated
PERFECT-FIT 3 – 2 – 1	6,449	478	60	20	-111,248	162	Dominated
2.5 – 1 – 0.5	7,896	547	57	18	-124,640	180	Reference
2 – 0.5 – 0.5	9,733	609	54	17	-115,337	192	752
1.5 – 0.5 – 0.5	12,234	675	51	16	-88,729	201	2,905
1 – 0.5 – 0.5	16,829	776	48	15	-19,828	209	8,504
0.5 – 0.5 – 0.5	27,830	974	44	14	180322	216	29,775

* The strategy name indicates the invitation interval for, respectively, the low, intermediate and high risk group. ** Compared to no screening

Table 1. Model outcomes per 1,000 individuals.

Conclusion: The optimal personalized CRC screening strategy is more cost-effective than uniform biennial screening, both with unrestricted and restricted colonoscopy capacity. Consequently, personalizing CRC screening invitation intervals based on prior FIT results may be an important next step to improve the balance between the harms and benefits of screening.

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Disclosure: Nothing to disclose.

PP1123

UTILIZATION OF COLORECTAL CANCER SCREENING AND DIAGNOSTIC COLONOSCOPY IN GERMANY: A LONGITUDINAL ANALYSIS

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Introduction: It is often reported that participation in the German colorectal cancer (CRC) screening program is low. However, as there are two parallel screening offers (fecal occult blood test, screening colonoscopy) and as there is also a high use of diagnostic colonoscopy, the existing, typically cross-sectional analyses fall short. Based on longitudinal analyses, we aimed to assess the proportion of persons utilizing any colorectal examination over a period of 10 years.

Aims & Methods: Using the claims database GePaRD (~20% of the German population), we identified persons aged 50 (cohort 1) or 55 (cohort 2) in 2011 and assessed whether they utilized colorectal examinations (fecal occult blood test (FOBT), screening colonoscopy, diagnostic colonoscopy) until age 59 (cohort 1) or 64 (cohort 2). We stratified the analyses by sex and also assessed potential differences by socioeconomic status.

Results: Overall, we included 186,832 persons (55% female) in cohort 1 (i.e. aged 50 in 2011) and 157,479 persons (55% female) in cohort 2 (i.e. aged 55 in 2011). In the following 10 years, 81% of women and 65% of men in cohort 1 had at least one colorectal examination. In cohort 2, these proportions were 79% (women) and 70% (men). Considering men and women together, there were no relevant differences by socioeconomic status. The proportion with at least one colonoscopy in cohort 1 was 43% in women and 41% in men. In cohort 2, these proportions were 50% (women) and 49% (men).

Conclusion: Our study shows that a high proportion of the German population utilizes CRC screening offers and/or diagnostic colonoscopy. It also illustrates that longitudinal analyses of data covering not only information on screening examinations provide valuable insights into the actual coverage and uptake of colorectal examinations in the population, which is important to interpret trends in CRC incidence and mortality in Germany.

Disclosure: Nothing to disclose.

PP1124

EFFECTS OF HEALTH INSURANCE COVERAGE GAINS FOR UNINSURED INDIVIDUALS ON COLORECTAL CANCER OUTCOMES IN THE US

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Introduction: Health insurance is a strong and potentially modifiable determinant of access to care and health outcomes in the United States. Lack of health insurance is linked to advanced stage at cancer diagnosis and worse survival. Individuals without insurance are less likely to receive recommended screening and timely, if any, follow-up of abnormal screening results. In this study, we estimate the effects of health insurance coverage gains for uninsured individuals on colorectal cancer (CRC) outcomes.

Aims & Methods: The MISCAN-Colon model was used to simulate the effects of health insurance coverage gains for uninsured individuals. Model inputs of CRC screening, stage distribution, and survival were estimated by age and health insurance status from the National Health Interview Survey and National Cancer Database. We evaluated the effects on CRC outcomes if cohorts of uninsured individuals gained health insurance coverage at different ages (45, 50, 55, 60 years) compared with a cohort remaining uninsured until age 65, and then becoming age-eligible for Medicare coverage. CRC outcomes included incidence, mortality and costs per 1,000 45-year old individuals.

Results: In an uninsured population, the model predicted 59 CRC cases and 23 CRC deaths per 1,000 individuals, with a total cost of $5.6 million. If individuals gained health insurance coverage at age 45, 5.0% and 16.0% of CRC cases and deaths could be prevented, respectively. Although cancer treatment costs would decrease (-3.9%), total costs would increase by 5.0%, as a result of increased screening costs (+36.7%). Increasing the age of insurance gain would lower these benefits and costs (Table 1). Gaining health insurance coverage at age 60 would only prevent 1 CRC death and 2 CRC cases per 1,000 individuals, compared with a cohort that remained uninsured until gaining Medicare coverage at age 65 years.

	CRC cases per 1,000	CRC deaths per 1,000	Costs per 1,000
Uninsured	59	23	$5.60 million
Age at insurance coverage gain			
45	56 (-5.0%)	19 (-15.0%)	$5.87 million (+5.0%)
50	56 (-4.8%)	20 (-14.6%)	$5.84 million (+4.3%)
55	57 (-4.0%)	20 (-11.7%)	$5.75 million (+2.8%)
60	58 (-1.9%)	22 (-6.3%)	$5.66 million (+1.0%)

Conclusion: If uninsured individuals gain health insurance at an early age, up to 5% and 16% of CRC cases and deaths could be prevented, respectively, because of more screening, earlier diagnosis, and better survival. However, increased use of screening, and recommended cancer treatment would also increase costs of care.

Disclosure: Nothing to disclose.

PP1125

COLORECTAL CANCER RISK AND MORTALITY WITH COLONOSCOPY VERSUS FAECAL IMMUNOCHEMICAL TEST SCREENING: A LARGE MULTICENTER STUDY

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Introduction: The U.S. Multi-Society Task Force on Colorectal Cancer recommends both colonoscopy and faecal immunochemical test (FIT) as first-tier screening options due to their effectiveness. There is a scarcity of data comparing their efficacy.

Our objective in this study was to conduct a head-to-head comparison of colonoscopy and FIT as screening modalities for colorectal cancer using a large-scale multi-institutional dataset.

Aims & Methods: This population-based retrospective cohort study was conducted using the TriNetx health research network. Patients aged ≥ 50 with history of colorectal cancer screening between January 1, 2005 and December 31, 2020 were included. Patients at high risk of colorectal cancer, history of polyps or malignancy and/or diagnostic or therapeutic colonoscopies were excluded. 2 cohorts were formed: those who underwent colonoscopy screening and those who underwent faecal immunochemical testing. 1:1 propensity score matching was performed according to demographics, comorbidities, and socioeconomic status. Follow-up of patients ended on December 31, 2022. The primary outcome of interest was the incidence of colorectal cancer and the secondary outcome was incidence of all-cause mortality. The time window used for outcomes analysis was 10 years starting from the day of the index event. Hazard ratios (HRs) and 95% confidence intervals (CIs) were computed using the Cox proportional hazards model.

Results: 130,895 patients in the colonoscopy cohort (mean [SD(standard deviation)] age at index, 60.4 [8.3] years; 75,451 [57.6%] female) were matched with 130,895 patients in the FIT cohort (mean [SD] age at index, 60.3 [9.0] years; 76,479 [58.4%] female). The colonoscopy group was found to have a significantly lower risk of colorectal cancer (HR, 0.34; 95% CI, 0.30-0.39) compared to the FIT group. All-cause mortality was also considerably lower in the colonoscopy group (HR, 0.54; 95% CI, 0.53-0.56). These results were consistent at follow-up periods of 1, 3, 5 and 10 years.

Colorectal cancer, follow-up, years	Colonoscopy cohort (number of events)	FIT cohort (number of events)	HR (95% CI)
1	95	380	0.25 (0.20-0.31)
3	165	600	0.27 (0.23-0.32)
5	212	721	0.27 (0.23-0.32)
10	309	818	0.32 (0.28-0.36)
All-cause mortality, follow-up, years			
1	812	3,353	0.24 (0.23-0.26)
3	2,448	6,286	0.37 (0.36-0.39)
5	3,928	8,018	0.44 (0.42-0.46)
10	6,344	9,630	0.52 (0.51-0.54)

Table 1: Comparison of outcomes between colonoscopy and FIT cohorts following propensity score matching.

Conclusion: Our findings suggest that colonoscopy screening is associated with a significantly lower risk of colorectal cancer and all-cause mortality compared to faecal immunochemical testing. Further studies, especially large-scale randomised controlled trials, are required to corroborate these findings.

Disclosure: Nothing to disclose.

PP1126

SAFETY AND EFFICACY OF LOW POWER PURE-CUT HOT SNARE POLYPECTOMY FOR NONPEDUNCULATED COLORECTAL POLYPS 10 TO 14 MM IN SIZE: A MULTICENTER RETROSPECTIVE STUDY

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Introduction: Cold snare polypectomy (CSP) for polyps 10-14 mm is unsatisfactory, with higher rates of unclear/positive histologic margins compared to small polyps,[1] which is similar for CSP with submucosal injection.[2] Therefore, hot snare polypectomy (HSP) or endoscopic mucosal resection (EMR) has been widely performed for polyps measuring ≥10 mm.[3]

However, these procedures often cause adverse events such as delayed bleeding and perforation due to deep thermal injury related to the use of electrocautery.[4]

A recent large-scale study reported a low incidence (0.9%) of invasive cancer in 10-19 mm colorectal polyps.[5]

Therefore, the development of less invasive therapeutic options for this size category is demanding.

Thus, we have developed HSP with low power pure-cut current (LPPC-HSP), a polypectomy technique with low power, low voltage, and no coagulation current (UMIN Clinical Trials Registry; UMIN000037678). This method uses pure-cut current and reduces the power of electrocautery, expecting less deep thermal damage compared with conventional HSP with blend or coagulation current, resulting in a lower risk of perforation and bleeding.

This study aimed to evaluate the efficacy and safety of LPPC-HSP for colorectal polyps 10 to 14 mm, compared with conventional EMR.

Aims & Methods: In this multicenter, retrospective, observational study, records of patients who underwent EMR or LPPC-HSP for nonpedunculated colorectal polyps 10 to 14 mm at two Japanese institutions between January 2021 and March 2022 were evaluated consecutively.

EMR was performed with blend cut current (Endocut Q; effect 3, time interval 2, time duration 2), while LPPC-HSP with a low power pure-cut current (Autocut; effect 1, 10 W in VIO300D or Autocut; effect 0.4 [Pmax 13 W] in VIO3). We analyzed the treatment outcomes of the two techniques using propensity score matching to reduce selection bias.

The following variables expected to affect treatment outcomes were selected: age, sex, polyp size, morphology, lesion location, endoscopists (experienced endoscopists or gastrointestinal fellows), and antithrombotic agents. R0 resection was defined as en bloc resection with histologically tumor-free margins.

Results: We retrospectively enrolled 203 EMR (168 patients, 203 lesions) and 208 LPPC-HSP (169 patients, 208 lesions) cases. After propensity score matching, the baseline characteristics between the groups were comparable, with 131 pairs. The en bloc and R0 resection rates were not significantly different between EMR and LPPC-HSP groups (93.9% vs. 96.9%, *P*=0.38; 90.8% vs. 91.6%, *P*=1.00).

The vertical margin was negative in all lesions except one in the EMR group. Immediate bleeding requiring hemostasis was observed in 10.7% of cases in the EMR group versus 2.3% in the LPPC-HSP group (*P*=0.010). The rates of delayed bleeding and perforation didn't differ between the groups (0% vs. 0.8%, *P*=1.00; 0% vs. 0%).

Baseline characteristics	EMR n=131	LPPC-HSP n=131	P value	standardized difference	Treatment outcomes	EMR n=131	LPPC-HSP n=131	P value
Age, years (interquartile range)	72 (67-76)	72 (68-78)	0.29	0.105	En bloc resection (%)	123 (93.9)	127 (96.9)	0.38
Male sex (%)	91 (70)	96 (73)	0.59	0.085	R0 resection (%)	119 (90.8)	120 (91.6)	1.00
Lesion size, mm (interquartile range)	10 (10-12)	10 (10-12)	0.93	0.017	Immediate bleeding (%)	14 (10.7)	3 (2.3)	0.01
Location right colon/left colon/ rectum (%)	61 (47) / 53 (41) / 17 (13)	63 (48) / 53 (41) / 15 (12)	0.95	0.049	Delayed bleeding (%)	0 (0)	1 (0.8)	1.00
Morphology 0-Is/0-IIa (%)	89 (68) / 42 (32)	87 (66) / 44 (34)	0.90	0.033	Perforation (%)	0 (0)	0 (0)	N/A
Antithrombotic agents (%)	24 (18)	35 (27)	0.14	0.202				
Gastrointestinal fellows performed (%)	42 (32)	44 (34)	0.90	0.033				

Table 1. Baseline characteristics and treatment outcomes after propensity score matching.

Conclusion: LPPC-HSP showed treatment outcomes comparable to conventional EMR, with fewer adverse events. These results suggest that this technique is a safe and effective treatment for nonpedunculated colorectal polyps 10 to 14 mm.

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Disclosure: Nothing to disclose.

PP1127

AUTOMATED DETECTION AND TIME MEASUREMENT OF RECTAL RETROFLEXION USING ARTIFICIAL INTELLIGENCE – A MULTI CENTRE STUDY

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Introduction: Rectal retroflexion (RR) is an important manoeuvre performed during colonoscopy to increase mucosal visualisation of the distal rectum and anorectal junction. A minimum RR rate of 90% is a quality indicator for colonoscopy in many national and international societal guidelines. However, its measurement is often imprecise and cumbersome to audit as it relies on manual photo documentation and/or manual data en-

try in endoscopy reporting systems. Furthermore, it is currently not possible to quantify the time spent inspecting the distal rectum and anorectal junction in the RR position.

Aims & Methods: We aimed to develop a convolutional neural network (CNN) to detect RR and quantify the inspection time in the RR position ('rectal retroflexion time').

Lower gastrointestinal endoscopy videos were prospectively collected from a single centre in the United Kingdom (UK) (site 1) for training data to develop the CNN. Each video frame with visualisation of the endoscope in the RR position was annotated with an image level label 'rectal retroflexion', and the remaining images were labelled as 'negative' for RR.

The RR CNN was then evaluated with colonoscopy videos recorded from nine UK sites enrolled in a randomised controlled trial ("CADDIE Trial") that evaluated a polyp detection CNN. For the evaluation of the RR CNN, we randomly selected two endoscopists from each site (n=18) enrolled in the CADDIE trial and ten procedures from each endoscopist (n=180) ('overall test set'). These nine sites include site 1 (internal test-set) (n= 20) and sites 2 – 9 (external test-set) (n=160) (Table 1). The videos were annotated following the methodology described above, with the annotations referenced as the ground truth.

Results: During the training phase of the study, a weakly-supervised ResNet-101 CNN was developed with 185 video procedures collected from site 1. This training set consisted of 71,121 RR frames (no frames were excluded) and 142,242 randomly sampled negative frames.

In the per-frame analysis (51,134 RR frames, 102,268 negative frames), the overall test-set (n=180) accuracy was 97.6%, sensitivity 94.7%, specificity 99.0% and area under the curve of 0.98 (Table 1).

RR was performed in each procedure in the CADDIE Trial test set. The CNN correctly detected RR in 98.3% of procedures for the overall test set (177/180). For the internal test-set (site 1), the CNN correctly detected RR for all 20 procedures. For the external test sets (site 2 – 9), the CNN correctly identified RR in 98.1% of procedures (157/160), with each of the three procedures where it failed to detect RR from a different site.

For the overall test set (n=180), the ground truth median rectal retroflexion time was 7.6 seconds (IQR 4.5 – 12.3) and the range was 1.4 – 49.7 seconds. The AI predicted median RR time was 7.4 seconds (IQR 4.2 – 12.2) (Figure 1) and the range 0 – 50.2 seconds.

Test dataset	Endoscopists	Procedures	Ground Truth RR Time (Median seconds; IQR)	CNN Predicted RR Time (Median seconds; IQR)	Accuracy (%)	Sensitivity (%)	Specificity (%)
Internal (site 1)	2	20	6.8 (5.2, 10.3)	6.8 (4.6, 10.5)	98	96	99
External (sites 2 – 9)	16	160	7.6 (4.4, 12.4)	7.5 (4.1, 12.4)	98	95	99
Overall	18	180	7.6 (4.5, 12.3)	7.4 (4.2, 12.2)	98	95	99

Table 1: CNN performance for rectal retroflexion (RR) detection and rectal retroflexion time measurement.

Conclusion: This is the first study to evaluate the use of artificial intelligence for automated RR detection and measurement of the novel metric 'rectal retroflexion time'. We demonstrated robust performance of the CNN amongst multiple sites across the UK. Further exploration is warranted to evaluate 'rectal retroflexion time' as a replacement or adjunct to RR detection as a quality indicator for colonoscopy.

Disclosure: Professor Laurence B Lovat is a minority shareholder and consultant advisor of Odin Vision. Professor Danail Stoyanov is a shareholder of Odin Vision.

PP1128

POLYP SIZE MEASUREMENT METHOD BASED ON ARTIFICIAL INTELLIGENCE

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Introduction: Measurement of the size of colorectal polyps during colonoscopy is carried out mainly by visual estimation. We developed a novel polyp size measurement system (*Poseidon*) based on artificial intelligence that uses the auxiliary water jet as a measurement reference.

Aims & Methods: Visual estimation, biopsy forceps measurement, and *Poseidon* were compared using a CT colonography-based silicon colon model with 28 polyps of known size. Four experienced endoscopists estimated polyp size visually and with biopsy forceps. The endoscopists took images of each polyp with the water jet in its proximity. These images were then analyzed by *Poseidon* to measure the size of the polyp.

Additionally, the *Poseidon* measurements were compared to visual size estimates of 29 colorectal polyps examined during clinical routine.

Results: In the silicone colon model, the visual estimation had the largest median percent error (PE) of 25.2% (interquartile range (IQR: Q1, Q3): 11.8, 43.1), followed by the biopsy forceps measurements with a median PE of 20% (IQR: 9.1, 34.3). Poseidon had a significantly lower median PE of 7.4% (IQR: 3, 15.7, $p<0.001$) than the other two methods.

At routine colonoscopies, Poseidon had a significantly lower median PE (7.7%; IQR: 2.7, 12.6) than the visual estimation (22.1%; IQR: 12.4, 34.1, $p<0.001$).

Conclusion: In this work, we present a novel method to measure the size of colorectal polyps, which has a significantly higher accuracy than other common polyp sizing methods.

Disclosure: Nothing to disclose.

PP1129

HEMORRHOIDS AT RISK FOR COLORECTAL ADENOMAS ON COLONOSCOPY: A CROSS-SECTIONAL STUDY

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Introduction: Colorectal premalignant polyps and hemorrhoids are important findings in colonoscopy; however, the association between them is unclear. Therefore, we investigated the association between the presence and severity of hemorrhoids and the detection of precancerous colorectal polyps on colonoscopy.

Aims & Methods: This retrospective, single-center, cross-sectional study enrolled patients who underwent colonoscopy at Toyoshima Endoscopy Clinic between May 2017 and October 2020. Anorectal mucosal elevations with dilated veins were defined as hemorrhoids. Hemorrhoids were examined in the retroflexed view during colonoscopy.

Hemorrhoids with mucosal elevation ≥10 mm were diagnosed as severe hemorrhoids. All polyps suspected to be cancers, adenomas, or clinically significant serrated polyps were excised or biopsied during colonoscopy. The association between hemorrhoids and other outcomes (patient age, sex, withdrawal time for colonoscopy, expert endoscopist, number of adenomas per colonoscopy, detection rates of adenoma, advanced neoplasia, clinically significant serrated polyp, and sessile serrated lesion) was assessed using a binomial logistic regression model. This study was approved by the Certificated Review Board, Yoyogi Mental Clinic on July 16, 2021 (approval no. RKK227).

Results: A total of 12,408 patients were enrolled in this study. Hemorrhoids were identified in 1,863 patients. The mean age was 53.9 years and female sex accounted for 50.5%. Expert endoscopists performed 68.3% of the colonoscopies. Mild and severe hemorrhoids are found in 1,735 and 128 patients, respectively. Number of adenomas per colonoscopy was 0.821. Detection rates of adenoma, advanced neoplasia, clinically significant serrated polyp, and sessile serrated lesion were 44.9%, 2.68%, 8.89%, and 3.47%, respectively. Univariable analysis showed that patients with hemorrhoids were older (61.0 vs. 52.5 years, $P < 0.001$), had a higher number of adenomas per colonoscopy (1.16 vs. 0.756, $P < 0.001$), and had a higher adenoma detection rate (56.4% vs. 42.7%, $P < 0.001$) than those without hemorrhoids. Multivariable analyses also demonstrated that hemorrhoids were associated with a higher number of adenomas per colonoscopy (odds ratio [OR]: 1.061, 95% confidence interval [CI]: 1.022-1.101, $P = 0.002$) and a high adenoma detection rate (OR: 1.152, 95% CI: 1.035-1.282, $P = 0.010$), regardless of patient age, sex, and expert endoscopist. Next, we performed a subgroup analysis that was limited to the expert endoscopists. Multivariable analysis showed that the presence of hemorrhoids was independently associated with a high number of adenomas per colonoscopy (OR: 1.066, 95% CI: 1.024-1.109) regardless of patient age and sex. Among patients with hemorrhoids, severe hemorrhoids were associated with a higher number of adenomas per colonoscopy than mild hemorrhoids (OR: 1.120, 95% CI: 1.003-1.250), regardless of patient age, sex, and expert endoscopist.

	Odds ratio	95% confidence interval	P value
Age	1.055	1.050-1.059	<0.001
Male sex	1.106	0.998-1.226	0.055
Expert endoscopist	1.542	1.360-1.747	<0.001
Number of adenomas per colonoscopy	1.061	1.022-1.101	0.002

Conclusion: Hemorrhoids, especially severe ones, are associated with a high number of adenomas. Complete colonoscopy should be performed in patients with hemorrhoids.

Disclosure: There is no conflict of interest for this study.

PP1130

ARTIFICIAL INTELLIGENCE–ASSISTED COLONOSCOPY FOR ADENOMA AND POLYP DETECTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction: There is a growing interest in the role of artificial intelligence in colonoscopy. In this systematic review and meta-analysis, we aimed to evaluate the efficacy of computer-aided detection (CADe) of colorectal adenomas and polyps.

Aims & Methods: We searched MEDLINE, EMBASE and CENTRAL (from inception to December 2022) for randomized controlled trials (RCTs) comparing colonoscopy with CADe versus standard colonoscopy (SC). We performed a random-effects meta-analysis and reported the results as relative risks (RR) or mean difference (MD) with 95% confidence intervals (CI).

Results: Twelve RCTs comprising 11,340 patients were included in the final analysis. The pooled adenoma detection rate (ADR) was significantly higher in the CADe group compared with the SC group (41.4% vs 33%; RR 1.26, 95% CI 1.18 – 1.35). CADe increased the detection of adenomas regardless of their size (≤5mm [RR 1.56, 95% CI 1.38 – 1.77], 6 – 9mm [RR 1.24 95% CI 1.05 – 1.47] and ≥10mm [RR 1.30, 95% CI 1.11 – 1.53]), location (proximal colon [RR 1.41, 95% CI 1.26 – 1.58] and distal colon [RR 1.44, 95% 1.29 – 1.61]) or morphology (polypoid [RR 1.35, 95% CI 1.17 – 1.56] and non-polypoid [RR 1.55, 95% 1.25 – 1.93]).

There was no difference between the CADe and SC groups in detecting advanced adenomas or sessile serrated lesions. Colonoscopy withdrawal time was longer in the CADe group compared with the SC group (MD 0.34 minutes, 95% CI 0.17 – 0.51).

Conclusion: Using CADe during colonoscopy is associated with a significant increase in ADR and adenoma per colonoscopy, which was mainly due to the increased detection of diminutive adenomas. Long-term longitudinal studies are required to evaluate the effect of CADe on the risk of interval colorectal cancer and cancer-related deaths.

Disclosure: Nothing to disclose.

PP1131

EFFICACY AND SAFETY OF ENDOSCOPIC SUBMUCOSAL DISSECTION USING A SCISSOR-TYPE KNIFE AND TRACTION DEVICE FOR EARLY COLORECTAL NEOPLASMS

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Introduction: Although endoscopic submucosal dissection (ESD) can be useful for treating early colorectal neoplasms, colorectal ESD is technically more difficult, with certain organ characteristics rendering the procedure even more challenging and increasing the risk of perforation. Herein, we used scissor-type knives (SB Knife Jr and Jr2, Sumitomo Bakelite, Japan) that enabled the maintenance of an adequate dissection layer and prevented unexpected muscular layer injuries. However, scissor-type knives demonstrated slower resection compared with needle-type knives. This

drawback was overcome by using a traction device on the lesion, which facilitated accurate visualization and easier dissection as well as increased the resection speed during colorectal ESD using a needle-type knife. Nevertheless, reports regarding the effectiveness of a traction device when using a scissor-type knife for colorectal ESD remain scarce.

Aims & Methods: This study aimed to evaluate the efficacy and safety of ESD performed using a scissor-type knife with and without a traction device for treating early colorectal neoplasms. Between October 2010 and January 2023, ESD was performed for 619 lesions in 582 patients (male-to-female ratio, 332:250; mean age, 70.0 years) in the Kure medical center. ESD was performed without a traction device for 531 lesions (Group A) and with a traction device for 88 lesions (Group B). We compared the en-bloc resection rate, complete resection rate, tumor size, procedure time, resection speed, and adverse events of the groups.

Results: Five and two interruptions occurred in Groups A and B, respectively. The en-bloc resection rate was 99.0% (521/526) in Group A and 97.7% (84/86) in Group B ($p = 0.26$). The complete resection rate was 97.0% (510/526) and 95.3% (82/86) in Groups A and B, respectively ($p = 0.51$). The mean tumor diameter was 33.4 ± 16.9 and 37.2 ± 20.9 mm in Groups A and B, respectively ($p = 0.11$). The mean procedure time was 86.4 ± 67.6 and 73.2 ± 66.0 min in Groups A and B, respectively ($p = 0.09$). The mean resection speed (the resected specimen area [mm^2] divided by the procedure time [min]) was 13.2 ± 10.4 and 22.9 ± 11.9 mm^2/min in Groups A and B, respectively, with the speed in Group B significantly faster than that in Group A ($p < 0.01$). There was one case each of intraoperative perforation and delayed perforation in Group A (1/526, 0.2% each), while there were none in Group B (0/86, 0%). Both cases of perforation were treated conservatively. There were 10 cases of delayed hemorrhage in Group A (10/526, 1.9%), and none in Group B (0/86, 0%; $p = 0.37$). The hemorrhage was controlled with endoscopic hemostasis in all cases.

Conclusion: ESD using a scissor-type knife either with or without a traction device is technically efficient and safe. Moreover, its drawback of slow resection speed may be overcome by the use of a traction device.

Disclosure: Nothing to disclose.

PP1132

CAN TIP-IN ENDOSCOPIC MUCOSAL RESECTION BE PERFORMED EFFECTIVELY AND SAFELY BY TRAINEES FOR 15-25 MM COLORECTAL NONPEDUNCULATED NEOPLASMS?

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Introduction: Tip-in endoscopic mucosal resection (EMR) has shown a favorable resection outcome for large colorectal polyps.[1, 2] However, reported outcomes have been limited to experts' performance. To generalize the outcomes, trainees' performance of Tip-in EMR is an interest, however, available data are absent.

Aims & Methods: To clarify whether Tip-in EMR can be achieved effectively and safely even by trainees, in this single-center retrospective study, clinical outcomes of Tip-in EMR between experts and trainees were compared. Inclusion was 15–25 mm non-pedunculated colorectal neoplasms resected by Tip-in EMR between January 2014 and December 2020. Exclusion was residual lesions after the previous resection. Data were collected from medical records and prospectively recorded endoscopy and pathology databases. Baseline characteristics, treatment results, histological outcomes, and surveillance outcomes were analyzed. In our institution, trainees perform Tip-in EMR under the supervision of experts, and switch to experts when experts decide to switch during the procedure, all of which were also analyzed as the trainee group. Independent procedure completion and independent en bloc resection were defined as achieving procedure completion and en bloc resection without switching, respectively. Failure of independent en bloc resection was defined as piecemeal resection or switching. Residual lesions were defined as endoscopically detected residuals that were pathologically confirmed as neoplasia.

All procedures performed by trainees were grouped into three periods (period 1: 1–10 cases, period 2: 11–20 cases, and period 3: ≥21 cases), and the learning curve was assessed. A logistic regression analysis was performed to examine the risk factors of failure of independent en bloc resection.

Results: A total of 597 lesions (550 patients) were analyzed. Among them, 438 lesions (402 patients) and 159 lesions (148 patients) were resected by 6 experts and 14 trainees, respectively. The independent procedure completion was 146 cases (91.8%) in the trainees and 438 cases (100%) in the experts. The en bloc resection rates did not differ between trainees and experts (83.0% vs. 88.6%, $P = .098$).

However, the independent en bloc resection rate was significantly lower in trainees (77.4% vs. 88.6%, $P = .001$). There was no significant difference in the incidence of adverse events (2.5% vs. 5.7%, $P = .165$). Among 380 lesions (63.6%) of 347 patients who received surveillance colonoscopy, 11 residual lesions were identified; 3 lesions (3.1%) in the trainees and 8 (3.5%) in the experts ($P = 1$), all of them were removed endoscopically. For the learning curve of trainees, the independent en bloc resection (OR 3.4, 95%CI 2.0–5.7, $P < .001$) was significantly lower and took longer procedure time (median 8.6 min vs. 5.8 min, $P < .001$) in period 1 than those of experts, but not in period 2 and 3.

In multivariate analysis, risk factors of failure of independent en bloc resection were non-polypoid morphology (OR 3.4, 95% CI: 1.6–7.3; $P = .001$), positive non-lifting signs (OR 3.1, 95%CI: 1.2–8.0; $P = .023$), lesions with an underlying semilunar fold (OR 3.6, 95%CI: 2.0–6.3; $P < .001$), and trainees with experience ≤10 procedures (OR 3.6, 95%CI: 2.1-6.3, $P<.001$).

Conclusion: We demonstrated favorable outcomes of Tip-in EMR for 15-25 mm lesions performed by trainees. However, Tip-in EMR should be performed under the supervision of experts, especially for trainees with experience of ≤10 cases.

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Disclosure: Nothing to disclose.

PP1133

EFFECT FOR COMPLETION TIME OF BOWEL PREPARATION ON BOWEL CLEANSING EFFICACY: A PROSPECTIVE RANDOMIZED COMPARISON OF 2-4 HOURS VS 4-8 HOURS BEFORE COLONOSCOPY

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Introduction: Bowel cleansing completion time is one of the important factors for optimal bowel preparation. The recommended completion time is within 3-8 hours of colonoscopy.

Aims & Methods: In this randomized study, we investigated the optimal bowel preparation completion time between short interval and long interval. Study participants were randomized into two groups: short interval, bowel preparation completion time (2-4 hours of colonoscopy); long interval (4-8 hours of colonoscopy).

The primary endpoint was successful bowel cleansing assessed by Boston bowel preparation (BBPS) scale. Secondary endpoint included Aronchick scale and patient's tolerability investigated by sleep disturbance and patients' satisfaction. Bowel preparation was performed using 4 L polyethylene glycol.

Results: A total of 504 individuals were included (short interval, 255; long interval, 249). Mean time for bowel preparation finish time was 2.99 and 5.12 hours respectively. The rate for successful preparation was comparable between the two groups (short interval, 97.6% and long interval, 95.2%, p=0.136). Total BBPS score was 8.22 in the short interval group, which was higher than that of long interval group (7.82, p<0.001). Regional score for Rt. colon (2.65 vs 2.44, p < 0.001) and Lt. colon (2.65 vs 2.56, p=0.057) of short interval group was higher than that of long interval group. Regional score for T-colon (2.92 vs 2.82, p = 0.002) and was comparable between the two groups. Sleep disturbance was higher in the long interval group. Safety did not differ between the two groups.

Conclusion: The rate for successful preparation were similar for the two groups. Total BBPS score and regional scores for Rt. colon and T-colon were higher in the short interval group. For better bowel cleansing, bowel preparation finish time is recommended 2-4 hours of colonoscopy.

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PP1134

MEASURING SIZE OF COLORECTAL POLYPS USING A VIRTUAL SCALE ENDOSCOPE OR VISUAL SIZE ESTIMATION: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Accurate measurement of polyp size is important for colonoscopy related decision making, especially for choosing appropriate polypectomy instruments and surveillance intervals. The virtual scale endoscope (VSE) allows for laser-based polyp size measurement during colonoscopy (1).

VSE is integrated in the endoscope, superimpose a calibrated scale on a polyp in real-time and aims to overcome endoscopist and technology bias when measuring colorectal polyps' size.

Aims & Methods: This study aimed to compare polyp size measurement relative accuracy (RA) when using an endoscope with integrated laser-based adaptive scale function (VSE) and visual assessment (VA). Patients undergoing screening, surveillance or diagnostic colonoscopies were randomly assigned (1:1) into two groups. In the intervention group, all detected polyps were measured for size using VSE; in the control group, all polyps were measured using VA. Size measurements were compared to a reference standard of digital caliper measurement of fresh polyp specimens immediately after polypectomy. The primary outcome was the RA of VSE measurement when compared to VA. Secondary outcomes included the mean differences and the correlations between VSE or VA sizes and the reference standard of measurement.

Results: Overall, 230 patients were enrolled and randomized. In the intervention and control groups, 204 polyps (in 79 patients) and 166 polyps (in 80 patients) were found and measured with VSE and VA, respectively. The RA of VSE was 84%, which was significantly higher than that of VA (68.4%, p<0.001). The RA of the measurement with VSE decreased with increasing polyps size estimations during the live colonoscopies but did not reach the statistical significance (B=-0.009; p-value=0.31; 95% CI, -0.03–0.01). In contrast, the RA of the measurements with VA significantly increased with increasing polyp size estimations during the live colonoscopies (B=0.025; p<0.001; 95% CI, 0.01–0.04). VSE had significantly lower percentage for >5mm polyps incorrectly sized as 1–5mm compared to VA (13.5% vs. 57.1%; p=0.0005). No difference was observed between VSE and VA for 1–5mm polyps mis-sized as >5mm (3.7% vs. 2.4%; p=0.62), ≥10mm polyps mis-sized as <10mm (20% vs. 16.7%; p=0.87), or <10mm polyps mis-sized as ≥10mm. When estimating the percentage of size measurements that were within 25% of true size measured by caliper, 41% (43/105) of measurements with VA and 81.4% (96/118) of measurements with VSE were within 25% of true size (p<0.001). The normalized mean showed a tendency towards size underestimation for both VSE and VA measurements (p<0.001). There was a significant lower tendency of underestimation for VSE compared to VA (p<0.001; 95% CI, 0.15-0.30). The correlations between size measurements with VSE or VA and the reference standard were substantial and statistically significant (0.87 and 0.89, respectively; p<0.001 for both methods). The interclass coefficients of the agreement between each measurement method and the reference standard were statistically significant (p<0.001 for both).

Conclusion: VSE significantly improves size measurement accuracy of colorectal polyps during colonoscopies compared to visual size estimation. (NCT05236790)

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Disclosure: Daniel von Renteln has received research funding from ERBE Elektromedizin GmbH, Ventage, Pendopharm, Fujifilm and Pentax, and has received consultant or speaker fees from Boston Scientific Inc., ERBE Elektromedizin GmbH, and Pendopharm. The remaining authors declare that they have no conflict of interest. Funding: Fujifilm.

PP1135

READMISSION WITHIN 30-DAYS OF COLONIC STENT PLACEMENT IS ASSOCIATED WITH INCREASED MORTALITY: A NATIONWIDE ANALYSIS OF OUTCOMES AND PREDICTORS OF READMISSION

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Introduction: Colonic stents (CS) are usually placed for palliative purposes in patients with malignant obstructions[1]. Paucity of data exist in regards causes, rates, mortality and predictors of readmission.
Aims & Methods: Retrospective review of the National Readmission Database (NRD) of the year 2019 of adult patients that underwent CS placement during an index admission (IA) from the month of January to November and were readmitted within 30-days of discharge. ICD-10CM/PCS codes were utilized to identified the procedures and comorbidities. The primary outcome was readmission of any cause. Secondary outcomes were mortality, resource utilization (length of stay (LOS), total hospitalization costs and charges) associated with readmission. Independent risk factors for readmission were identified using Cox regression analysis.
Results: A total of 2,786 patients underwent CS placement in 2019. 46.4% of patients were female and mean age was 65.6 years, most of the patient had a Charlson Comorbidity Index (CCI) score of ≥3 (62.4%) and 44.6% of stents were placed to relieve a malignant obstruction. The 30-day readmission rate was 29.1% (N=811), the most common diagnosis associated with readmission was neoplasm of the sigmoid colon (64.3%). The mortality rate of readmission was 6.7% and 4.5% for the IA (P<0.01). A higher proportion of females were readmitted (50.8% vs. 44.5%, P=0.04), readmitted patients had lower rates of CCI score of ≥3 (55.3% vs. 65.3%), more likely to be from large metropolitan areas with at least 1 million residents (70.4% vs. 64.1%, P=0.04), to have associated obesity (17.8% vs. 11.5%). Patients that had CS placed for obstruction (45.1% vs. 39.3%; P=0.04) and colonic fistula (2.9% vs. 1.2%; P=0.02) were more likely to be readmitted. The mean LOS, hospitalization charges and costs were: 10.4 days, $93,780 and $24,758, respectively. The total cumulative hospitalization charges and costs associated with readmission were $76.2 million and $20.1 million. Independent predictors of 30-day readmission were obesity [adjusted Hazard Ratio (aHR) 1.40, 95% Confidence Interval [CI] (1.07-1.85)], stent placement for colonic fistula [aHR 2.92 (1.74-4.90)], stent placement in the descending colon [aHR 1.40(1.03-1.90)] and residence in not metropolitan or micropolitan [aHR 3.25(1.35-7.85)].
Conclusion: Readmissions after CS placement are high. The mortality rate associated with readmission is significantly higher than in the IA. Obesity increases the risk of readmission by 1.4 times. Further prospective studies are needed to evaluate the mechanisms and causes to decrease readmission rates and in-hospital mortality in this set of patients.

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PP1136

BOOKLETS TO IMPROVE BOWEL PREPARATION QUALITY IN COLONOSCOPY: SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: A good bowel preparation for colonoscopy is fundamental to improve the quality of the examination, reduce procedural complications and achieve optimal polyp detection. Among possible strategies to enhance bowel preparation, visual booklets have been proposed with conflicting results.
Therefore we aimed to perform a systematic review with meta-analysis of randomized controlled studies (RCT) to ascertain whether booklets may be useful in this setting.
Aims & Methods: Literature search was performed in July 2022, in main databases (PUBMED, SCOPUS, ScienceDirect, the Cochrane Central Register of Controlled Trials and ClinicalTrials.gov). only RCTs were selected. The primary outcome was the quality of bowel preparation. Further outcomes were the adenoma detection rate (ADR), number of polyps detected per patient, rate of cecal intubation, time of insertion and withdrawal, adverse events, willingness to repeat preparation and colonoscopy. We estimated odd ratios (OR) for dichotomous outcomes. mean differences (MD) or standardized mean differences (SMD) were used for continuous outcomes. We estimated heterogeneity among studies with the Chi2 (Cochran Q) and the I2 statistics. In case of high heterogeneity, a random effect model was used, otherwise a fixed effects model was preferred. All analyses were performed using RevMan version 5.4.1.
Results: Six studies were selected, enrolling overall 1755 patients (857 in the booklet and 898 in the control group). Adequate bowel preparation was achieved in the 86.7% (743 out of 857) of booklet preparation versus the 77.5% (696 out of 898) in the control group, with an OR of 2.31 in favour of booklet (95% CI 1.20-4.45, p = 0.01). Booklet was more effective than control in the transverse colon (MD = 0.37, 95% CI 0.01-0.72, p = 0.03), while no differences were found in right colon and left colon.
In four studies a 4-L PEG-based preparation was used and the pooled analysis did not find any difference compared to controls, while when sodium phosphate and magnesium citrate or sodium phosphate or PEG were used, preparation with booklet was better than in controls (OR = 5.10, 95% CI 1.82-14.27, p = 0.002).
Two studies were performed in inpatient setting, without difference between booklet and controls while in outpatients patients receiving booklets were better prepared than controls (OR = 7.13, 95% CI 5.39-9.45, p < 0.001). ADR was similar between the two groups, with an OR = 0.93 (95% CI 0.75-1.16, p = 0.53). The mean number of polyps per patient did not differ between the two groups (MD = 0.22, 95% CI -0.14-0.58, p = 0.23).
Conclusion: The present meta-analysis demonstrated that booklets are useful to enhance bowel preparation. Outpatients and non PEG-based preparations seem to benefit more from booklets, while no effect on ADR has been observed.
Disclosure: Nothing to disclose.

PP1137

FACTORS AFFECTING BOWEL PREPARATION FOR COLONSCOPY IN INPATIENT SETTING: A PROSPECTIVE, CASE-CONTROL STUDY

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Introduction: It is well known that inpatients more frequently undergo inadequate bowel preparation for colonoscopy, mainly due to factors such as old age, comorbidities and polypharmacy. we therefore aimed to investigate factors associated to inadequate bowel preparation in a group of hospitalized patients.

Aims & Methods: We prospectively enrolled inpatients at University Hospital Policlinico of Bari, who underwent colonoscopy in the last year. Outpatients undergoing colonoscopy represented a control group. For each patients we collected data about age, diseases and drugs consumed. all patients received a 4-L polyethilenglycole (PEG) based preparation in a split regimen, and colonoscopies were performed in the morning. Inadequate preparation was defined if Boston bowel preparation scale (BBPS) was total <6 or <2 in at least one colonic segment. Continuous and discrete variables were respectively compared by t-test and chi-square test. Binomial logistic regression was used to find factors associated to inadequate preparation and estimate of risk was defined as odds ratio (OR).

Results: We recruited 167 hospitalized patients and 167 controls. Inpatients were more commonly bedridden (p<0.001) or had chronic kidney disease (p=0.004) and were older than controls (64.7 ± 16.3 versus 50.9 ±18.6, p<0.001). Adequate preparation was attained only in the 73.6% of hospitalized patients versus the 88.0% of outpatients (p=0.001), and the BBPS was lower in inpatients (6.8 ± 1.7 versus 5.8 ± 2.5, p<0.001). Adequate preparation was more often achieved if patients was admitted in Gastroenterology units than in other units (81.6% versus 67.7%, p=0.04). Adenoma detection rate was higher when preparation was adequate (28.5% versus 13.6%, p=0.05). At multivariate analysis, inadequate preparation was associated with admission in a ward other than Gastroenterology (OR=1.88).

Conclusion: Our results confirm that hospitalization negatively impact on the quality of bowel preparation for colonoscopy. Interestingly, admission in Gastroenterology Unit allows a better preparation, maybe due to a better care of medical and nurse personnel.

Disclosure: Nothing to disclose.

PP1138

JOINT MULTIVIEW LEARNING ENHANCES CHARACTERIZATION OF COLORECTAL POLYPS IN WHITE LIGHT ENDOSCOPY

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Introduction: Automatic optical characterization (CADx) systems aim to support gastroenterologists in identifying the type of polyps found during a colonoscopy procedure (e.g. “adenomatous” or “non adenomatous”). It has the potential to decrease the risks, workloads, and costs of polypectomy and pathology tests. The majority of reported CADx systems provide a classification score for each polyp frame, followed by an aggregation of the scores to determine a final prediction of the polyp diagnosis. A common aggregation mechanism is a simple voting procedure. Other aggregation methods include the average or maximum score of the entire sequence. In all of the above, longer sequences should provide more information necessary to get an accurate prediction. However, the aggregation approach does not leverage complementary information (e.g. polyp geometry) that can be learned by jointly processing multiple views. In addition, views diversity and quality are not considered as part of the inference process. At the aggregation stage, only the per-frame score is taken into account, while the appearance of the polyp in each view is not considered. Joint processing of multiple frames, on the other hand, allows relative weighing of each frame with respect to the other available frames in the sequence, while considering their quality and diversity.

Aims & Methods: We propose a multiview learning model, in which multiple frames of a polyp are processed jointly as part of the training process, resulting in a single score for the entire sequence. We apply a convolutional neural network (CNN) to embed each frame into a vector representation. We then use an attention model (Transformer) to jointly process these representations and predict a single score for the entire sequence, rather than for each frame separately. The system is trained in an end-to-end manner, allowing the model to learn to predict a score based on multiple views with varying quality and diversity.

Here we test the performance of the proposed approach in predicting the endoscopic appearance-based polyp classification done by GIs. Predicting the histology results is left for future work. The polyps are annotated by expert GIs into adenomatous or non adenomatous. The test set consists of 565 polyps taken from 317 videos that were unanimously classified by 2 expert GIs, independently. We compare our suggested model to a baseline model which was trained to predict a score for each frame separately, followed by aggregation of the scores for each polyp.

Results: We compare the AUROC of the joint learning model (“Joint Learning“) and 3 baseline aggregation schemes - averaging the per-frame scores (“Mean Score“), maximum score (“Maximum Score“), and majority voting (“Voting“). We use polyp frames sequences of varying lengths and evaluate the performance repeatedly on 10 random selections of frames from each sequence. We report the mean and STD of the AUROC for each sequence length. As seen in the table, the joint learning model outperforms all baseline aggregation schemes.

Aggregation Method \ Sequence Length (# Frames)	1	10	20	30	40
Joint Learning	0.913 ± 0.007	0.959 ± 0.003	0.962 ± 0.003	0.962 ± 0.002	0.961 ± 0.001
Mean Score	0.907 ± 0.013	0.952 ± 0.003	0.955 ± 0.003	0.955 ± 0.002	0.956 ± 0.002
Maximum Score	0.907 ± 0.015	0.954 ± 0.004	0.957 ± 0.001	0.956 ± 0.003	0.956 ± 0.002
Voting	0.831 ± 0.022	0.937 ± 0.007	0.945 ± 0.044	0.946 ± 0.002	0.948 ± 0.002

Conclusion: Joint learning of polyp appearance in multiple frames results in better performance for polyp classification in colonoscopy. The joint learning process allows the model to consider diversity, quality and complementary information from multiple views of a single polyp, rather than process each frames separately.

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Disclosure: The authors are affiliated with Verily (@verily.com) and Google (@google.com).

PP1139

A NOVEL STIFFENING WIRE INCREASES THE DEPTH OF INSERTION DURING DOUBLE BALLOON ENTEROSCOPY – FINDINGS FROM A SINGLE BLIND RANDOMIZED CONTROLLED TRIAL

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Introduction: Deep intubation of the small bowel can be difficult during double balloon enteroscopy (DBE). A stiffening wire may help by reducing loop formation and improving handling characteristics of the enteroscope. We conducted a single blind randomized controlled trial to determine the effectiveness of a stiffening wire to increase insertion depth.

Aims & Methods: Consecutive patients undergoing DBE between 2016 to 2022 were eligible to participate in the study. All patients had an abnormality on small bowel imaging before the procedure. Patients underwent DBE using standard technique and were excluded if the abnormality was reached since further insertion was not necessary. If the abnormality could not be reached, patients were randomized to either the stiffening wire or control, after which the endoscopist was given three attempts to advance the enteroscope further. The primary outcome was insertion depth after randomization and secondary outcomes included total insertion depth, diagnosis, intervention, pain score, and adverse event. Insertion depth was determined using the fold counting method[1] and scored by a blinded outcome assessor who reviewed recorded videos of the withdrawal phase of each procedure.

Results: A total of 54 subjects were enrolled (median age 68, 46% female, 28 to stiffening wire and 26 to control). The most common indication was small bowel bleeding (57%) and most cases were performed after an abnormal capsule study (83%). Overall, post-randomization insertion depth was significantly greater in the stiffening wire group compared to the control (135 cm vs. 19 cm, p<0.001), as was total insertion depth (502 cm vs. 391 cm, p=0.015). There were no significant differences in the types of diagnoses or interventions performed between the two groups although there was a trend towards fewer procedures having no intervention in the stiffening wire group (42% vs. 26%, p=0.25). There were no significant differences in pain scores but there were two adverse events in the intervention group, neither of which were related to the stiffening wire.

Conclusion: A stiffening wire is a simple and useful tool to increase the depth of insertion during DBE.

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Disclosure: Dr. Michael Sey: Medtronic (consultant), Pendopharm (research grants, speaker) and Cook Medical (educational grant).

PP1140

APPLICATION OF A REAL-TIME ARTIFICIAL INTELLIGENCE SYSTEM FOR COLORECTAL POLYP DETECTION

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Introduction: Colonoscopy is the "gold-standard" technique for early diagnosis and resection of colorectal cancer precursor lesions. However, this technique has limitations, and can result in missed adenomas and polyps. In recent years, artificial intelligence (AI) systems have been developed for the automatic detection of polyps. This study aims to investigate the impact of an AI system applied in real time on the detection rate, compared with conventional detection by the endoscopist.

Aims & Methods: A prospective observational study was carried out by seven gastroenterologists in the Digestive Endoscopy Unit of a tertiary hospital. Colonoscopies were performed on consecutive patients for polyp screening or surveillance. High-definition colonoscopes were used for the examinations and an AI system was applied in real time.

Each procedure consisted of two phases: (1) an initial assessment was performed by the endoscopist who withdrew the endoscope after reaching the cecum, identifying all visualized lesions without resecting them, and (2) the colonoscope was reintroduced up to the cecal pole with an AI device. The automatic detection of the AI device was assessed by means of a light and sound signal.

The primary objective was to compare the detection rate of adenomas and polyps. Secondary objectives were to compare the total number of polyps and serrated lesions detected, as well as detection of polyps by size, location and morphology, with and without the device.

	Examination by endoscopist	Examination IA assisted	p value
Adenoma detection rate (ADR)	0.7575	0.7878	0.678
Polyp detection rate (PDR)	0.7878	0.8333	0.505
Total number of adenomas, n (mean)	159 (2.41)	188 (2.85)	< 0.05
Total number of polyps, n (mean)	193 (2.92)	243 (3.68)	< 0.05
Total number of serrated lesions, n (mean)	34 (0.52)	55 (0.83)	< 0.05
Polyp location			
Right colon, n (%)	70 (36.3)	98 (40.3)	< 0.001
Transverse colon, n (%)	52 (26.9)	64 (26.4)	0.012
Left colon, n (%)	71 (36.8)	81 (33.3)	0.018
Polyp morphology			
Paris 0-IIa, n (%)	123 (63.7)	165 (67.9)	< 0.001
Paris 0-IIb, n (%)	8 (4.2)	13 (5.3)	0.096
Paris 0-IIc, n (%)	1 (0.5)	1 (0.4)	1.000
Paris 0-Ip, n (%)	17 (8.8)	17 (7)	1.000
Paris 0-Is, n (%)	41 (21.2)	42 (17.3)	0.564
LST, n (%)	3 (1.6)	5 (2.1)	0.157
Polyp size			
0-5 mm, n (%)	135 (70)	178 (73.2)	< 0.001
6-9 mm, n (%)	30 (15.5)	33 (13.6)	0.450
> 10 mm, n (%)	28 (14.5)	32 (13.2)	0.102

Table. Detection of adenomas and polyps and characteristics.

Results: The sixty-six patients included in the analysis were examined simultaneously by colonoscopy, and the AI device was applied. The AI system identified a greater mean number of adenomas (2.85 vs 2.41, p<0.05) and polyps (3.68 vs 2.92, p<0.05), as well as a greater number of serrated

lesions (0.83 vs 0.52, p <0.05), compared with the endoscopist. No significant differences were found in the adenoma detection rate (78.8% vs 75.7%; p > 0.05).

AI significantly increased the detection of small lesions (178 vs 135, p<0.001), and those of Paris type IIa flat morphology (165 vs 123, p<0.001). There were no differences in the detection of lesions larger than 5 mm or with other morphologies.

Conclusion: In a high-risk population, the application of an AI system allowed a significantly higher number of polyps and adenomatous lesions to be detected, at the expense of small lesions and those with flat morphology, compared with conventional evaluation by the endoscopist. There were no differences in the adenoma detection rate.

Disclosure: Nothing to disclose.

PP1141

COMPARISON OF LOWER GI ENDOSCOPIC SUBMUCOSAL DISSECTION OUTCOMES: WESTERN VS. ASIAN COUNTRIES

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Introduction: Endoscopic submucosal dissection (ESD) has been routinely used for en-bloc resection of superficial lower GI neoplasms as it provides precise information on the histology, margins and invasion (lateral and deep). The meta-analysis by Fuccio et al (2017, pp 74) compared the outcomes of the Asian countries with the non-Asian countries and concluded that there was a high disparity between the two groups. There were higher R0 resections rates and lower postoperative complications, and recurrences at 12 months in the Asian setting, suggesting that the possible factors could be the low number of ESD procedures and reduced expertise in this field in the West.

Aims & Methods: We analysed the key performance indicators of Colorectal ESDs at a teaching hospital in the UK from 2017 to 2022. The procedures were performed by a single operator, who was trained in the West and has had no prior exposure to the Eastern training framework and guidelines. All procedures done between the above years were included starting from 2017 when ESD service was newly introduced in hospitals. Data was collected on R0 resections rates(deep and lateral margins free of neoplasia), post-operative bleeding and perforation rates, and recurrences/residual lesions at 6-12 months post-resection. We then compared the data with the results of the meta-analysis previously published. We then theorised the probable reasons for the disparity, based on potential contributing factors.

Results: The data presented in the table suggests that comparable outcomes to the Standard ESD technique in Asian countries can also be achieved in Western countries. The study analyzed data from 82 patients for R0 resection, 82 patients for delayed bleeding, 84 patients for perforation, and 38 patients for recurrence at 12 months. The discrepancy in the number of patients between the primary procedure and post-resection surveillance is attributed to various factors, including patient preferences, the need for further management of malignant lesions, and patients awaiting their follow-up appointment.

Parameters/Setup	Our Outcomes in Percentages (2017-2022)	Asian - Fuccio et al (2017, pp 74)	Non-Asian- Fuccio et al (2017, pp 74)
R0 resection	83.1%	85.6%	71.3%
Delayed Bleeding	1.3%	2.4%	4.2%
Perforation	1.2%	4.5%	8.6%
Recurrence at 6-12 months	0%	1.1%	5.2%

Table.

Conclusion: Our data indicate that the Eastern standards can be met in the West with regard to key performance indicators for lower GI ESD. The reasons for underperformance can't be attributed to training and exposure. The above table and analysis indicate a need for the exploration of other probable factors and an updated review of Eastern and Western standards.

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Disclosure: Nothing to disclose.

PP1142

DEVELOPMENT AND VALIDATION OF A NOVEL SCORING SYSTEM BASED ON ENDOSCOPIC APPEARANCE TO PREDICT MICROSATELLITE INSTABILITY IN PATIENTS WITH COLORECTAL CANCER

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Introduction: The endoscopic appearance of colorectal cancer (CRC) with high microsatellite instability (MSI-H) is poorly understood. This study aimed to develop and validate a novel scoring system based on the endoscopic appearance of CRC to predict MSI-H.

Aims & Methods: We retrospectively reviewed the records of patients with CRC. A derivation cohort of 764 patients was used to develop and internally validate the model. The model was first developed as a nomogram, and then modified into a novel scoring system. The scoring system was then externally validated in an independent cohort of 468 patients. The performance of the model was determined by receiver operating characteristic (ROC) curve, calibration belt, and decision curve analysis (DCA).

Results: The novel scoring system is composed of mucus surface (+10.0 points), tumor size ≥ 57 mm (+7.1 points), right-sided CRC (+4.2 points), and intestinal stricture (+3.9 points). With a cut-off value of 14.0 points, the area under the ROC curve (AUC), specificity, and sensitivity for predicting MSI-H were 0.897, 0.911, and 0.690, respectively, in the derivation cohort. In the validation cohort, the AUC, specificity, and sensitivity were 0.933, 0.937, and 0.756, respectively. A score ≥ 14.0 points indicates MSI-H with a specificity > 90%. Good consistencies were confirmed in the calibration belt analysis, and DCA showed that the scoring system yielded a positive net benefit.

Conclusion: We developed and validated a novel scoring system based on the endoscopic appearance of CRC to predict MSI-H. The scoring system is convenient to use and accurate.

Disclosure: Nothing to disclose.

PP1143

THE IMPACT AND EFFECTIVENESS OF A MULTIDISCIPLINARY TEAM APPROACH TO THE TREATMENT OF PATIENTS DIAGNOSED WITH LARGE OR COMPLEX COLORECTAL POLYPS

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Introduction: Large or complex colorectal polyps have a greater than average risk of malignancy, incomplete resection/recurrence or complications associated with treatment. Appropriate management is therefore crucial for preventing cancer and improving patient outcomes. UK guidelines exist for the management of large non-pedunculated colorectal polyps (LNPCPs)[1]. This review aims to evaluate the case mix and outcomes from a multidisciplinary team (MDT) approach to managing such polyps.

Aims & Methods: This study is a retrospective analysis of cases referred to the Complex Polyp MDT at a single centre in the United Kingdom between January 2020 and December 2021 (two-year period). Data collected included patient characteristics, index investigation and polyp complexity as defined by the size, morphology, site, and access (SMSA) score.

Therapy details, including standard endoscopic techniques (EMR, polypectomy) and advanced options (ESD, eFTR, Endorotor), as well as trans-anal surgery, were documented. Complications and re-admission needs were recorded, along with recurrence rates at first surveillance. Any subsequent treatment for recurrence was also documented.

An electronic survey was conducted among MDT members to gather feedback on the MDT's impact on clinical practices, perceived benefits, and suggestions for improvement.

Results: Over a two-year period, 258 cases were reviewed at the complex polyp MDT, with annual cases rising from 91 to 167. After exclusions (diagnosed cancer prior to MDT, discussion regarding management of already treated polyps), 220 cases were reviewed. The median polyp SMSA score was 11, with 34% of polyps classified as level 3 and 38% as level 4. Conservative management was recommended in 35 cases, in patients with a median age of 81 (IQR 78-84), 73% of which suffered from severe systemic disease. 110 colonic polyps (62% overall) were treated with EMR. 67 rectal polyps (38%) were managed with a combination of therapies, including EMR (36, 54%), ESD (13, 19%), or trans-anal surgery (18, 27%). Only 4 complications were observed: post-polypectomy bleeding in 3 cases (from rectal EMR, colonic EMR, and trans-anal surgery) and a small perforation from a low rectal ESD. All complications were managed conservatively, and patients discharged the next day.

MDT discussion led to downgrading of 44% of cases initially deemed high-risk for malignancy; none were subsequently found to contain cancer. Three cases were upgraded to high-risk; none were found to contain cancer, but all contained high-grade dysplasia.

Of 26 patients who experienced recurrence after initial polypectomy, 17 (65%) underwent endoscopic therapy, while others either had surgical excision or were awaiting ongoing surveillance.

Of those who underwent endoscopic treatment, 16 cases (94%) were successfully treated using various techniques, such as eFTR and endoscopic mucosal debridement (Endorotor resection) via one or more further sessions. 3 of the 16 recurrent lesions contained HGD. The remaining case required right hemicolectomy for early-stage adenocarcinoma. Of note, the initial site check in that case had identified HGD.

Survey responses reflected an overall feeling of significantly improved management of complex polyps since the inception of the MDT. Improvements included increased understanding of therapeutic options and better polyp assessment amongst endoscopists.

Conclusion: Multidisciplinary team management of large or complex polyps is effective, and meets standards set by national guidance. The team approach fosters learning amongst members, leading to wide reaching improvements in practice.

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Disclosure: Nothing to disclose.

PP1144

REAL-TIME COMPUTER-AIDED POLYP AND ADENOMA DETECTION DURING SCREENING COLONOSCOPY IN EXPERT AND NON-EXPERT ENDOSCOPISTS: A SINGLE CENTER STUDY

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Introduction: Videocolonoscopy (VCC) remains the gold standard in the diagnosis of colorectal carcinoma (CRC) and premalignant lesions. Around 26% of polyps are missed during conventional colonoscopy due to operator (e.g., expertise, fatigue, etc.), and technical (e.g., suboptimal bowel preparation and withdrawal time) dependent-factors.

Artificial intelligence (AI) aids in adenoma and polyp detection, thus increasing adenoma and polyp detection rates (ADR and PDR, respectively).

Aims & Methods: We aim to evaluate the real-world effectiveness of an AI-assisted colonoscopy (AI-VCC) and compare the results among experts and non-experts endoscopists. Consecutive patients ≥45 years old who underwent VCC (Nov/2020-Mar/2021) were invited to participate. Patients with BBPS≤6, history of inflammatory bowel disease, familial polyposis syndrome, colorectal carcinoma, colorectal surgery, or uncontrolled coagulopathy were not considered. The study protocol was conducted according to the declaration of Helsinki and approved by the local Institutional Review Board (IRB). All patients signed an informed written consent. First, a standard HD-VCC was performed. Then, an AI-VCC was performed by a second operator blinded to previous findings.

We determined the adenoma detection rate (ADR) as a quality indicator of the procedure. The polyp detection rate (PDR), and the adenoma and polyp miss rates (AMR and PMR, respectively) were also calculated. The results were compared between experts and non-experts endoscopists. Data was analyzed in R v4.0.

Results: A total of 115 patients were included. Median age was 57.0 (51.0 - 67.5) years, 82/115 (71.3%) were females. 58/115 (50.4%) patients had a total of 205 polyps/adenoma, with a PDR and ADR of 132/205 (64.3%) and 73/205 (35.6%) with VCC, respectively: 19/205 (9.3%) NICE II, 7/205 (3.4%) >10 mm. With AI-assistance, the ADR and PDR increased from 16.5% to 18.2% and from 50.4% to 60%, respectively.

According to the level of expertise, the ADR increased from 10.8% to 16.2% in the junior group with the AI-VCC, whereas no difference in ADR was observed in the senior cohort (Table 1). The calculated PMR was 43.13% while the AMR was 5.19%. Sensitivity among different colon segments ranged from 56.25% (rectum) to 78.26% (ascending colon). Meanwhile, capability of AI for appropriate polyp and adenoma presence discharging (negative predictive value, NPV) ranged from 61.54% (sigmoid) to 89.09% (cecum). However, lower rates for specificity (8.42-49.49%) and positive predictive value (PPV, 9.89-19.78%) were observed due to high false positives. (Table 2).

	Standard VCC	Secondary AI-assisted VCC	Standard + AI-assisted VCC	Missed Lesions Cases
		Total (n=115; 100%)		
ADR	19 (16.5)	6 (5.2)	21 (18.2)	2
PDR	58 (50.4)	33 (28.7)	69 (60.0)	11
		Senior (n=78; 67.8%)		
ADR	15/78 (19.2)	3 (3.8)	15/78 (19.2)	0
PDR	39/78 (50.0)	23 (29.5)	49/78 (62.0)	10
		Junior (n=37; 32.2%)		
ADR	4/37 (10.8)	3 (8.1)	6/37 (16.2)	2
PDR	19/37 (51.1)	10 (27.0)	20/37 (54.0)	1

ADR, Adenoma detection rate; PDR, polyp detection rate; HD-VCC, high-definition video colonoscopy; AI-VCC, Artificial intelligence-assisted video colonoscopy

Table 1. ADR and PDR during HD-VCC and AI-VCC in senior and junior endoscopists.

Conclusion: The AI-assisted polyp detector is a feasible tool to aid endoscopists during screening colonoscopy. Additionally, with AI-assistance, junior endoscopists can achieve an ADR comparable to that of senior endoscopists. NCT04915833.

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PP1145

PROGNOSIS AFTER COLD POLYPECTOMY IN ELDERLY PATIENTS

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Introduction: The number of elderly people undergoing colonoscopy is increasing. Along with this trend, there has been an increase in the use of cold polypectomy as a safe procedure for elderly patients. However, it remains unclear whether cold polypectomy is effective for elderly patients.

Aims & Methods: We conducted a study to examine the prognosis of elderly patients who underwent Cold Polypectomy after 5 years.

We retrospectively studied elderly patients aged over 80 who underwent cold polypectomy at Sapporo Medical Center NTT EC between April 2014 and July 2016, and assessed their 5-year prognosis after the procedure (2019-2021).

Results: The number of Cold Polypectomy procedures performed in our hospital during the evaluation period for elderly patients aged 80 and above was 152 cases. The median age was 82 years (range: 80-89), and there were 34 cases (22.3%) of very elderly patients aged 85 years or older. No cases of postoperative bleeding or complications were observed in any of the cases.

Upon confirmation of the condition after 5 years, 50.6% (77 cases) were unable to be followed up due to completion of outpatient visits, etc., 36.8% (56 cases) were confirmed to be alive, and 12.5% (19 cases) were confirmed to have passed away. Among the cases that resulted in death, 12 cases were due to cancer, 2 cases were due to pneumonia, 4 cases were due to cardiovascular-related deaths, and 1 case was due to liver cirrhosis. There were no deaths due to colorectal cancer among the cases that resulted in cancer-related deaths. And no cases of colorectal cancer treatment were observed after Cold Polypectomy. So there is a possibility of preventing the occurrence of new colorectal cancer, although it may not necessarily prevent colorectal cancer death.

We compared the Charlson Comorbidity Index (CCI) between the survival and death cases. The CCI was 1.65 in the survival cases and 3.31 in the death cases, showing a significantly higher value in the death cases ($p<0.001$). Additionally, we drew a ROC curve and obtained a cut-off value of 2 points.

Conclusion: Cold polypectomy can be a preventive measure for colorectal cancer even in elderly patients. Before deciding whether to perform a cold polypectomy on elderly patients, their individual suitability should be evaluated. CCI could potentially be used as a criterion for determining the suitability for the procedure.

Disclosure: Nothing to disclose.

PP1146

THE ROLE OF ENDOSCOPIST SKILL IN MALE AND FEMALE PATIENTS UNDERGOING COLONOSCOPY: FINDINGS FROM THE SCREESCO RANDOMIZED CONTROLLED TRIAL

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Introduction: Fewer adenomas are detected at colonoscopy in women compared to men. Failure to detect adenomas and sessile serrated polyps is associated with an increased risk of post-colonoscopy colorectal cancer (PCCRC). There are differences between men and women that may influence different diagnostic yields by colonoscopy. Different attitudes towards the procedure may account for a lower attendance rate for colonoscopy in women.

Colonoscopy can be technically more difficult in women than men, and women have an increased need of analgesia and sedation. Men and women have a different probability of complete examinations. A considerable variation in colonoscopy quality among different endoscopists has been observed in two randomized controlled clinical screening trials: the Nordic-European Initiative on Colorectal Cancer (NordICC) trial (1) and the SCREESCO (Screening of Swedish Colons) trial (2, 3).

Endoscopist performance may affect male and female patients differently given the more technically challenging procedure in women. In previous studies, the adenoma detection rate tends has been higher in men while high-grade sessile serrated polyps, in particular those found in right colon, are more frequent in women , and the risk for post-colonoscopy CRC (PCCRC) within three years was lower in men (6.9%) than in women (7.6%) in Sweden and in England (7.0% vs 8.0%).

Aims & Methods: Aims: The aim of this study was to investigate whether this was in part due to the greater difficulty of conducting colonoscopy in women, with the difference being more apparent in colonoscopies conducted by less skilled endoscopists.

Methods: Cross-sectional exploratory analysis of data on 16,551 individuals undergoing a primary colonoscopy (PCOL group) or colonoscopy after positive fecal immunochemical test (FIT group) within the randomized controlled trial SCREESCO, Screening of Swedish Colons. Endoscopist skill (low or high) was determined based on each endoscopist's adenoma detection rate in all first-time colonoscopies performed in SCREESCO. Colonoscopy yield was assessed by gender in each study group and by endoscopist adenoma skill.

Effect modification of the gender difference by endoscopist adenoma detection rate (a measure of endoscopist skill) on colonoscopy yield was assessed by use of multiplicative interaction tests.

Results: Most endoscopists performed equally many colonoscopies in men and women (median 52% men) and the adenoma detection rate was higher in male patients (median: 32.6%) compared to female patients (median: 22.9%). There were no signs of effect modification of the risk ratio of any finding (men vs women) by endoscopist skill in the PCOL group (p=0.33) and the FIT group (p=0.3).

The proportion of incomplete index colonoscopies was lower in men than in women in both groups and there was no effect modification by endoscopist skill in neither the PCOL group (p=0.41) nor the FIT group (p=0.96).

Conclusion: Endoscopist skill affected yield similarly for men and women in both the PCOL group and the FIT group, both regarding diagnostic yield and caecal intubation rate. Differences in endoscopist adenoma detection rate in male and female patients suggest that quality indicators should be assessed by patient gender.

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PP1147

EFFICACY AND SAFETY OF COMBINED ENDOSCOPIC MUCOSAL RESECTION AND ENDOSCOPIC FULL-THICKNESS RESECTION (HYBRID-EFTR) FOR LARGE NON-LIFTING COLORECTAL ADENOMA

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Introduction: Endoscopic full-thickness resection (EFTR) with the full-thickness resection device (FTRD) has become the standard technique for selected non-lifting colorectal adenoma but tumor size is the major limitation. However, large lesions might be approached in combination with endoscopic mucosal resection (EMR).

Herein, we report the largest single-center experience to date of combined EMR/EFTR (Hybrid-EFTR) in patients with large (≥ 25 mm) non-lifting colorectal adenoma not amenable to EMR or EFTR alone.

Aims & Methods: This is a single-center retrospective analysis of consecutive patients who underwent Hybrid-EFTR of large (≥ 25 mm) non-lifting colorectal adenoma.

Outcomes of technical success (successful advancement of the FTRD with consecutive successful clip deployment and snare resection), macroscopic complete resection, adverse events and endoscopic follow-up were evaluated.

Results: 75 patients with non-lifting colorectal adenoma were included. Mean lesion size was 36.5 mm (range 25-60 mm) and 66.6 % were located in the right-sided colon. Technical success was 100 % with macroscopic complete resection in 97.3 %. Mean procedure time was 83.6 minutes. Adverse events occurred in 6.7 % leading to surgical therapy in 1.3 %. Histology revealed T1 carcinoma in 16 %.

Endoscopic follow-up was available in 93.3 % (mean follow-up time: 8.1 months, range 3-36 months) and showed no signs of residual or recurrent adenoma in 88.6 %. Recurrency (11.4 %) was treated endoscopically.

Conclusion: Hybrid-EFTR is safe and effective for advanced colorectal adenoma which cannot be approached by EMR or EFTR alone. Hybrid-EFTR expands the indication of EFTR substantially in selected patients.

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KC received fees for FTRD training courses and lecture fees from Ovesco Endoscopy AG.
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PP1148

COMPARISON OF THE DIAGNOSTIC ACCURACY OF POLYDEEP, AN ARTIFICIAL INTELLIGENCE COMPUTER-AIDED DIAGNOSIS SYSTEM (CADE/X) WITH ENDOSCOPISTS FOR THE CHARACTERIZATION OF COLORECTAL POLYPS

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Introduction: Optical diagnosis of colorectal polyps is challenging. Artificial intelligence based systems allow the detection and histological characterization of polyps.
Aims & Methods: The aim of this study is to compare the diagnostic accuracy of Polydeep, a CADe/x system with expert endoscopists for the optical diagnosis of colorectal polyps.
We designed a diagnostic test study based on the evaluation of 2364 polyps still images with confirmed histological diagnosis (69.12% adenomas, 14.8% Traditional Serrated Adenoma, TSA, or Serrated Sessile Lesion, SSL, 16.7% hyperplastic). The lesions was classificated as neoplastic (adenomatous, TSA, SSL) and no neoplastic (hyperplastic lesions). The images were shown to Polydeep and to the expert endoscopists to obtain the predicted histology. The endoscopists classified the lesions as adenoma, TSA, SSL or hyperplastic lesions, while PolyDeep classified the lesions as neoplastic and non-neoplastic. We calculated sensitivity, specificity, predictive values, likelihood ratios, diagnostic odds ratio and the Area Under the Curve (AUC). We compared sensitivity and specificity using the McNemar test and the AUC using the homogeneity areas test.

	Endoscopists	PolyDeep	P-value
Sensitivity	91.56%	90.34%	<0.001
Specificity	35.23%	35.31%	0.355
PPV	88.21%	88.72%	
NPV	44.07%	39.37%	
LR +	1.41	1.39	
LR -	0.24	0.27	
OR	5.89	5.11	
AUC	0.634	0.628	0.91

Table 1: The table show the comparison of diagnostic test between endoscopists and PolyDeep, furthermore the AUC and p-values of McNemar test and the comparison between both ROC curves. Positive Predictive Value (PPV), Negative predictive Value (NPV), positive Likelihood Ratio (LR+), negative Likelihood Ratio (LR-), Odds Ratio (OR), Area Under the Curve (AUC).

Results: PolyDeep classified 77.62% of evaluated lesions as neoplastic and the endoscopists classified 87.1% of the lesions as neoplastic (adenomas: 75.76%, TSA: 3.86%, SSL: 7.55%). The diagnostic accuracy results as well as the comparison between PolyDeep and the endoscopists for the neoplastic category is shown in the attached table.
Conclusion: Polydeep, a CADe/x system, is as accurate as expert endoscopists for the optical diagnosis of colorectal polyps.
Disclosure: Nothing to disclose.

PP1149

WHAT FACTORS ARE ASSOCIATED WITH THE OPTICAL DIAGNOSIS OF POLYDEEP, A COMPUTER-AIDED DIAGNOSIS SYSTEM (CADE/X)? IN VITRO ANALYSIS

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Introduction: Although CADe/x systems increase colorectal polyp detection, their ability to predict histological diagnosis is limited.
Aims & Methods: The aim of this study is to determine which factors related to morphology, histology and the image characteristics are associated with histology prediction by PolyDeep, a CADe/x system.
For this analysis, 5546 still images of colorectal polyps collected in PIBAdb database (https://www.iisgaliciasur.es/home/biobanco/colorectal-polyp-image-cohort-pibadb/?lang=en) were used. The images were obtained from videos recorded by endoscopist. Each image was associated with the endoscopy description (morphology, size), the final histology diagnosis and the characteristics (size, area) related with the Red, Green and Blue model (RGB model) and the Hue, Saturation and Value model (HSV model). Finally, the Convolutional Neural Network (CNN) determined the probability a polyp was classified as neoplastic lession (adenomatous, Traditional Serrated Adenoma,TSA, Sessile Serrated Lession, SSL). We determined Polydeep classified lesions as neoplastic if the probability was ≥0.5. We performed three analysis: (1) linear multiple regression in order to determine which variables are associated with the probability of classification as neoplastic lesions. (2). A multivariate logistic regresion analysis to define the variables associated with the classification as a neoplastic lesions. (3) A multivariate logistic regression to establish which variables are associated with missclassification of polyps. We use the R software for statistical computing.
Results: PolyDeep classified 84,51% of the lesions as neoplastic lession and managed to correctly classify 85.02% of the evaluated polyps (92.8% adenomas, 82.5% TSA, 84.2% SSL and 51.6% hyperplastic). The R^2 in the multiple linear regression is the 0.3655. The model associated to the neoplastic diagnosis has an Akaike Information Criterion (AIC) of 3363.3 and the model associated with missclassification, has an AIC of 3547.5. The variables associated to each regression model showed in the attached table.

Predictor variables		Neoplastic lesion classification - Predictive model		Missclassification - Predictive model
		Multiple linear regression OR / (CI 95%) R^2 = 0.3655	Multivariate logistic regression OR / (CI 95%) AIC = 3363.3	Multivariate logistic regression OR / (CI 95%) AIC = 3547.5
Histology	TSA	-0.09 / (-0.11 - 0.07)	0.44 / (0.32 - 0.61)	1.88 / (1.34 - 2.60)
	SSL	-0.05 / (-0.07 - 0.02)	0.65 / (0.47 - 0.92)	2.52 / (1.77 - 3.53)
	Hyperplastic	-0.37 / (-0.39 - 0.35)	0.17 / (0.13 - 0.22)	15.67 / (11.98 - 20.63)
NICE classification	Type 2	0.10 / (0.09 - 0.12)	1.55 / (1.23 - 1.96)	1.23 / (0.97 - 1.57)
	Type 3	0.03 / (-0.11 - 0.17)	8.29 / (0.00 - NA)	0.00 / (NA- 5,36x10+87)
Paris classification	Slightly elevated	0.06 / (0.02 - 0.10)		1.31 / (0.80 - 2.19)
	Sessile	0.04 / (-0.01 - 0.07)		0.88 / (0.54 - 1.46)
	Pedunculated	0.04 / (-0.01 - 0.07)		0.42 / (0.23 - 0.79)
Polyp size (mm)		0.23 / (0.23 - 0.24)	1.25 / (1.20 - 1.30)	1.06 / (1.02 - 1.09)
Width (píxels)		-0.31 / (-0.31 - 0.31)	0.99 / (0.98 - 0.99)	
Area (píxels^2)		0.68 / (0.68 - 0.68)		
Mean model RGB	Mean box red (0º-255º)		0.97 / (0.96 - 0.97)	3.38 / (2.30 -5.02)
	Mean box blue (0º-255º)	0.02 / (0.02 - 0.02)		1.82 / (1.54 - 2.16)
	Mean box color (0º-255º)	-0.52 / (-0.53 - 0.52)	0.73 / (0.67 - 0.79)	0.20 / (0.12 - 0.32)
	Mean image green (0º-255º)	0.36 / (0.35 - 0.36)	1.50 / (1.35 - 1.68)	2.91 / (2.12 - 4.01)
	Mean image blue (0º-255º)	0.60 / (0.59 - 0.60)		0.53 / (0.36 - 0.78)
	Mean outside box red (0-255º)	0.82 / (0.81 - 0.82)		0.76 / (0.66 - 0.89)
	Mean outside box green (0º-255º)			0.70 / (0.65 - 0.76)
	Mean outside box blue (0º-255º)			
Mean Model HSV	Mean box Hue (0º-179º)	0.02 / (0.02 - 0.02)	1.09 / (1.07 - 1.12)	
	Mean box saturation (0º-179º)	0.19 / (0.19 - 0.20)	1.07 / (1.05 - 1.08)	0.97 / (0.94 - 0.99)
	Mean image hue (0º-179º)	-0.21 / (-0.22 - 0.21)	1.20 / (1.14 - 1.26)	1.26 / (1.10 - 1.43)
	Mean image saturation (0º-179º)	0.17 / (0.17 - 0.17)	0.74 / (0.68 - 0.79)	0.55 / (0.47 - 0.64)
	Mean image value (0º-179º)	-0.84 / (-0.85 - 0.83)	1.25 / (1.16 - 1.34)	0.88 / (0.85 - 0.92)
	Mean outside box hue (0º-179º)			0.84 / (0.75 - 0.94)
	Mean outside box saturation (0º-179º)			1.71 / (1.49 - 1.95)
	Mean outside box value (0º-179º)			

Table 1: The table show the results of the multiple linear regression and both multivariate logistic regressions with the variables associated to correct classifications or missclassification of colorectal lesions. Traditional Serrated Adenoma (TSA); Sessile Serrated Lesion (SSL); Odd Ratio (OR); Confindence Interval (CI)

Conclusion: The results obtained in this study allow us to establish strategies to improve Polydeep predicted histological diagnosis.
Disclosure: Nothing to disclose.

PP1150

HIGH-RISK POLYPS AT SCREENING COLONOSCOPY ARE ASSOCIATED WITH UPPER GASTROINTESTINAL CANCER MORTALITY

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Introduction: Currently, gastric cancer screening is only cost-effective in countries with high incidence. Colorectal cancer screening is an effective method for the reduction of CRC incidence and receives high attendance rates. Integrated screening, where gastroscopy is performed in conjunction with colonoscopy, could help reduce the gastric cancer screening procedure burden in countries with low or intermediate incidence.
However, there is a lack of population-based studies providing data on groups at high risk for mortality from gastric malignancies that might benefit from this approach.
Aims & Methods: In this retrospective analysis of a colorectal cancer screening program database, we used Cox proportional hazards model to identify an association of high-risk and low-risk finding (polyps ≥ 10mm or with high-grade dysplasia vs <10 mm and no high-grade dysplasia or advanced adenoma vs non-advanced adenoma) with time to death from upper gastrointestinal (esophageal and gastric) cancer. To quantify the burden of deaths from upper GI cancer in screening participants with high-risk or low-risk polyps in relation to the general population, we calculated standardized mortality ratios.
Results: We included 331,284 CRC high-quality screening colonoscopies in our study. The median follow-up time was 5.04 years (95% CI 5.03-5.07). 4.4% of participants had polyps ≥10 mm or with HGD and 7.7% had advanced adenomas. At the end of the study period, 296 deaths of upper GI cancer had occurred, corresponding to a rate of 10.29 deaths per 100,000 person years in women and 26.61 deaths per 100,000 person years in men. In participants with non-advanced adenomas, hazards for upper GI cancer death were similar compared to participants with advanced adenomas (HR 1.37, 95% CI 1.01-1.72 and HR 1.35, 95% CI 0.94-1.95) when taking participants with a negative colonoscopy as the reference. However, in participants with polyps ≥10 mm or HGD, hazards for upper GI cancer death were higher (HR 1.70, 95% CI 1.07-1.66). Participants with polyps <10 mm and no HGD experienced significantly fewer deaths from upper GI cancer than the general population (SMR 0.71, 95% CI 0.61-0.83, p<0.001), however, participants with high-risk polyps had an upper GI cancer mortality which was similar to that of the population (SMR 0.90, 95% CI 0.60-1.29, p = 0.6).
Conclusion: CRC screening participants with polyps <10 mm and no HGD have a lower risk for mortality from upper gastrointestinal cancers compared to participants with polyps >10 mm and HGD or the general population. In these participants, additional upper GI screening efforts might not be useful. However, future studies will demonstrate whether integrated screening with additional gastroscopy is effective in CRC screening participants with large or highly dysplastic polyps.
Disclosure: Nothing to disclose.

PP1151

THE DEVELOPMENT AND CLINICAL EVALUATION OF A NATURAL LANGUAGE PROCESSING-BASED AUTOMATIC SURVEILLANCE SYSTEM FOR COLORECTAL POST-POLYPECTOMY PATIENTS

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Introduction: The adherence of doctors and patients to published colorectal post-polypectomy surveillance guidelines varies greatly, and patient follow-up is critical but time-consuming.

Aims & Methods: Aims: We aimed to develop an automatic surveillance (AS) system to accurately identify post-polypectomy patients, assign surveillance intervals for different risks of patients and proactively follow up with patients on time.

Methods: The endoscopic and pathological reports from 47,544 patients from three hospitals were used to develop AS system based on natural language processing. The performance of AS system was fully evaluated in internal and external tests according to five different guidelines worldwide and compared with that of doctors. Furthermore, a multi-reader-multi-case (MRMC) trial was conducted to evaluate the effect of AS system on improving doctors' guideline adherence and efficiency, and a prospective trial was performed to evaluate the success rate for automatically informing patients and its effect on reducing the burden of nurses.

Results: In internal, external 1, and external 2 tests, the system reached an overall accuracy of 99.73%, 99.54%, and 99.77% for identifying different types of patients, respectively; and achieved an overall accuracy of ≥99.45%, ≥98.89%, and ≥98.56% for stratifying patients' risk levels and assigning surveillance intervals according to five guidelines. The system greatly increased the accuracy of doctors (98.67% *vs.* 78.10%, p=0.043) in MRMC trial. In a prospective trial, AS system successfully informed 93·18% of patients, and significantly reduced the follow-up time cost (127.4s *vs.* 14.02s per patient).

Conclusion: This system has great potential to improve doctors' adherence to guidelines while relieving the workload of doctors and nurses.

Disclosure: The authors declare no conflict of interest.

PP1152

VIRTUAL REALITY AS AN ALTERNATIVE TO SEDATION DURING COLONOSCOPY: A PROSPECTIVE EQUIVALENT STUDY IN NANCY

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Introduction: Colonoscopy is an invasive procedure that may cause patients pain and discomfort. Moderate to deep sedation is mostly used to allow the quality of the procedure and patients comfort. However, sedation is associated with some risks and side effects. Virtual reality (VR) offers immersive and three-dimensional experiences that distract attention and patients pain. This prospective study aims to define rate of complete colonoscopies with sedation and VR to determine if the two methods are equivalent.

Aims & Methods: 140 adults patients who underwent a ambulatory colonoscopy were included between April 2021 and December 2022 at University Hospital of Nancy : 70 patients under sedation and 70 others with VR. Patients and gastroenterologist completed questionnaires. The main outcome was cecal intubation. Secondary outcomes were patient pain, anxiety and comfort, patient et gastroenterologist satisfaction, total time of procedure and resection of polyps if detected.

Results: The rate of cecal intubation was 95.7% for the sedation group and 88.6% for the VR group. There was no confounding factor. The univariate analysis did not allow to conclude to an equivalence between the two methods on the success rate at the threshold of 5% (p=0.685).

There was no statistically significative difference on pain (p=0.518) and anxiety (p=0.247) before the colonoscopy.

However, statistically significant difference was observed on peri-procedural pain between sedation group (0.9/10 on the numeric scale) and VR group (3.3/10) (p=0.0006) and on the state trait anxiety inventory (STAI) rising to 40.4/80 for sedation group and 42.4/80 for VR group (p=0.003).

Patient and gastroenterologist satisfaction (respectively p=0.441 and 0.629), patient comfort (p=0.215), total time of procedure (p=0.391) and resection of polyps (p=0.888) were equivalent.

Conclusion: Our study doesn't allow to conclude in a equivalence in the cecal intubation rate between VR and sedation.

Nevertheless, VR represents an interesting alternative for performing colonoscopy, eliminating risks associated with sedation while maintaining comfort and acceptable level of pain and anxiety for the majority of patients. Total time of procedure and polyps resection rate are not affected by the use of VR

Disclosure: Nothing to disclose.

PP1153

USEFULNESS AND SAFETY OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR LESIONS IN CLOSE PROXIMITY TO COLONIC DIVERTICULUM

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Introduction: In recent years, the prevalence of colonic diverticulosis has been increasing all over the world. Colorectal lesions are occasionally found in proximity to the diverticulum. There are generally considered pseudodiverticulum and lack a muscularis layer. Therefore, endoscopic resection (ER) for such lesions is often contraindicated because of the high risk of perforation. Recently, several studies have reported which such lesions were treated via endoscopic submucosal dissection (ESD). However, the usefulness and safety of ESD for lesions in proximity to diverticulum (D-ESD) has not been fully investigated.

Aims & Methods: Aim of this study was to evaluate the usefulness and safety of D-ESD. We defined that the D-ESD was ESD for lesion within 3mm of a diverticulum in this study. This study was performed at Kobe University Hospital and Kishiwada Tokushukai Hospital, which are tertiary referral centers in Japan, between January 2010 and April 2020. Totally, twenty-six consecutive patients who underwent D-ESD were enrolled. We used two strategic approaches for D-ESD, depending on whether submucosal dissection of the diverticulum-associated area was necessary (strategy B) or not (strategy A).

Strategy A was indicated for lesions that submucosal dissection including the diverticulum was not necessary because there was sufficient space between the lesion and the diverticulum for mucosal cutting. Strategy A was

performed using the same technique as conventional ESD. Strategy B was indicated for lesions wherein sufficient space to make an incision could not be confirmed between the edge of the lesion and the orifice of the diverticulum. Strategy B used the pocket creation method (PCM), which provides stability of endoscopic manipulation and good countertraction to diverticulum part. The treatment outcomes and adverse events of the two strategic approaches were analyzed.

Results: Strategies A and B were applied in management of 17 lesions and 9 lesions, respectively. Most of lesions (23/26; 88.4%) were located in the right side of the colon. The median tumor size (range) was 33 (15-115) mm. As histological findings, A total of three adenomas, two sessile serrated lesions and 21 cancerous lesions were found. The cancerous lesions included 15 cases of intramucosal carcinoma, five cases of T1a, and one case of T1b. The median diverticular size (range) in all cases was 4 (3-10) mm. Except for one case in which ESD was discontinued because of the high risk of perforation due to deep tumor invasion into the diverticulum, all other cases were achieved en-bloc resection (25/26; 96.2%). The R0 resection and curative resection rates were 76.4% and 70.6% for Strategy A, and 88.9% and 77.8% for Strategy B, respectively. There was one case of lymphatic invasion in each of Strategies A and B. The median operative time was 69 minutes (24-140) for strategy A and 100 minutes (42-188) for strategy B. Regarding adverse events, two cases of intraoperative perforation and one case of delayed perforation occurred in the strategy A. On the other hand, no perforation was observed in strategy B, but two cases of post-electrocoagulation syndrome (PECS) were noted. There was no recurrence during the follow-up period (median duration: 24 months).

Conclusion: D-ESD achieved high en-bloc and R0 resection for both strategies. There were no cases of perforation in strategy B, which is considered to have a high risk of perforation. D-ESD may be a useful treatment option for such lesions.

Disclosure: Nothing to disclose.

PP1154

A RETROSPECTIVE PROPENSITY SCORE MATCHING STUDY OF THE COLORECTAL ADENOMA DETECTION ABILITY OF NEW-GENERATION ENDOSCOPIC INSTRUMENTS

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Introduction: Advancements in colonoscope technology have been identified as one of the factors that can affect the quality of colonoscopy, positively affecting adenoma detection rate (ADR). In recent years, new-generation endoscopic system (video system center and colonoscope) and 4K monitors have been released. These instruments provide endoscopists with higher resolution and lower noise images than previous-generation endoscopic instruments. However, it is unclear whether these new-generation endoscopic instruments can enhance the adenoma detection ability.

Aims & Methods: We aimed to clarify the colorectal adenoma detection ability of new-generation endoscopic instruments by comparing them with previous-generation endoscopic instruments. This study was a retrospective single-center study in patients undergoing screening colonoscopy or surveillance colonoscopy after endoscopic resection or surgical resection for colorectal neoplasm. The X1 group was the group of patients who underwent colonoscopy using new-generation endoscopic instruments (video system center: EVIS X1 CV1500, colonoscope: CF-XZ1200I/CF-EZ1500DI, monitor: 4K) between April 2022 and March 2023. The ELITE group was the group of patients who underwent colonoscopy using previous-generation endoscopic instruments (video system center: EVIS LUCERA ELITE CV290, colonoscope: PCF-H290ZI/CF-HQ290Z, monitor: Full HD) between April 2019 and March 2020. We conducted an analysis for propensity score matched patients using known factors (patient age, sex, purpose of colonoscopy, observation mode, and endoscopists' expertise) that may have affected the ADR. The patients who were familial adenomatous polyposis, lynch syndrome, or inadequate bowel preparation (Aronchick scale: over 3 score) were excluded. The primary outcome was the ADR. The secondary outcomes were the mean number of adenomas detected per procedure (MAP) and flat polyp detection rate (FDR). We also performed a subgroup analysis comparing ADR, MAP, and FDR by observation mode between white light imaging (WLI) and narrow band imaging (NBI).

Results: 480 patients in the X1 group and 1560 patients in the ELITE group were enrolled in this study. After propensity score-matching, 960 patients were finally included in the analysis (480 patients in each group). The patient characteristics were well balanced after propensity score matching between each group. The ADR in the X1 group was significantly higher than that in the ELITE group (55.0% vs 49.0% [McNemar test p=0.049]). The MAP and FDR in the X1 group were also significantly higher than that in the ELITE group (MAP(±SD), 1.52±2.25 vs 1.13±1.77, [Wilcoxon signed rank sum test p=0.004]; FDR, 50.0% vs 39.4%, [p<0.001]). In the subgroup analysis by observation mode, in NBI mode, the MAP in the X1 group was significantly higher than that in the ELITE group (1.52±2.00 vs 1.20±1.83, [Wilcoxon rank sum test p=0.047]). In WLI mode, the FDR in the X1 group was significantly higher than that in the ELITE group (46.3% vs 30.2%, [Fisher's exact test p=0.0012]).

	X1 group	ELITE group	p-value
ADR, n (%)	264/480 (55.0)	235/480 (49.0)	0.049*
MAP, mean (±SD)	1.52 (±2.25)	1.13 (±1.77)	0.004*
FDR, n (%)	240/480 (50.0)	189/480 (39.4)	<0.001*

Table.

Conclusion: Our study indicated that the use of new-generation endoscopic instruments improved the colorectal adenoma detection ability.

Disclosure: Nothing to disclose.

PP1155

PROCEDURALIST FATIGUE NEGATIVELY IMPACTS QUALITY OF COLONOSCOPY – 'AN 'EFFECT' THAT MAY BE TRANSFERABLE' AFFECTING PATIENT, CLINICIAN AND HOSPITAL OUTCOMES

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Introduction: The quality of colonoscopy is influenced by patient and operator factors. Studies investigating operator attentional fatigue on adenoma detection rate (ADR) have yielded conflicting results.

Aims & Methods: This study aims to compare ADR, polyp detection rate (PDR) and sessile serrated lesion detection rate (SSLDR) and complication rates between elective colonoscopies performed early and late in the list, across multiple operators (n>15), over 10 years, in a tertiary Brisbane (Australia) hospital.

A retrospective study was conducted on elective colonoscopies performed between 2012 and 2022 at The Prince Charles Hospital. 'Early procedures' are defined as procedures starting in the first hour of the first procedure starting and 'late procedures' are defined as procedures starting within the last hour of the last procedure starting. This pre-defined early and late procedures were used as surrogate markers for operator fatigue, accounting for a possible non-linear relationship between time and onset of fatigue, as well as the variation in number of colonoscopies performed every hour. Timing and the order of colonoscopy were used as alternative surrogates, in a secondary analysis.

Logistic regression was performed on all categorical outcome variables, and Poisson regression was modelled on continuous outcome variables, due to their non-linear distribution. Multivariate analysis included all potential confounding variables related to outcomes of interest. Statistical significance was defined as a P-value less than 0.05. Statistical analyses were performed using the SAS® statistical software (SAS Institute Inc, USA). Exclusion included; surveillance for IBD and elective ESD.

Results: In total, 15 proceduralist (11 gastroenterologists, 4 surgeons) performed 39, 206 elective colonoscopies from 2012 to 2022. The baseline characteristics of patients, year and procedure sessions are similarly distributed between the early and late groups.

Multivariant analysis found significant associations between late procedures and lower adenoma detection rates, polyp detection rates and SSL detection rates. After adjusting for age, gender, proceduralist, year, morning or afternoon procedure, and bowel preparation quality, PDR, ADR and SDR remain 20-28% lower in late colonoscopies compared with early ones. We also found that age, gender, proceduralist, year and bowel preparation independently affected ADR in multivariant analysis. However, morning or afternoon ADRs did not significantly differ after adjusting for other variables. Proceduralist were found to be the only additional significant variable for SDR in multivariant analysis. There was no significant association between timing of procedures and major adverse events.

Conclusion: This is the largest single-centre study on operator fatigue and its effect on colonoscopy quality. Although the minimum standards for ADR was achieved, 'late procedures' have statistically significant lower ADR, PDR and SSLDR compared to 'early procedures'. There was no difference in the complication rates between 'early procedures' and 'late procedures'.

This study highlights the detrimental effect of fatigue in later procedures affecting the quality of colonoscopies and may be applicable in principal to other procedural based clinical work. Importantly, this may or perhaps will or is having an impact on patient safety, satisfaction, outcomes and clinical KPI's for the operators and hospital administrators.

Disclosure: None

PP1156 WITHDRAWN

PP1157

SHORT-TERM OUTCOMES OF ENDOSCOPIC RESECTION FOR COLORECTAL NEUROENDOCRINE TUMORS: A JAPANESE MULTICENTER PROSPECTIVE C-NET STUDY

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Introduction: The incidence of colorectal neuroendocrine tumors (NETs) has increased over the past decades with early detection during screening colonoscopy.[1,2] The C-NET STUDY is a Japanese multicenter prospective cohort study, in which patients with colorectal NETs were consecutively enrolled.[3]

Aims & Methods: The study aimed to evaluate the short-term outcomes of various methods of endoscopic resection for colorectal NETs. Among the C-NET STUDY registrants, patients with colorectal NETs who underwent endoscopic treatment as the initial therapy were included. Patients who received treatment at a previous institution before participating in this study, biopsy diagnosed but the resected lesion was not pathologically diagnosed as NET, and who had defective data were excluded. The study protocol stated that endoscopic treatment should be performed if the tumor size is <10 mm in depth from the mucosa to the submucosa, with no ulceration or depression on the surface. For lesions with no treatment consensus in various guidelines, treatment selection was determined by each physician according to their policy in clinical practice. With respect to endoscopic resection procedures, several techniques were available in clinical practice, including endoscopic mucosal resection with a ligation device (ESMR-L), endoscopic mucosal resection using a cap (EMR-C), and endoscopic submucosal dissection (ESD). The major outcome measurements were short-term treatment outcomes, including en bloc resection rate, complete resection (defined as en bloc resection with tumor-free margin (R0)) rate, need for hospitalization, and treatment-related complications based on treatment modalities. Clinicopathological risk factors of incomplete resection (R1/RX) was also examined.

Results: A total of 472 patients with 477 colorectal NETs received endoscopic treatment. Of these, 418 patients with 421 lesions, who met the eligibility criteria, were included in the analysis. The median patient age was 55 years, and 56.9% of the patients were male. The lower rectum was the most common site (88.6%), and lesions <10 mm accounted for 87% of the cases. Among all cases, en bloc resection and R0 resection were achieved in 421 (100%) and 398 (94.5%) lesions. A total of 267 (63.4%) patients required hospitalization for treatment, with a median hospital stay of 3 days. Endoscopic mucosal resection with a ligation device (ESMR-L, 56.5%) was the most common method, followed by endoscopic submucosal dissection (ESD, 31.4%) and endoscopic mucosal resection using a cap (EMR-C, 8.5%). R0 resection rates <10 mm were 95.5%, 94.8 %, and 94.3% for ESMR-L, ESD, and EMR-C, respectively. All the treatment-related complications observed in 16 (3.8%) patients were treated conservatively. There were no independent clinicopathological risk factors for R1/X resection.

Conclusion: ESMR-L, ESD, and EMR-C were equally effective and safe techniques for colorectal NETs with diameter <10 mm (UMIN000025215).

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Disclosure: Nothing to disclose.

PP1158

1L POLYETHYLENE GLYCOL + ASCORBIC ACID BOWEL PREPARATION FOR COLONOSCOPY IS EFFECTIVE AND WELL TOLERATED IN BOTH MALES AND FEMALES IN REAL-WORLD CLINICAL PRACTICE

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Introduction: With a growing interest in sex-specific differences in bowel preparation outcomes, current literature shows inconsistent results. Females have been associated with poor bowel preparation [1], while males may have inadequate bowel preparation due to poor compliance with instructions [2].

Analyses of randomized clinical trials of 1L polyethylene glycol (PEG) plus ascorbic acid (ASC) indicated greater high-quality (HQ) cleansing success in females than in males despite greater adenoma detection in males [3].

Aims & Methods: The effectiveness and tolerability of 1L PEG+ASC was compared in males versus females in a large real-world population. This post-hoc analysis of an observational, multi-centre, retrospective study in Spain and Portugal included patients who received 1L PEG+ASC before undergoing a colonoscopy [4].

Cleansing quality was assessed using the Boston Bowel Preparation Scale (BBPS). Adequate success was BBPS ≥6 with all segmental scores ≥2 and HQ success was BBPS ≥8 with BBPS 3 in the right colon. Polyp detection rate (PDR), adenoma detection rate (ADR) and adverse events (AEs) were also assessed. Results are reported either as mean ± SD. Chic-square test was used to compare outcomes.

Results: A total of 13,169 patients, (M/F: 6,406/6,763 aged 57.6 ± 12.7 / 56.4 ± 13.4 years) were included. The main indication for colonoscopy was (in males vs females) colorectal cancer screening: 42.5% vs 41.2%; diagnostic: 25.9% vs 32.7%; follow up: 28.6% vs 23.9%; or other: 2.9% vs 2.2%. Bowel preparations were taken either as an overnight split dose (males vs females: 32.3% vs 33.2%) or a same-day split dose (67.7% vs 66.8%).

Males and females had similar (97.5% vs 97.1%) colonoscopy completion rates. Incomplete colonoscopies due to poor bowel preparation quality were rare and occurred at similar rates in males vs females (0.7% vs 0.9%). In the overall colon, adequate success was similar in males vs females (89.5% vs 89.1%) (p = 0.40) while HQ success was more frequent in females vs males (54.1% vs 51.8%; p = 0.007). In the right colon segment, adequate success was similar in males vs females (91.4% vs 91.6%; p = 0.61), while HQ success was more frequent in females vs males (50.7% vs 47.8%; p < 0.001). The mean BBPS was similar overall and by segment (Table). As expected from the literature, the PDR and ADR were greater in males vs females in the overall colon and in the right colon (Table).

Variable	Males (n=6,406)	Females (n = 6,763)	P-value
Overall colon adequate success, n (%)	5,734 (89.5)	6,023 (89.1)	ns
Overall colon high-quality success, n (%)	3,317 (51.8)	3,660 (54.1)	0.007
Right colon adequate success, n (%)	5,853 (91.4)	6,196 (91.6)	ns
Right colon high-quality success, n (%)	3,063 (47.8)	3,429 (50.7)	0.0009
Overall colon total BBPS, mean ± SD Right colon BBPS, mean ± SD Transverse colon BBPS, mean ± SD Left colon BBPS, mean ± SD	7.3 ± 1.8 2.4 ± 0.7 2.5 ± 0.7 2.5 ± 0.7	7.3 ± 1.9 2.4 ± 0.7 2.5 ± 0.7 2.4 ± 0.7	ns
PDR overall colon, n (%)	3,552 (55.5)	2,926 (43.3)	<.0001
PDR right colon, n (%)	1,643 (25.7)	1,381 (20.4)	<.0001
ADR overall colon, n (%) n[a]	2,200 (47.3) 4,654	1,753 (37.7) 4,656	<.0001
ADR right colon, n (%) n[a]	1,139 (27.2) 4,193	915 (21.5) 4,264	<.0001

[a]Number of patients for whom histological information was available.

Table. Sex differences in bowel preparation parameters with 1L PEG + ASC

Males had fewer adverse events than females (1.8% vs 2.7%; p = 0.0008). While 98.2% males did not report any adverse events, those who did reported nausea (0.9%) or vomiting (0.6%). Similarly, 97.3% females did not report any adverse events, but those who did reported nausea (1.5%) or vomiting (1.0%).

Conclusion: In real-world clinical practice, 1L PEG + ASC was effective and well tolerated in both males and females. Females attained greater HQ cleansing success both overall and in the right colon.

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Disclosure: Fatma Akriche and Carmen Turbi Disla are employees of Norgine Ltd

PP1159

POOR TOLERANCE OF BOWEL PREPARATION FOR INDEX COLONOSCOPY DECREASES SURVEILLANCE RATE IN HIGH-RISK ADENOMA REMOVAL PATIENTS

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Introduction: Individuals with high-risk adenomas have increased risk of developing metachronous advanced adenomas and colorectal cancer after colonoscopy. While US and Japanese guidelines recommend triennial surveillance colonoscopy in this high-risk population, surveillance rate is suboptimal and barriers to surveillance colonoscopy should be investigated. Patient tolerance of bowel preparation (BP) affects the willingness to repeat colonoscopy. However, it is unknown whether poor tolerance of BP for index colonoscopy actually decreases the surveillance colonoscopy compliance.

Aims & Methods: This prospective study aimed to investigate the surveillance rate in patients with removal of high-risk adenomas and the predictors associated with the compliance in surveillance colonoscopy, focusing on the patient tolerance of BP for index colonoscopy. A prospective cohort study was conducted of 1157 consecutive outpatients receiving colonoscopy under moderate sedation between March and November 2019, and included patients aged 45-84 years old with removal of high-risk adenomas (≥ 1 cm, with villous features, with high-grade dysplasia, or ≥ 3 of any size). All patients with high-risk adenoma removal were educated to receive surveillance colonoscopy in 3 years, and surveillance rate was evaluated 3 years after removal of high-risk adenomas. Tolerance of BP was rated on a 5-point scale (1 = very intolerable to 5 = very tolerable) before receiving index colonoscopy and poor tolerance was defined as ≤ 2. The patients who did not receive surveillance colonoscopy were called to inquire the reasons. Patients who could not be contacted or had already died were excluded. Factors associated with surveillance colonoscopy compliance were determined by logistic regression analysis.

Results: A total 186 patients with high-risk adenomas were included, and 62 patients (33%) did not receive surveillance colonoscopy in 3 years. Poor tolerance of BP was found in 36 patients (36/186, 19%). The surveillance rate was significantly lower in patients with poor BP tolerance than those with good tolerance (48% vs 74%, *P* < 0.01), and decreased with poorer tolerance on index colonoscopy (*P* for trend < 0.05). In multivariate analysis, poor tolerance [odds ratio (OR)=2.45, 95% confidence interval (CI) 1.11-5.41] and absence of primary care physician (OR=4.63; 95% CI 1.60-13.4) were independent risk factors for non-compliance in surveillance colonoscopy. The main reason for non-compliance were unwillingness to repeat BP for surveillance colonoscopy (N =17/62, 27 %).

	Multivariate	
	OR (95%CI)	P value
Age, /1-year increase	1.04 (1.03-1.05)	0.001
Male sex	1.13 (0.85-1.52)	0.40
BMI, /1-kg/m^2 increase	1.05 (0.96-1.15)	0.28
Family history of colorectal cancer	0.93 (0.16-5.25)	0.92
Low education	0.92 (0.39-2.15)	0.90
Comorbidities	1.05 (0.51-2.13)	0.90
Low tolerance of BP for colonoscopy	2.45 (1.11-5.41)	0.006
Absence of primary care physician	4.63 (1.60-13.4)	0.001

Table.

Conclusion: Our findings highlight the need for improvement of the surveillance colonoscopy rate, especially for patients who had poor tolerance to BP on index colonoscopy and absence of primary care physician. Providing a well-tolerated BP regimen may lead to an increase in surveillance colonoscopy compliance.
Disclosure: Nothing to disclose.

PP1160

CADX SYSTEMS IN COLONOSCOPY: AN ANALYSIS OF TIME EFFICIENCY AND DIAGNOSTIC ACCURACY FOR COLORECTAL POLYP CHARACTERIZATION

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Introduction: Colonoscopy is a promising diagnostic procedure for removal colorectal neoplasia, which can help prevent colorectal cancer. With an increasing trend towards colorectal cancer prevention, the number of colonoscopies and polypectomies is increasing, with approximately 11 million colonoscopy procedures performed annually in the United States alone. This has resulted in a significant burden on physicians and healthcare resources. Previous studies have demonstrated the utility of computer-aided diagnosis (CADx) systems in improving the characterization of colorectal polyps. However, the time-saving aspect of implementing AI-based CADx systems has not been thoroughly investigated. In this study, we aim to evaluate the potential of CADx systems to reduce the time required for polyp characterization.
Aims & Methods: This was a single center, retrospective study, was conducted at a university hospital between July 2021 and January 2022. We randomly extracted pathologically confirmed 100 polyps and one representative NBI image was prepared for each lesion. Three non-experts (a resident with no endoscopic experience, a gastroenterologist with one year of experience, and a gastroenterologist with two years of experience) were included. Randomly selected NBI images were shown separately to these doctors separately using laptop computer. They diagnosed each lesion diagnosed each lesion as neoplastic or non-neoplastic. For this study, we considered sessile serrated lesions (SSLs) as neoplasms. In the first examination, non-experts diagnosed without any assistance. After a four-week interval, a second examination was conducted with the assistance of a CADx system that provided a pathological prediction (neoplastic or non-neoplastic). We recorded the time required for diagnosing each polyp and compared it between the first and second examinations. The outcomes were, difference in diagnostic time and diagnostic accuracy of the endoscopists with or without CADx assistance. Wilcoxon signed rank test and McNemar test were used.
Results: Out of the 100 lesions, there were 72 adenomas/intramucosal carcinomas, 6 SSLs, 21 hyperplastic polyps, and 1 juvenile polyp. With the use of CADx, the mean (±SD) diagnostic time was significantly shorter than without CADx assistance (10.7±8.2 sec vs 5.3±3.6 sec, P value < 0.001). Regarding the diagnostic performance for differentiating neoplasms from non-neoplasms, diagnostic accuracy was significantly higher in with CADx assistance (75% [95%CI 69.7-79.8] vs 92.3% [95%CI 88.7-95.1], P value < 0.001). Assuming the mean number of polyps per patient as 1.87 (Taku Sakamoto, et al. *United European Gastroenterol J, 2019*), time saving effect was estimated as 17 min / 100 colonoscopies.
Conclusion: Our study demonstrates that the utilization of the CADx can save diagnosing time and increase accuracy for non-experts. Therefore, we suggest that the CADx has the potential to decrease examination time by expediting the diagnosis of lesions.
Disclosure: Nothing to disclose.

PP1161

DETECTION OF HIGH-RISK POLYPS AT SCREENING COLONOSCOPY INDICATES RISK FOR HEPATOBILIARY CANCER DEATH

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Introduction: Colorectal cancer (CRC) screening patients are prone to developing CRC when high-risk polyps were identified. Other malignancies, such as hepatobiliary cancers share risk factors like obesity, but there are no combined screening programs for these conditions.
The aim of this study was to assess whether patients with high-risk colonic polyps are more likely to die from liver related tumors than patients with a negative colonoscopy.
Aims & Methods: This was a retrospective cohort study. Screening participants of an Austrian colorectal cancer screening database were included. We assessed the association of time to death of hepatobiliary cancer by Cox proportional hazards model.
Results: 343,838 colonoscopies between 01/2007 and 12/2020 were included in the analysis, of which 17,678 (5.1%) were performed on patients with high-risk polyps. Hepatobiliary cancer mortality was more than twice as high in patients with high risk polyps (cumulative incidence of death 0.39%, 95% CI 0.37-0.41%) compared to patients with a negative colonoscopy (cumulative incidence of death 0.16%, 95% CI 0.16-0.16%). When adjusting for age and sex, no significant association of low-risk polyp status with liver cancer death (HR 1.18, 95% CI 0.93-1.51, p = 0.18) was observed, however having high-risk polyps at screening colonoscopy was significantly associated with liver cancer death (1.62, 95% CI 1.07-2.45, p= 0.02).
Conclusion: In a CRC screening cohort, patients with certain colonic polyp characteristics are at increased risk for mortality of hepatobiliary malignancies. Further studies are needed to determine whether an additional screening for liver diseases might be beneficial in these patients.
Disclosure: Nothing to disclose.

PP1162

CARBON DIOXIDE VERSUS ROOM AIR IN COLONOSCOPY: A SINGLE CENTER RANDOMIZED CONTROLLED TRIAL

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Introduction: Pain, discomfort, and bloating can occur during and after colonoscopy, secondary to bowel distention. Insufflation is the major reason for bowel distention after a colonoscopy. Room air (RA) has slower re-absorption through the intestinal mucosa than carbon dioxide (CO2). Theoretically, with a faster resorption speed, abdominal pain, discomfort, and bloating are expected to be less with CO2 use. Nevertheless, in some clinical studies, CO2 was not found to be superior to RA in terms of post-procedure pain sensation.

Aims & Methods: The aim of this study was to compare abdominal pain sensation and bloating after colonoscopy using RA versus CO2 insufflation. A prospective randomized controlled study conducted on patients performing diagnostic colonoscopy. Enrolled patients were randomized to RA (group 1) versus CO2 insufflation (group 2). All patients were sedated with midazolam (2.5-5 mg) and all colonoscopies were performed by a single endoscopist. Abdominal pain sensation and bloating after the procedure as the primary outcome measure was assessed by a 10-point visual analogue scale (VAS), numerical rating scales from 0 (no pain) to 10 points (maximal pain). The participants were asked about abdominal pain and bloating at 15, 60, and 180 minutes and 24 hours post-procedural.

Results: From July 2021 to August 2022, a total of 64 patients were enrolled. There was 31 males and 33 females. Their mean age was 48.27±16 years. There was a statistically significant increase in abdominal bloating in group 1 (59.4%) compared to group 2 (18.7%), (P=0.018). Also, there was a statistically significant increase in abdominal pain sensation in group 1 compared to group 2 at 60 min (43.8% vs 21.9%) (P=0.011), 180 min (28.1% vs 9.4%) (P=0.017), respectively. None of the studied patients developed pain after 24 hours and there was no statistically significant difference between the studied groups regarding cecal intubation time and total examination time. No adverse events were noted in both groups.

Conclusion: CO2 insufflation is associated with significantly less bloating and less abdominal pain after diagnostic colonoscopy compared to RA insufflation.

Disclosure: Nothing to disclose.

PP1163

EFFICACY OF 1-L POLYETHYLENE GLYCOL PLUS ASCORBATE VERSUS 4-L POLYETHYLENE GLYCOL IN SPLIT-DOSE FOR COLONOSCOPY CLEANSING IN OUT AND IN-PATIENT: A MULTICENTRE, RANDOMIZED TRIAL (OVER2019)

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Introduction: Adequate bowel cleansing is essential for colonoscopy quality. A novel 1L polyethylene glycol plus ascorbate (1L PEG+ASC) solution has been recently introduced. Nevertheless, the efficacy of 1L PEG+ASC as compared to that of high-volume bowel preparation in both inpatients and outpatients is still unclear.

Aims & Methods: This single-blinded, non-inferiority RCT aims to compare the efficacy, safety, and tolerability of 1L PEG+ASC versus a high-volume 4L PEG-based preparation in both inpatients and outpatients. The primary endpoint was the overall cleansing success. Secondary endpoints were excellent cleansing and high-quality cleansing of the right colon, as well as lesions detection rate, patient compliance, and safety.

	Outpatients			Inpatients		
	4L PEG (N = 123)	1L PEG-ASC (N=135)	P value	4L PEG (N = 90)	1L PEG-ASC (N = 85)	P value
BBPS total	7.4 ± 1.7	7.8 ± 1.4	0.035	6.6 ± 1.7	7.1 ± 1.8	0.062
BBPS partial						
- right colon	2.4 ± 0.6	2.6 ± 0.5	0.003	2.2 ± 0.6	2.3 ± 0.6	0.251
- transverse colon	2.6 ± 0.5	2.7 ± 0.5	0.048	2.4 ± 0.6	2.5 ± 0.6	0.497
- left colon	2.5 ± 0.6	2.6 ± 0.5	0.528	2.2 ± 0.6	2.5 ± 0.7	0.016
Cleansing success	109 (88.6)	130 (96.3)	0.018	69 (76.7)	72 (84.7)	0.179
Excellent cleansing	47 (38.2)	61 (45.2)	0.257	12 (13.3)	25 (29.4)	0.009
Right colon cleansing	57 (46.3)	84 (62.2)	0.010	25 (27.8)	31 (36.5)	0.218

Results: Overall, 478 patients (mean age 59.3 ± 14.9 years) were randomized to 1L PEG+ASC (N = 236) or 4L PEG (N = 242). The 1L PEG+ASC showed higher cleansing success rate as compared to 4L PEG preparation (91.8% vs 83.6%; OR = 2.207; 95% CI: 1.2-4.0; *P* = 0.01), as well as higher excellent cleansing (39.1% vs 27.7; OR, 1.67; 95% CI: 1.1-2.5; *P*= 0.001) and high-quality cleansing of the right colon (52.3% vs 38.5%; OR, 1.75; 95% CI: 1.194-2.564; *P* = 0.004). As compared to the high volume, 1L PEG+ASC achieved a higher cleansing success rate in out-patients (96.3%% vs 88.6%; *P* = 0.018) and a similar success among the in-patients (84.7% vs 76.7%; *P* = 0.18). No significant differences in colonoscopy performance, including caecal intubation rate (97.3% vs 96.2%, *P*= 0.5), withdrawal time (9.6 ± 3.2 vs 9.9 ± 4.1, *P*=0.3) and adenoma detection rate (25.5% vs 23.5%, *P*= 0.6) were

found between 1L PEG+ASC and 4L PEG preparation, respectively. The 1L PEG+ASC and 4L PEG preparation did not differ significantly in terms of tolerability, as documented by the similar rate of patients reporting total adverse events (AEs) (75.1% vs 77.8%, *P* = 0.5), mild AEs (68.0% vs 70.3%, *P* = 0.6) and moderate to severe AEs (32.0% vs 29.5%, *P* = 0.6) after bowel preparation.

Conclusion: Data of this randomized study showed that quality of bowel preparation for colonoscopy achieved with 1L PEG+ASC solution is not inferior as compared to that of 4L PEG. No differences in the tolerability and safety were detected. (Registration/protocol: EudraCT Number 2018-004543-24).

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PP1164

PREDICTORS OF ADENOMA DETECTION RATE IN PATIENTS UNDERGOING SPLIT PREPARATION WITH 1L AND 4L POLYETHYLENE GLYCOL SOLUTION: POST-HOC ANALYSIS OF A RANDOMISED CLINICAL TRIAL

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Introduction: Adenoma detection rate (ADR) is a robust quality indicator independently associated with the risk of interval colorectal cancer (I-CRC) and death. Nevertheless, reliable adenoma detection requires adequate bowel cleansing since it improves mucosal visualization of the surface of the colorectal mucosa.

Aims & Methods: This post-hoc analysis of a randomised phase-IV clinical trial aims to assess the predictors of polyp detection rate (PDR) and ADR in a population of in and outpatients undergoing split preparation with 1L polyethylene glycol plus ascorbate (1L PEG+ASC) and 4L PEG solution. The 'OVER' trial was a phase-IV RCT performed across 10 Italian centers (registration/protocol: EudraCT Number 2018-004543-24). Four hundred seventy-eight patients were randomized 1:1 to receive split-dose 1L PEG+ASC or a split-dose 4-L PEG-based regimen. In this post-hoc analysis, multivariable logistic regression models were designed to assess the presence of variables associated with PDR and ADR. All statistical analyses were performed using SPSS v. 28.0 for Macintosh (SPSS Inc., Chicago, USA).

Results: No differences in PDR (34.1% vs 32.9%, *P*=0.787), ADR (25.5% vs 23.5%, *P*=0.632) were found in patients undergoing 1L-PEG+ASC and 4L-PEG, respectively.

At multivariable logistic regression analysis, older age (OR=1.040, 95%CI=1.023-1.057; *P*<0.001), cleansing success (OR=2.250, 95%CI=1.009-5.020; *P*=0.048) and higher withdrawal time (OR=1.155, 95%CI=1.079-1.236; *P*<0.001) were independently associated with PDR.

Besides, older age (OR=1.042, 95%CI=1.021-1.063; *P*<0.001), shorter intubation time (OR=0.891, 95%CI=0.816-0.972; *P*=0.010), higher withdrawal time (OR=1.171, 95%CI=1.094-1.253; *P*<0.001) and 100% consumption of the first dose (OR=8.368, 95%CI=1.025-68.331; *P*=0.047) were independently associated with ADR (Table 1).

In the subgroup of patients undergoing colonoscopy for screening or surveillance (N=220/478), longer preparation time (OR=1.559, 95%CI=1.161-2.093; *P*=0.003), and colonoscopy within 5h after the end of preparation (OR=3.119, 95%CI=1.013-9.608; *P*=0.047) were independently associated with ADR.

	Univariable analysis			Multivariable analysis	
Variable	No adenoma detected (N=327)	Adenoma detected (N=106)	P value	Odds Ratios (CI-95%)	P value
Age	57.4 ± 15.3	64.8 ± 11.8	<0.001	1.042 (1.021-1.063)	<0.001
Diabetes	290 (88.7%) 37 (11.3%)	86 (81.1%) 20 (18.9%)	0.046	1.035 (0.522-2.051)	0.923
Preparation regimen - Afternoon-morning - Same-day	215 (65.7%) 112 (34.3%)	82 (77.4%) 24 (22.6%)	0.025	1.668 (0.957-2.907)	0.071
Preparation duration	2.8 ± 2.0	3.4 ± 3.0	0.018	1.094 (0.999-1.198)	0.051
Intubation time	8.7 ± 4.1	7.8 ± 2.8	0.043	0.891 (0.816-0.972)	0.010
Withdrawal time	9.2 ± 3.2	11.3 ± 4.6	<0.001	1.171 (1.094-1.253)	<0.001
Compliance with bowel preparation (I dose) - 100% intake of overall volume - <100% intake of overall volume	308 (94.2%) 19 (5.8%)	105 (99.1%) 1 (0.9%)	0.038	8.368 (1.025-68.331)	0.047

Table 1. Univariable and multivariable logistic regression analysis of variable associated with ADR in overall study population.

Conclusion: In a large RCT bowel preparation type was not associated to PDR and ADR. Cleansing success is independently associated to PDR but not with ADR. Compliance to bowel preparation, timing of colonoscopy and accurate withdrawal are key elements to ensure adequate ADR with potential implications in reducing I-CRC.

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PP1165

ANALYSIS OF DELAYED BLEEDING OF COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION DUE TO KINDS OF DOAC IN JAPAN, ABCD-J STUDY

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Introduction: Reported rates of delayed bleeding (DB) after endoscopic resection with each direct oral anticoagulant (DOAC) are high and heterogeneous. This large-scale multicenter study analyzed lesions resected by colorectal endoscopic submucosal dissection (ESD) under DOACs to compare the DB of each DOAC with warfarin.

Aims & Methods: We retrospectively reviewed 1,019 lesions with DOAC and 459 lesions with warfarin among 34,455 cases of ESD in 47 Japanese institutions from 2012 to 2021. The rate of DB in each DOAC was compared with warfarin. Risk factors of DB for DOAC and warfarin were also investigated.

Results: In the DOAC and warfarin groups, the mean age was 75.1±13.7 and 73.6±10.4 years, and the male rate was 70.2% and 71.4%, respectively. The mean tumor sizes (mm) were 29.5±14.0 and 30.3±16. The en bloc resection rates were 97.5% and 96.5%, respectively. Among 31,968 ESD cases from 46 institutions, the rate of DB was significantly higher in cases with anticoagulation (10.08%, 149/1478) than in cases without anticoagulation (2.21%, 677/30526) (p<0.001). Among the total 34,455 ESD cases, the rates of DOAC and warfarin were 9.32% (95/1019) and 11.76% (54/459), respectively (p=0.149).

The rate of DB with dabigatran (18.26%, 21/115) was significantly higher than with apixaban (10.08%, 25/248, p=0.029), edoxaban (7.73%, 25/323, p=0.001), and rivaroxaban (7.21%, 24/333, p=0.001). The rate of dabigatran was slightly higher than that of warfarin (11.76%, 54/459, p=0.055) and only the rate of rivaroxaban was significantly lower than that of warfarin (p=0.033).

Multivariate analysis showed that the significant risk factors of DB for DOAC were heparin exchange (odds ratio (OR), 95% confidence interval (CI), 2.185, 1.277-3.739, p=0.005), rectal site (2.013, 1.282-3.161, p=0.002), and longer procedure time ≥55 min (2.434, 1.498-3.956, p<0.001). The significant risk factors of DB for warfarin were antiplatelet combination (2.286, 1.274-4.100, p=0.006), rectal location (2.261, 1.248-4.095, p=0.007), and tumor size ≥35mm (2.019, 1.163-3.652, p=0.008).

The number of significant risk factors and the risk of DB (OR, 95%CI) for DOAC were 2.136 (1.301-3.507) and 4.53 (2.525-8.155) for one and two risk factors, respectively. Those for warfarin were 1.646 (0.742-3.650), 3.624 (1.593-8.243), and 13.037 (3.929-43.266) for one, two, and three risk factors, respectively.

Conclusion: The DB rate of dabigatran was higher than that of other DOACs, and only rivaroxaban was significantly lower than that of warfarin. The risk factors for DB with DOACs have been elucidated.

Disclosure: Nothing to disclose.

PP1166

THE PREDICTIVE FACTORS OF EACH GRADE OF FIBROSIS IN COLORECTAL ESD

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Introduction: The degree of fibrosis during colorectal ESD varies and sometimes makes the procedure itself difficult. Preoperative prediction of fibrosis is expected to help develop a reliable strategy.

Aims & Methods: Of 1309 colorectal ESD lesions performed at our hospital between April 2012 and September 2022, 953 lesions larger than 20 mm were included after excluding post-treatment recurrence, SMT, and other conditions. Intraoperative fibrosis was classified into F0 (none), F1 (mild), and F2 (severe).

Results: Fibrosis was observed in 192 (20.1%) patients (F1; 143, F2; 49). The tumor diameter (median, range) was 23 (20-135), 30 (20-210), and 35 (20-115) mm in F0, F1, and F2 groups, respectively. The rate of the cecum (%) was 13.3 : 29.4 : 16.3, which was higher in F1. Overall, bleeding was observed in 17 patients (1.8%) and perforation in 3 patients (0.3%), and the frequency was similar in each group. The curative resection rate (%) was 98.4:91.6:59.2, with F2 being significantly inferior. The long treatment time (≥120 minutes) (%) was 1.7 : 9.1 : 46.9, showing a significant difference between F0 vs F1 and F1 vs F2, and the dissection speed (mean±SD, mm^2/min) was 25.9±14.5 : 23.2±13.6 : 15.3±10.6, which was significantly slower in F2.

The predictive factors of F1 and F2: straddling the folds, prior biopsy, lesion diameter, site, and morphology, were included in the study, and multivariate analysis showed that the predictive factors of F1 were straddling folds (OR;2.07,95% CI;1.39-3.11), lesion diameter ≥50mm (OR;4.68,95% CI;2.45-8.94), biopsy (OR;6.44,95% CI;3.32-12.5), NGPD (OR;4.31,95% CI;2.37-7.83), and cecum (OR;3.73,95% CI;2.35-5.92). The predictive factors of F2 were straddling folds (OR;2.34,95% CI;1.21-4.51), lesion diameter ≥50 mm (OR;7.29,95% CI;3.03-17.5), biopsy (OR;5.07,95% CI;1.81-14.1), and protruded type (OR;6.44,95% CI;3.23-12.8).

Conclusion: Colorectal ESD for fibrotic lesions was safe, but the curative resection rate was low in F2. F1-specific predictors were cecum and NGPD, and F2-specific predictors were protruded type, suggesting that the choice of surgeon and strategy should depend on the expected degree of fibrosis.

Disclosure: Nothing to disclose.

PP1167

CLINICOPATHOLOGICAL AND ENDOSCOPIC CHARACTERISTICS OF SESSILE SERRATED LESION WITH DYSPLASIA/CARCINOMA

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Introduction: Sessile serrated lesion (SSL), is a precursor lesion in the serrated neoplasia pathway [1]. These lesions are considered a major contributor to the failure of colonoscopy to prevent colorectal cancers (known as "interval cancer" or "post-colonoscopy colorectal cancer") [2]. Therefore, improved awareness of the clinicopathological and endoscopic characteristics of SSL and their dysplastic components is important.

Aims & Methods: This study aimed to elucidate the clinicopathological and endoscopic features of SSLs with and without dysplasia or carcinoma. We reviewed the data of all colorectal lesions that were pathologically diagnosed as SSLs at Juntendo University Hospital, Tokyo, Japan, between 2011 and 2022. During this period, all suspected SSLs were resected endoscopically or surgically. The histological diagnosis of SSLs was based on the World Health Organization Classification of Tumours of the Digestive System 2019 [3]. We analysed the clinicopathological features of all the patients, including age, sex, tumour location and size, and conventional endoscopic findings.

Results: The clinicopathological and endoscopic characteristics of the lesions are summarised in Table 1. Out of 2132 SSLs (1368 patients), 1972 (92.5%) had no dysplasia (ND), 101 (4.7%) had low-grade dysplasia (LGD), 39 (1.8%) had high-grade dysplasia (HGD), and 20 (0.9%) had submucosal invasive carcinoma (SIC). Older age is more frequently associated with SSLs and dysplasia/carcinoma. The most frequent location of tumours was the proximal colon. A stepwise increase in the size of the SSL series was identified, along with dysplastic progression from ND to dysplasia to invasive carcinoma. Similarly, larger lesions were associated with higher rates of dysplasia or cancer (≥ 5 mm, 1.2%; 6 - 10 mm, 6.5%; 11-15 mm; 9.5%, 16-20 mm, 12.9%; ≥ 21 mm, 17.3%). However, 66 of the 160 (41.3%) SSLs with dysplasia/carcinoma were ≤ 10 mm in size. Macroscopically, (semi)pedunculated morphology, reddishness, double elevation, and central depression were more frequently observed in SSLs with dysplasia/carcinoma than in those without.

	Clinicopathological and endoscopic characteristics of colorectal lesions studied.			
Variable [Lesions / Patients]	ND [1972 (92.5%) / 1276]	LGD [101 (4.7%) / 94]	HGD [39 (1.8%) / 38]	SIC [20 (0.9%) / 20]
Age (years)	62.8 ± 12.1 (23 - 91)	64.8 ± 10.0 (35 - 85)	71.6 ± 8.9 (51 - 86)	72.2 ± 9.7 (47 - 90)
Sex: Male / Female	667 (52.3%) / 609 (47.7%)	41 (43.6%) / 53 (56.4%)	14 (36.8%) / 24 (63.2%)	7 (35.0%) / 13 (65.0%)
Location: Proximal / Distal	1637 (83.0%) / 335 (17.0%)	81 (80.2%) / 20 (19.8%)	33 (84.6%) / 6 (15.4%)	18 (90.0%) / 2 (10.0%)
Size of tumour (mm)	10.8 ± 7.6 (2 - 65)	15.0 ± 9.0 (5 - 42)	14.2 ± 8.4 (6 - 43)	20.2 ± 12.7 (8 - 65)
(Semi) pedunculated morphology	51 (2.6%)	14 (13.9%)	10 (25.6%)	5 (25.0%)
Reddishness	77 (3.9%)	40 (39.6%)	21 (53.8%)	16 (80.0%)
Double elevation	70 (3.5%)	61 (60.4%)	19 (48.7%)	10 (50.0%)
Central depression	44 (2.2%)	6 (5.9%)	2 (5.1%)	6 (30.0%)

Table 1.

Conclusion: Our findings suggest that SSLs with dysplasia/carcinoma may be more frequently associated with older age, the proximal colon, and larger lesions. However, dysplasia/cancer could coexist in SSLs even if the size was ≤ 10 mm.

Additionally, in an SSL series, endoscopic characteristics, including (semi) pedunculated morphology, reddishness, double elevation, and central depression, might be useful for the accurate diagnosis of advanced histology within an SSL. These results may may contribute to improvement in the recognition and complete resection of SSLs with dysplasia or invasive carcinoma, thereby reducing the rates of colorectal cancer.

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Disclosure: Nothing to disclose.

PP1168

THE FEASIBILITY OF THE STRIP BIOPSY OF THE COLORECTAL LESIONS INVOLVING THE APPENDICEAL ORIFICE

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Introduction: ESD of the colorectal lesions involving the appendiceal orifice (AO) is technically challenging because of the thin wall and narrow working space. On the other hand, even if the lesions are small and benign, it is difficult to perform EMR because of the narrow snaring space.

We previously reported strip biopsy (SB) resection of the AO lesion. The SB technique is as follows (1) Insert a 2-channel scope and check the lesion. (2) Insert a snare and grasping forceps into each channel, and hold the grasping forceps in the snare. (3) Grasp the appendiceal end of the lesion with the grasping forceps, open the snare, grasp the lesion, and resect it. This method makes it possible to snare the lesion after confirming the distal border of the AO. In the present study, we evaluated the feasibility of SB for AO lesions.

Aims & Methods: This was a retrospective study in which SB for AO lesions was performed on 10 patients at our hospital. Inclusion criteria for the study cohort were (1) the lesion less than 15 mm, and (2) visible lesion margin on the appendicular side. Polyps suspected to be cancerous were excluded.

Results: Male to female ratio was 8:2, median age (range) was 76 years (44-89). The median tumor size was 10 mm (10-15). The pathological findings were 8 cases of SSL and 2 cases of low-grade tubular adenoma. All lesions were resected en bloc, with a median treatment time of 10 minutes (range (5-10)). No complications were observed. Pathology results were negative for 8 cases and unknown for 2 cases. All lesions were resected endoscopically with no residuals.

Conclusion: SB technique for AO lesions is safe and it appeared that this could be one option for endoscopic treatment of AO lesions.

Disclosure: Nothing to disclose.

PP1169

EFFECTIVENESS OF ARTIFICIAL INTELLIGENCE FOR COLONOSCOPY ON ADENOMA AND POLYP MISS RATE: A META-ANALYSIS OF TANDEM RCTS

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Introduction: One-fourth of colorectal neoplasia is missed at screening colonoscopy, representing the leading cause of interval colorectal cancer (I-CRC). Colonoscopy assisted by artificial intelligence (AI) with computer-aided polyp detection (CADe) showed higher adenoma detection rate (ADR) and higher adenoma per colonoscopy compared to white light (WL) colonoscopy in randomized clinical trials (RCTs). Despite ADR is a reliable quality indicator and has been associated to the risk of I-CRC and death, an adequate ADR does not eliminate the risk of lesion miss rate since the relationship between ADR and adenoma miss rate (AMR) is only indirect.

Aims & Methods: The aim of this meta-analysis is to summarise the performance of CADe systems on miss rate of colonic lesions. PubMed/Medline, Embase and Cochrane Library were systematically searched through October 2022 by two independent reviewers (M.M. and A.F.) for tandem-design RCTs comparing miss rate of colonic lesions in CAD-first colonoscopy followed by WL colonoscopy (experimental arm) vs WL-first colonoscopy followed by CAD colonoscopy (control arm).

The primary outcomes were pooled AMR and polyp miss rate (PMR). Secondary outcomes were advanced adenoma miss rate (aAMR) and sessile serrated lesion miss rate (SMR). Lesion miss rate was defined as the number of lesions detected at second colonoscopy divided by the total number of same lesions detected at first and second colonoscopy. A random-effect model was applied for pooling results. Heterogeneity was expressed as I^2.

Results: Overall, 4 RCTs (1166 patients), were included in the analysis. Pooled AMR was significantly lower in the CAD-first compared to WL-first arm (131/842, 15.5% vs 300/857, 35.0%; RR, 0.45; 95% CI, 0.35-0.58; P<0.001; I^2=49%). PMR was also lower in the CAD-first compared to WL-first arm (192/1198, 16.0% vs 474/1244, 38.1%; RR, 0.43; 95% CI, 0.30-0.61; P<0.001; I^2=82%).

No significant difference in aAMR (2/23, 8.7% vs 5/32, 15.6%; RR, 1.28; 95% CI, 0.34-4.83; P=0.71; I^2=0%) and in SMR (5/43, 11.6% vs 27/67, 40.3%; RR, 0.44; 95% CI, 0.15-1.28; P=0.13; I^2=46%) were observed.

Study	Country	Study type	Design	CADe system	Colonoscopy indication	Arm (subjects, n)	APC (mean)	AMR	aAMR	PMR
Wang P, 2020	China	RCT	Tandem	EndoScreener, Wision AI, Shanghai, China	Symptomatic: 224 Screening or surveillance: 145	CADe-first (184)	0.78	13.9%	50.0%	13.0%
						WLE-first (185)	0.65	40.0%	25.0%	45.9%
Kamba S, 2021	Japan	RCT	Tandem	YOLOv3, LPIXEL Inc. and Jikei University School of Medicine	Symptomatic: 0 Screening or surveillance: 344	CADe-first (171)	1.42	13.8%	0.0%	14.2%
						WLE-first (173)	1.25	36.7%	13.3%	40.6%
Glissen JR, 2022	US	RCT	Tandem	EndoScreener, Wision AI, Shanghai, China	Symptomatic: 0 Screening or surveillance: 223	CADe-first (113)	1.19	20.1%	11.1%	20.7%
						WLE-first (110)	0.90	31.2%	0.0%	33.7%
Wallace M, 2022	US	RCT	Tandem	GI-Genius; Medtronic, Minneapolis, US	Symptomatic: 0 Screening or surveillance: 230	CADe-first (116)	1.79	15.7%	-	16.8%
						WLE-first (114)	1.46	32.2%	-	31.1%

Table 1. Characteristics of the studies included in the meta-analysis.

Conclusion: According to available evidence, the use of colonoscopy assisted by AI with CADe results in a significant lower AMR and PMR, with a potential implication in reducing the incidence of I-CRC. No significant difference in aAMR and SMR has been observed, even if these results should be further confirmed in studies with larger sample sizes.

Disclosure: Nothing to disclose.

PP1170

POOR ADHERENCE TO DIETARY RESTRICTION IMPACTS QUALITY OF COLONOSCOPY IN CLINICAL PRACTICE

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Introduction: Colonoscopy is the 'gold standard' investigation for assessment of the large bowel allowing diagnosis, biopsies, and therapy to be undertaken. Colonoscopy detects and prevents colorectal cancer through detection and removal of polyps, and is important in the diagnosis and treatment of non-neoplastic conditions. Poor quality colonoscopy is associated with increased rates of interval cancers. High quality colonoscopy cannot occur without good quality bowel preparation. Evidence in the UK show that 22% of failed colonoscopies were due to poor bowel preparation. Apart from the bowel cleansing agent, dietary restriction prior to colonoscopy has been shown to enhance quality of bowel preparation at colonoscopy.

Aims & Methods: We aimed to assess the information received and followed by patients in terms of dietary modification prior to colonoscopy.

A single centre prospective analysis of 60 consecutive patients attending colonoscopy at Chase Farm Hospital in London was undertaken in May 2022. Patients were asked to complete a questionnaire with information gathered about: type of bowel prep undertaken, whether written information about how to take bowel prep was received, whether a telephone consultation explaining dietary restriction prior to procedure happened, whether they followed a low fibre diet and the amount of fluid drunk.

Results: 57 patients returned the questionnaire.

Of the 57 patients, 39% patients received written information on dietary restriction. A further 35% of patients received telephone information, 26% of patients receiving both written and verbal information. 56.9% of patients followed the 3 day dietary restriction. The quality of bowel preparation was inadequate (fair and poor by Aronchick scale) in 60% of those who did not follow the low fibre diet compared to 24% when followed.

Patients who had seen a clinician in clinic and patients undergoing surveillance procedure were more likely to follow dietary restriction compare to direct access patients.

Conclusion: In this prospective study of clinical practice, we conclude that advice regarding dietary fibre restriction prior to colonoscopy is variable. In clinical practice, there is low compliance of dietary restriction prior to colonoscopy. We find that those who followed a low fibre diet are 40 % more likely to have a favourable bowel preparation compared to those following a high fibre diet. Those that had inadequate bowel prep required a repeat colonoscopy adding to the burden of the already stretched service. We recommend improvements in the implementation of the low residue diet in addition to the guidance of cleansing agents prior to colonoscopy.

Disclosure: Nothing to disclose.

PP1171

A SINGLE-CENTER, PROSPECTIVE COHORT STUDY OF NEW ELECTROCOAGULATION SYSTEM FOR PREVENTING COLORECTAL POST-ESD COAGULATION SYNDROME (NEWPEC STUDY)

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Introduction: Post-ESD coagulation syndrome (PECS), which reveals abdominal pain, inflammation or fever without perforation after ESD, is a recognized complication of colorectal ESD; however, prevention of PECS remains unknown. In our previous RCT, clipping closure after colorectal ESD did not reduce the incidence of PECS (Gastrointest Endosc. 2020: 859-867). The maXium unit is a new electrosurgical unit, which is expected to reduce tissue damage during ESD.

Aims & Methods: We conducted a prospective study (NewPEC study) to assess usefulness of the maXium unit for the prevention of PECS. The NewPEC study is a single-center, prospective cohort study, and patients who will undergo ESD for superficial colorectal neoplasms were prospectively enrolled. All participants routinely received computed tomography (CT) scan and blood examination on day 1 after ESD and pain severity was assessed on day 1-3 after ESD using visual analogue scale (VAS). PECS was defined as VAS ≥30mm, a raise of VAS ≥20mm from baseline, BT ≥37.5°C or WBC ≥10,000/μl after ESD. The PECS was classified into type I, conventional PECS without extra-luminal air and type II, PECS with peri-luminal air. The primary endpoint of this study was the incidence of PECS. The preplanned sample size for the analysis was 92 patients by estimating that upper limit of 90% CI for the PECS rate is less than 15% that is a threshold based on the previous RCT, with β errors of 0.20.

Results: Prior to the initiation of the present study, electrical circuit analysis was performed, and the maXium unit allowed submucosal dissection with lower power than with the VIO300D unit. From October 2019 to September 2021, 173 patients who undergo colorectal ESD were screened, 104 patients with inclusion criteria were enrolled in the primary enrollment, and finally, 92 patients were analyzed after excluding 12 patients in the present study. Median tumor size was 22mm. Final pathological diagnosis was 7 in SSL, 47, in adenoma, 24 in pTis CRC, 13 in pT1 CRC and 1 in pT2 CRC. The PECS rate was 15% [90%CI, 10-24%], including 10 % in the type 1 and 5 % in the type 2. The simple peri-luminal air without PECS was observed in 7 patients (8%). One patient revealed delayed perforation post-ESD day1, who underwent emergency surgery. As for the incidence of PECS, experienced skill was only significant factor for reducing the risk of PECS.

Conclusion: A new electrocoagulation system, maXium unit, did not reduce the incidence of colorectal PECS, compared to the historical control. However, the maXium unit showed equivalent results to the VIO300D unit that was used in the previous RCT.

(University Hospital Medical Network Clinical Trials Registry, Number: UMIN000038049)

Disclosure: Nothing to disclose.

PP1172

LONG-TERM PROGNOSIS OF COLORECTAL CARCINOMA TREATED BY COLD SNARE POLYPECTOMY

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Introduction: Cold snare polypectomy (CSP) has become popular as a safe and simple treatment for small colonic lesions. According to the Japanese guidelines, CSP is indicated for adenomas <10 mm with no suspicion of carcinoma [1]. Occasionally, colorectal carcinoma is diagnosed after resection, and there is no consensus on the treatment of such lesions [2-4].

Aims & Methods: This single-center retrospective study aimed to investigate the long-term prognosis of Japanese patients with pathologically diagnosed colorectal carcinoma after resection by CSP. Patients who underwent CSP for small colonic lesions at our hospital in 2013–2022 and were histopathologically diagnosed with colorectal carcinoma were included in this study.

We examined the local residual or recurrence rate, scar detection rate, and recurrence-free survival rate in patients who underwent at least one colonoscopy after CSP.

Results: Out of 12,935 lesions (6,082 cases) that were resected using CSP during the study period, 81 lesions (0.63%; 81 cases) were histologically diagnosed as colorectal carcinoma (mean age, 69.7 years; male patients, 69% [56/81]). Histologically, all tumours were well-differentiated adenocarcinomas. Negative lateral and vertical margins of the resected specimens were 47% (38/81) and 72% (58/81), respectively. Of these 81 cases, 47 (58%) were followed up at least once by colonoscopy. The breakdown of cases that were not followed up endoscopically is as follows: concurrent advanced cancer (n=15), advanced age (n=7), dropout (n=7), and others (n=5). Endoscopic evidence of residual disease or recurrence was found in 1/47 patients (2%), and the remaining 46 patients had a median colonoscopic follow-up of 425 days (interquartile range, 192.5–1078.5 days) with no endoscopic evidence of local recurrence. In 51% (24/47) of cases, post-polypectomy scars could be identified. In one case where local residual carcinoma was confirmed, a retrospective review of the CSP revealed incomplete resection at the time of treatment. Abdominal CT performed immediately after CSP showed coincidental peritoneal dissemination, and the patient died 177 days after diagnosis. In 46 patients with no endoscopic evidence of local recurrence, the median observation period was 921 days (interquartile range, 475–1654.5 days), with six cases of death from causes other than colorectal cancer, and the others were alive without recurrence.

Conclusion: The frequency of residual disease or recurrence of colorectal carcinoma treated by CSP was low, and the long-term prognosis was favourable once the absence of residual lesions was confirmed endoscopically.

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Disclosure: Nothing to disclose.

PP1173

DECIPHERING FACTORS ASSOCIATED WITH METACHRONOUS ADVANCED NEOPLASTIC LESION IN SURVEILLANCE COLONOSCOPY BY MACHINE LEARNING MODELS

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Introduction: Detection of metachronous advanced colorectal neoplasia is the main purpose of surveillance colonoscopy. Current guidelines are largely based on observational stuides or expert opinions which may not accurately predict the chance of metachronous advanced neoplasia.
Aims & Methods: This study aimed to assess the performance of machine learning (ML) models to predict the presence of advanced neoplasia during surveillance colonoscopy and also attempted to decipher the factors associated with advanced neoplasia as determined by machine learning models.
The training dataset consisted of 348 patients who had undergone surveillance colonoscopy between 2016 and 2019 in our hospital. Dataset included 20 baseline clinical parameters during the index colonoscopy, findings and performance metric of the index colonoscopy. Tweleve different advanced machine learning models were trained to predict the presence of advanced neoplasia during surveillance colonoscopy.
Advanced neoplasia was defined as the presence of adenoma with high grade dysplasia, ≥1 cm adenoma or sessile serrated polyp (SSP) , ≥ 3 adenoma or SSP, SSP with dysplasia or traditional sessile adenoma (TSA). Trained models were further validated in another cohort of 320 patients with surveillance colonoscopy between 2020 and 2021.
The performance was determined by the area under the receiver operating characteristic curve (AUC). The feature of importance was computed by Gini importance.
Results: Metachronous advanced neoplasia was present in 32.7% (n=114) and 24.4% (n=78) in the training and validation set, respectively.
Among the 12 machine learing models, the Grandient Boosting Classifier (GBC) had the highest AUC (0.85, 95%CI: 0.83-0.86). The sensitivity, specificity, positive and negative predictive value of the GBC was 0.77, 0.77, 0.29 and 0.96, respectively. Miss rate was 3.7% with number need to screen of 3.4 in the validation set. The other 11 models have AUC ranging from 0.70 to 0.84, which were all significantly higher than the performance if follow the USMSTF (0.60) and ESGE (0.51) recommendations.
Feature extraction of the GBC model showed that the time between index and surveillance colonoscopy (44.9%), patient's age (15.5%), and withdrawal time (8.1%), adenoma detection rate (ADR) (7.7%) and number of polyp of index colonoscopy (6.6%) were the top five predictive factors for advanced neoplasia on surveillance colonoscopy (Table 1).

Predictors	Feature of importance (%)
Time between surveillance colonoscopy and index colonoscopy	44.9
Patient's age	15.5
Withdrawal time of index colonoscopy	8.1
Adenoma detection rate of index endoscopist	7.7
Number of polyp in index colonoscopy	6.6
Number of advanced adenoma in index colonoscopy	4.7
History of diabetes mellitus	3.0
Number of advanced serrated lesions in index colonoscopy	2.7
History of ischemic heart disease	1.8
Patient's sex	1.5

Table 1: Feature of importance of GBC model

Conclusion: Most machine learning models could help to predict the chance of metachronous advanced neoplasia during surveillance colonoscopy and are better than current recommendations. Feature extraction shows that apart from interval between index and surveillance colonsocopy, the performance metrics and findings of index colonoscopy play pivotal role on detection of advanced neoplasia in surveillance colonoscopy.
Disclosure: Nothing to disclose.

PP1174

TIME-ZERO VIOLATIONS CAUSE BIAS IN OBSERVATIONAL STUDIES ON SCREENING COLONOSCOPY

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Introduction: Previous observational studies reported a higher effectiveness of colonoscopy in preventing distal vs. proximal colorectal cancer (CRC) which we could not reproduce in a recently published observational study using target trial emulation (TTE). The design of the previous studies suffered from "time zero violation", i.e. eligibility check, treatment assignment (screening vs. no screening) and start of follow-up were not synchronized.
Aims & Methods: We aimed to assess whether this "time zero violation" falsely induces a site-specific difference in the effect of colonoscopy. We used the same dataset underlying our recently published analysis (Braitmaier et al. 2022) based on German claims data (20% population coverage). We assessed the effect of screening colonoscopy in preventing distal and proximal CRC over 11 years of follow-up in 55–69-year-old persons at average CRC risk. Unlike in our recently published analysis, we used the design of previous observational studies with "time zero violation". We compared the findings of both analyses.
Results: While in the recently published analysis using TTE, the relative risk (RR) of distal and proximal CRC in the screening colonoscopy vs. control group was similar (RR: 0.67 for distal, 0.70 for proximal), the analysis with "time zero violation" indicated a difference in site-specific performance. In this latter analysis, the RR was 0.41 for distal CRC and 0.66 for proximal CRC.
Conclusion: Our study demonstrates that "time zero violation" can substantially bias the results of observational studies. In our example, it falsely suggested an almost double preventive effect of colonoscopy in the

distal vs. the proximal colon. The difference disappeared when the same data were analyzed using a TTE approach, which is known to avoid design-induced biases.

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Disclosure: Nothing to disclose.

PP1175

POOLED ANALYSIS OF TWO PHASE III STUDIES OF ORAL SULPHATE SOLUTION VERSUS 4L POLYETHYLENE GLYCOL IN ADULTS UNDERGOING ROUTINE COLONOSCOPY: FOCUS ON CLINICALLY RELEVANT SUBGROUPS

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Introduction: Two phase III non-inferiority studies (ESTOS [Russia] and EASY [China]) compared split-dose oral sulphate solution (OSS) to 4L polyethylene glycol (PEG) for bowel preparation in adults scheduled for routine colonoscopy. A post-hoc analysis was conducted using pooled data from these studies to provide more information on efficacy and safety overall and in sub-groups of interest.

Aims & Methods: Analyses in intention-to-treat (ITT) were confirmed in the per protocol (PP) population. Sub-analyses were conducted on subgroups of interest (age; gender; body mass index [BMI]; inflammatory bowel disease [IBD] status). A boundary of -15% was used to assess non-inferiority. Primary endpoint: proportion of patients with successful overall preparation (centrally assessed global Boston bowel preparation scale [BBPS] score ≥6). Secondary endpoints: excellent overall preparation (BBPS score ≥8; centralized assessment), mean BBPS score, BBPS score ≥2 by segment, adenomas, polyps and other lesion detection rate, completion and duration of total colonoscopy, investigator satisfaction (Likert score), compliance to bowel preparation administration and safety.

Results: 588 patients received OSS (n=294) or PEG (n=294). ITT results confirmed in the PP population are reported. The pooled analysis confirmed non-inferiority of OSS to PEG (successful overall preparation: 93.7% vs 92.1%; Δ 1.6%; 95% CI: −2.6, 5.7). OSS was non-inferior in males (96.2% vs 91.9%) and females (90.9% vs 90.7%), presence (95.9% vs 93.5%) and absence of IBD (95.0% vs 94.2%), BMI ≤25 kg/m^2 (89.7% vs 94.0%) and age ≤65 years (93.6% vs 90.9%). In patients with BMI >25 kg/m^2, OSS was superior to PEG (97.0% vs 89.8%, p=0.029). Non-inferiority in patients >65 years was not confirmed (91.6% vs 98.2% p=0.2449). Pooled analyses of secondary endpoints showed higher rates of excellent overall preparation with OSS than with PEG and in segments for most subgroups (Table). Investigator satisfaction was higher with OSS compared with PEG (p=0.0003), as was compliance (92.4% vs 85.1%, p=0.0024).

Other secondary endpoints were similar for both treatments. Safety and tolerability were similar for both treatments. Overall, more adverse events (AEs) were experienced in the group with BMI ≤25 than in the group with BMI >25. There was one serious AE considered related to OSS: acute proctitis, which was treated with local mesalamine. The most frequently reported adverse events were non-serious gastrointestinal disorders.

	ALL SEGMENTS			RIGHT COLON			TRANSVERSE COLON			LEFT COLON		
Subgroup	OSS	PEG	p value	OSS	PEG	p value	OSS	PEG	p value	OSS	PEG	p value
All patients	76.1	64.8	0.0025	52.4	37.5	0.0010	80.9	71.2	0.0054	87.1	79.5	0.0163
Aged ≤65	71.7	59.6	0.0040	50.0	37.9	0.0084	80.3	69.7	0.0046	85.9	77.0	0.0138
Aged >65	80.2	68.0	0.3518	50.0	19.5	0.0080	77.3	71.4	0.7218	86.1	82.9	0.7900
Male	78.7	66.5	0.0453	50.9	31.9	0.0121	81.2	71.9	0.1171	89.1	81.8	0.1406
Female	75.3	64.6	0.0227	56.9	44.1	0.0157	80.1	69.5	0.0213	85.4	77.3	0.0579
BMI ≤25 kg/m^2	75.3	65.4	0.0800	55.6	44.1	0.1006	81.0	72.6	0.1037	84.7	75.8	0.0560
BMI >25 kg/m^2	79.3	66.4	0.0059	50.0	31.3	0.0010	82.6	71.3	0.0101	89.9	83.5	0.0857
IBD present	70.8	46.3	0.0476	36.0	23.1	0.2844	80.7	50.6	0.0289	83.1	77.9	0.6360
IBD absent	76.4	66.9	0.0146	55.7	40.6	0.0011	78.1	69.7	0.0333	88.6	81.0	0.0157

OSS, oral sulfate solution. PEG, polyethylene glycol

Table. Rates of excellent overall bowel preparation (overall BBPS score ≥8, individual segment score ≥3)

Conclusion: Pooled analysis confirmed that OSS is non-inferior to PEG for bowel preparation in adults before colonoscopy. This post-hoc analysis also showed that OSS is superior to 4L PEG in achieving excellent preparation overall and in all colon segments, and is linked to superior compliance and investigator satisfaction in most subgroups with similar safety and tolerability

Disclosure: Evgeny Fedorov, Sergey Kashin and Viktor Veselov were investigators for the ESTOS study, which was sponsered by Ipsen Pharma.

Zong Ye, Wu Yongdong and Zhang Shutian were investigators for the EASY study, which was sponsered by Ipsen Pharma.

Evgeny Fedorov, Sergey Kashin and Viktor Veselov have acted as consultants for Ipsen Pharma.

Anne Kornowski is an employee of Ipsen and Mayoly.

Helene Tribodet is a consultant for Ipsen and Mayoly.

PP1176

HIGH JOULE HEAT LOAD ON THE PEELED MUCOSAL SURFACE AS AN INDEPENDENT RISK FACTOR FOR POST-ENDOSCOPIC SUBMUCOSAL DISSECTION ELECTROCOAGULATION SYNDROME: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Colorectal endoscopic submucosal dissection (ESD) is more difficult than gastric/esophageal ESD from anatomical aspects. Post-ESD complications, such as post-hemorrhage and perforation, have been frequently reported. In particular, a post-ESD complication, post-ESD electrocoagulation syndrome (PECS), may lead to delayed perforation. A previous study reported that risk factors for PECS were a long duration of treatment (≥90 min), specimen diameter (≥30 mm), and right colonic lesion[1)]. However, no risk factor has been established, and risk factors remain controversial.

Aims & Methods: Our purpose was to clarify risk factors that can be unitarily explained with respect to PECS after colorectal ESD and achieve adequate postoperative management. Patients with fever (≥37.5°C) or a leukocyte count of ≥10,000/mL during admission and a visual analogue scale of ≥3 cm or 2 cm or longer increase from the baseline were regarded as having PECS. A total Joule heat load of ≥15389 J on a tumor during ESD was regarded as high Joule heat[2)]. Joule heat was measured using a special device. For multivariate analysis, logistic regression analysis was used.

Results: We conducted a prospective observational study in 84 patients who underwent colorectal ESD at two facilities between January 2021 and March 2023. The median age was 70 years, and there were 63 males (75.0%). PECS occurred in 12 patients (14.3%). The only independent factor associated with PECS was high-level Joule heat (odds ratio: 7.28, 95%CI: 1.9-27.5, p<0.01). PECS was not associated with a long duration of treatment, large specimen diameter, or right colon.

Conclusion: Previously reported risk factors for PECS were associated with difficulties in performing colorectal ESD. In patients in whom tumor peeling is difficult, the heat load on a peeled surface increases, and PECS may readily occur. An index of high-level Joule heat made it possible to unitarily explain risk factors, such as a long duration of treatment, specimen diameter, and right colon, as risk factors for PECS. The total Joule heat can be quantified, facilitating the prediction of PECS onset.

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Disclosure: Nothing to disclose.

PP1177

CANCER RISK AND MORTALITY IN PATIENTS WITH SOLITARY JUVENILE POLYPS – A NATIONWIDE COHORT STUDY WITH MATCHED CONTROLS

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Introduction: The risk of cancer in patients with solitary colorectal juvenile polyps is poorly investigated, but several studies have reported polyps with dysplastic and adenomatous alterations.

Aims & Methods: We aimed to investigate the long-term risk of cancer and mortality in these patients when merging data from national registers and comparing them to a matched control cohort. Patients with a solitary juvenile polyp were identified in The Danish National Pathology Register and Data Bank (DNPR). Included patients were matched on sex, age, and place of birth with 50 controls. The groups were then analyzed for risk of cancer using the Danish Cancer Registry and mortality using the Danish Cause of Death Registry.

Results: We identified 1,781 patients with solitary juvenile polyps and matched them to 83,713 controls. The mean follow-up time was 7.65 years for cases and 7.36 years for controls. The risk of cancer, including colorectal cancer, did not differ for the two groups and when adjusting for sex and year of birth the hazard ratio (HR) was: 1.15 (CI 95% 0.94-1.41, *p*=0.162). There was no increased risk of death (HZ: 1.07, CI 95% 0.88-1.30, *p*=0.486). The risk did not differ for different age groups or sex.

Conclusion: There is no increased risk of cancer or mortality for patients with solitary colorectal juvenile polyps. Thus, endoscopic follow-up may safely be omitted in these patients.

Disclosure: The authors declare that there is no conflict of interest

PP1178

PILOT DATA EVALUATING LEARNING CURVE IN SPEEDBOAT-ASSISTED SUBMUCOSAL DISSECTION (SSD) IN A UK TERTIARY HOSPITAL – A SINGLE-OPERATOR EXPERIENCE WITHOUT ON-SITE TUTORING

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Introduction: Endoscopic submucosal dissection (ESD) is widely performed in Asia. Its adoption in Western countries has been slow, primarily due to concerns about longer learning curves and higher complication rates. A new ESD service based on a single operator without an on-site tutor was introduced in a UK tertiary hospital using exclusively speedboat-RS2 device (advanced bipolar radiofrequency for cutting and microwave coagulation).

Aims & Methods: This study aims to evaluate the learning curve and outcomes of the first 100 SSDs. Data were collected prospectively from September 2019 to April 2023. The learning curve was analyzed based on 4 quartiles (n=25 per quartile) and the outcomes evaluated were resection speed, en-bloc and R0 resection rate. The adverse events rate in the first 30 days post-SSD was used as safety outcomes.

Results: 100 patients underwent SSDs and the median age was 67 years. The median Charlson Comorbidity Index (CCI) score was 3. 61% were male and 53% of the lesions were in the rectum. Majority (75%) of the lesions were removed en-bloc and 69% had R0 resections.

Row Labels	Count	Count of en-bloc procedures	Resection speed (cm^2/hr)	En-bloc (%)	R0 resection (%)	Mean duration of procedure (mins)	Mean size of lesions (cm)
1	25	16	4.0	64	63	233	4.9
2	25	17	6.6	68	71	194	4.8
3	25	21	6.7	84	67	152	4.7
4	25	21	7.9	84	76	142	5.2
Total	100	75	6.0	75	69	180	4.9

Table.

The en-bloc resection rate for quartiles 1, 2, 3 and 4 were 64%, 68%, 84%, and 84%. The R0 resection rate was 63%, 71%, 67% and 76%, respectively. The 4th quartile met the European Society of Gastrointestinal Endoscopy (ESGE) recommendation for the R0 resection rate ≥75% but not for the en-bloc resection rate ≥90%.[1]

The mean duration of SSDs for respective quartiles were 233, 194, 152 and 142 minutes which indicated shorter resection times (142mins) despite larger lesions in the 4th quartile (5.2cm). The resection speed was 4.0, 6.6, 6.7 and 7.9cm^2/hr, respectively. The 4th quartile resection speed of 7.9cm^2/hr after 100 SSDs demonstrated a shorter learning curve than the 7.0cm^2/hr achieved after 200 ESDs in a similar study performed in the US which evaluated a new ESD service from a single operator without on-site tutoring.[2]

The adverse event rate was 7%(n=7). 5% were due to delayed bleeding, requiring further endoscopic interventions. The risk factors were use of anticoagulants and liver cirrhosis. 2% had localized perforation with Sydney classification of mucosal injury type III which were managed with endoscopic clips. This study achieved the safety standards of ESGE which recommends an adverse event rate of <10% and perforation rate of <3%.[1]

The surgical conversion rate post-SSDs in early stages of training was 4%(n=4). These were adenocarcinomas with hybrid(n=2) and R1 en-bloc resections(n=2).

The results have an understandably longer learning curve than Japan but

we demonstrated remarkable progress in resection speed, en-bloc and R0 resection rate over the 4 quartiles as well as a shorter learning curve than previously reported in the West for a new service based on a single operator without on-site tutoring.[2,3]

Conclusion: This study demonstrated that a new ESD service based on a single-operator without an on-site tutor achieved safety outcomes and R0 resection rate recommended by ESGE. Whilst further experience is required to achieve en-bloc resection rate ≥90% and resection speed ≥9cm^2/hr, the results from the first 100 cases suggest that the learning curve for SSD without on-site tutoring may be shorter than previously reported in the West.[2,3]

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Disclosure: None.

PP1179

POTENTIAL SIDE EFFECT OF A SUBMUCOSAL LIFTING AGENT FOR ENDOSCOPIC RESECTIONS

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Introduction: Submucosal lifting agent is critical to perform endoscopic submucosal dissection (ESD) and even used sometimes in conventional endoscopic mucosal resection (EMR). ORISE Gel is a recently introduced and approved lifting agent in United States and Europe and one of the most used injection solutions for ESD. However, it has recently been revealed in some cases that ORISE Gel induces a foreign body reaction histologically. Most publications have been reported as case series from United States, but few from other countries. We aim to analyze the characteristic findings and clinical implications with Orise Gel injection and literature review to increase awareness.

Aims & Methods: We used a prospectively maintained ESD database at our center in Sweden between January 2020 and March 2023. Colorectal ESD or converted EMR during ESD (rescue EMR) specimens injecting ORISE Gel were included. The literature review included from PubMed between January 2019 to March 2023.

Results: A total of 99 cases (89 ESD or rescue EMR and 10 subsequent surgeries) were identified during the study period. There are 48 male and 51 female patients with a median age of 69.4 years.

Orise gel injection was used in 57 cases (57.6%). 8 cases had radiological follow-up because of T1 cancer. Of these, 5 cases underwent subsequent surgical resections, where the injection sites were in distal rectum in 3, cecum in 1 and descending colon in 1 case. The surgical resection specimens showed histopathologically T2 colorectal cancer in one, residual adenoma with low grade dysplasia in 2, and no dysplasia cell in 2 cases. All of them showed histologically extensive foreign body-type granulomatous giant cell reaction. These changes were detected in 3 cases by MRI or CT image with a sign of local wall thickness before surgical resections. This resulted in a clinical overdiagnosis of more advanced T-staging. Meanwhile, 3 cases were followed up by radiological imaging and 2 of them showed a similar change as local wall thickness, however both were diminished as time advanced.

Conclusion: This large Swedish case series raises the awareness that the submucosal lifting agent causes extensive histological reaction at the injection site in all surgical specimens. These changes are observed at the radiological follow-up. This gel deposits in the specimens may lead to a misinterpretation of a mass as tumor growth and they can change differently with time.

Disclosure: Nothing to disclose.

PP1180

FEASIBILITY, SAFETY AND EFFICACY OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR RESIDUAL OR RECURRENT SUPERFICIAL RECTAL NEOPLASTIC LESIONS AFTER TRANSANAL SURGERY.

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Introduction: Little is known on the outcomes of endoscopic submucosal dissection (ESD) in patients with recurrent lesions after surgical local excision (transanal endoscopic surgery TES, transanal endoscopic microsurgery TEM, transanal minimally invasive surgery TAMIS) of superficial rectal neoplasms (1). We aimed to evaluate the feasibility, safety and efficacy of ESD for incomplete or recurrent rectal neoplastic lesions after transanal surgery.

Aims & Methods: This multicenter retrospective study assessed 38 patients who underwent ESD between June 2016 and February 2022 for recurrent or incompletely resected after TES or TEM. Treatment outcomes were evaluated. Primary outcome was the non-recurrence tumoral lesion at first endoscopic follow-up control. Secondary outcome were En bloc resection, R0 resection, curative resection.

Results: Main results are given in Table 1**.** There were 16 male and 22 female patients. Median age (range) was 68.7 (44–88) years. Seventy-four percent of lesions were located in the lower rectum, and 55% reached the pectineal line. Sixty-one percent of lesions were laterally spreading

tumor granular type (LST-G), and 34% were polyps. Forty-four percent of lesions were 0-IIa, and 23% were 0-Is according to the Paris classification. Seventy-one of lesions were Sano II, and 45% of lesions were Kudo IV. The median size of lesions (range) was 44 mm (10-100). Sixty-six percent of ESD were performed starting with full circumferential incision. Median operation time (range) was 79 (10–270) minutes. Thirty-nine percent of lesions has low vascular supply. Severe fibrosis was present in 78%of lesions. Ninety-two percent of lesions were successfully resected en bloc. R0 resection and curative resection rates were both 68%.

Rectal fat is visualized in eleven patients, none of them requiring a surgery. Four post-operative bleeding and two stenosis occurred. Median (range) hospital length of stay after ESD was 1.8 days (0-4). Pathological examination revealed 32 adenomas (23 with low-grade dysplasia, 9 with high-grade dysplasia) and 3 adenocarcinomas (3 T2; there was no Tis or T1).

All patients were followed up with endoscopic control after ESD, with biopsy samples if residual or recurrent tumor.Median (range) of follow-up period until first endoscopy control was 6.2 (1-13) months. « Only one residual lesion (one of three non-en bloc resections) actually showed low-grade dysplasia adenoma at follow-up.

En bloc Vs Non	35 / 3
R0 resection	26/38 (68%)
Curative resection, n (%)	26/38 (68%)
Operation time (median) min.	79
Follow up interval median	6.2 months
Residual lesion at first follow-up	1/38 (3%)

Table 1 : Treatment outcomes.

Conclusion: ESD for incomplete or recurrent superficial rectal neoplastic lesions after transanal surgery (TEM,TES, TAMIS) is highly feasible and safe, and allows curative resection in a vast majority of cases.

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Disclosure: Nothing to disclose.

PP1181

ENDOSCOPIST DEPENDING FACTORS FOR COLON AND RECTUM SESSILE SERRATED LESIONS DETECTION RATE

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Introduction: Sessile Serrated Lesions (SSLs) show an “ultra flat” morphology, a mucus cap and are predominantly located proximally to the splenic flexure (PSF) (1). Hypothetically, previous knowledge in detection of flat or non-protruding conventional adenoma could be a predictor factor for endoscopic detection of SSLs.

Aims & Methods: Aim: To investigate in a South American Private Hospital, the relationship between Flat Adenomas Detection Rate (FADR) and Sessile Serrate Lesion Detection Rate (SDR)

Methods: This study is a retrospective, single-center analysis carried out at Centro Medico Docente La Trinidad Caracas-Venezuela from total selected colonoscopies performed by the gastroenterologists between 2008 and 2018 in patients 51-80 years old (YO). For this study, Adenoma Detection Rate (ADR) includes the whole morphologic spectrum of colon & rectum traditional adenomas from Paris Classification of Colorectal Lesions (2). We will consider the “General ADR” as “GADR”, including Non-protruding or flat ADR: “FADR” plus Protruding ADR: “PADR”, as well as the last two separately. By using logistic regression generalized estimating equation models, the location in colon & rectum and morphology of all types of adenomas (ADs) were assessed. The relationship between the global number of colonoscopies (GNC), GADR, FADR, PADR and the SDR was investigated calculating a correlation coefficient (CC) weighted by the number of total colonoscopies. In addition, 3 linear regression equation models to estimate the relationship between the 3 different types of ADR and SDR and the probability of occurrence of SDR based on the proportion of colonoscopies with SDR presenting every type of ADR weighted by the number of colonoscopies with SDR were calculated.

Results: For this study, 8432 colonoscopies were validated for 9 gastroenterologists (G1-G9). For patients between 51 and 80 YO, GADR for all 9 Gastroenterologists was 19.76%. GADR-SDR individually for 9 gastroenterologists (G1-G9) varies from as high as G9 GADR-SDR: 33.21%-4.19% to as low as G1: 12.67%-0.50%. The most frequent location for ADs was PSF: OR 1.95, IC 95% (1.30-2.84), P<0.001. SSLs were mostly located PSF OR 2.18, IC 95% (1.44, 2.92) P<0.001. The morphology of ADs was mainly pedicle OR 1.00 IC 95% P<0.001 and for SSL it was flat by far: OR 6.84 IC 95% (2.08-9.02) P<0.001. The CC demonstrated a good association between GADR and SDR: 0.98 P<0.05; and for FADR: 0.87, P<0.05 but not for PADR: 0.56 P=0.113. The GNC was not associated with the SDR CC: -0.197, P=0.6117. The GADR and FADR show robust strength of the linear relationship with SDR and probability of occurrence, but not for PADR (table).

Category of ADR	R^2	β	P	SDR Correlation coefficient	Probability of occurrence (%)	Colonoscopies in each category of ADR validated for SDR calculation
General ADR	0.9687	0.1632	<0.001	0.9842	94.26	148
Flat ADR	0.759	1.888	0.002	0.8712	92.35	145
Protruding ADR	0.3186	0.1664	0.113	0.5644	37.58	59

R^2 : Determination coefficient. This evaluates the strength of the linear relationship between the two variables.
β: Partial regression coefficient. It indicates the average effect that the increase in one unit of the predictor variable has on the dependent variable.
ADR: Adenoma Detection Rate. SDR: Serrated Detection Rate. 157 colonoscopies were valid for the calculation of the SDR

Table. Results of the linear regression models used to estimate the relationship between the different types of ADR and SDR and the probability of occurrence based on the number of Centro Medico Docente La Trinidad colonoscopies.

Conclusion: A sine qua non factor for a good SDR for the gastroenterologist is previous knowledge about “FADR”. To the best of our knowledge, this is the first time that ADR has been divided into “General, Flat and Protruded” in order to investigate the impact of the endoscopic skills on flat colorectal lesions detection for a good SDR.

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PP1182

ASSOCIATION BETWEEN ATHEROSCLEROSIS AND HIGH-RISK ADENOMAS BASED ON CARDIO-ANKLE VASCULAR INDEX AND ANKLE-BRACHIAL INDEX

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Introduction: Colorectal adenomatous polyp is a precancerous lesion. Screening for detection and removal of colorectal adenomatous polyps has been shown to reduce mortality related to colorectal cancer. Recent studies have shown that colorectal adenomatous polyp is associated with atherosclerosis. Cardio-ankle vascular index (CAVI) and ankle-brachial index (ABI) are non-invasive methods to evaluate atherosclerosis and cardiovascular disease as well as peripheral artery disease.

This study aimed to investigate the association between atherosclerosis and high-risk adenoma based on CAVI and ABI.

Aims & Methods: We retrospectively analyzed data of patients aged ≥ 50 years who had CAVI, ABI, and a colonoscopy from August 2015 to December 2021 in Kangwon National University Hospital.

After having a colonoscopy, subjects were divided into groups with and without adenoma or high-risk adenoma (size ≥ 1 cm, high-grade dysplasia or villous adenoma, 3 or more adenomas) based on pathologic findings. Data were then subjected to univariate and multivariate logistic regression analyses.

Results: A total of 1,164 subjects were included. Adenomas were found in 613 (52.6%) subjects and the high-risk adenomas were found in 118 (10.1%) subjects.

The rate of positive ABI (< 0.9) and positive CAVI (≥ 9.0) were significantly higher in the high-risk adenoma group (22.0% and 55.9%) than those in the no adenoma (12.3% and 39.6%) and the overall adenoma group (15.7% and 44.0%) (p = 0.008 and p = 0.006, respectively). In a multivariate analysis, positive CAVI and smoking were significantly associated with high-risk adenoma (p = 0.027 and p = 0.021, respectively).

Conclusion: In this study, a significant correlation between positive CAVI and high-risk adenoma was observed. The use of CAVI could be a significant predictor of the presence of a high-risk adenoma.

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Disclosure: Nothing to disclose.

PP1183

13-YEAR COLORECTAL CANCER RISK: COMPARING PERSONS WITH A LOW- VS. HIGH-QUALITY SCREENING COLONOSCOPY VS. NO SCREENING COLONOSCOPY

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Introduction: Several studies have shown that a low quality of colonoscopy reduces its effect in preventing colorectal cancer (CRC), but it is not clear to which extent a low-quality colonoscopy is still effective compared to no colonoscopy. We aimed to compare the 13-year risk of developing CRC between persons with I) a high-quality screening colonoscopy, II) a low-quality screening colonoscopy and III) without a screening colonoscopy.

Aims & Methods: Using observational data from a German claims database (GePaRD; 20% population coverage) we emulated a target trial with three arms: High-quality screening colonoscopy (highQualSC) vs. low-quality screening colonoscopy (lowQualSC) vs. no screening colonoscopy (noSC) at baseline. The quality of baseline colonoscopy was categorized based on the polyp detection rate of the examining physician. We included persons at average CRC risk aged 55–69 years and without a colonoscopy, polypectomy or fecal occult blood test before baseline. We estimated adjusted cumulative CRC incidence over 13 years of follow-up.

Results: Overall, we included 142,960 persons in the highQualSC arm, 62,338 persons in the lowQualSC arm and 124,040 persons in the noSC arm. The adjusted 13-year risk of any CRC was 1.77% in the highQualSC arm, 2.09% in the lowQualSC arm and 2.74% in the noSC arm. Compared to the noSC arm, the adjusted relative risk (aRR) was 0.76 (95% CI: 0.70-0.84) in the lowQualSC arm and 0.65 (95% CI: 0.60-0.69) in the highQualSC arm.

Conclusion: Our study demonstrated that the effect of screening colonoscopy in preventing CRC is substantially lower in persons with a low-quality as compared to a high-quality screening colonoscopy. However, it also showed that attending a low-quality screening colonoscopy still markedly reduces the risk of CRC compared to no screening colonoscopy.

Disclosure: Nothing to disclose.

PP1184

DEVELOPMENT AND VALIDATION OF A NOVEL CODING ANALYTIC TO IMPROVE ASSESSMENT OF ADENOMA AND SERRATED POLYP DETECTION RATES FOR COLONOSCOPY QUALITY STANDARDS

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Introduction: Adenoma detection rate (ADR) and serrated polyp detection rate (SDR) are internationally recognised quality indicators of colonoscopy. However, determining ADR and SDR requires the matching of endoscopy and histology reports, which can be challenging in the presence of separate electronic medical record systems. The use of coding analytics may expedite this process, enabling rapid and efficient data collection and extraction from reports. This study aimed to validate an innovative coding analytic in measuring ADR and SDR.

Aims & Methods: A coding analytic algorithm was developed to semi-automatically extract patients' names, polyp type, caecal intubation rate, and bowel preparation quality, from colonoscopy and histology reports. These reports were then manually reviewed to verify the concordance of patient names, ADR and SDR between the two methods. This process was applied in the initial phase, repeated following coding analytic change, and again with a validation cohort.

Results: The initial phase, which included 5911 colonoscopies performed by 53 endoscopists from January 2021 to June 2022, revealed that the coding analytic program extracted all patient names with 99.9% concordance and had a 98.9% accuracy in ADR and SDR. The discrepancies were mainly limited by spelling variation, different histology report dates, missing histology reports from the hospital's pathology database, and overlapping terms such as tubular adenoma and tubulovillous adenoma, or villous changes that were not specific to polyps. Coding analytic search terms were subsequently modified to take into consideration these limitations. Following modification, using data from the same cohort, accuracy of the coding analytics improved to 100%, excluding 4 colonoscopies that had missing histology reports.

A total of 2022 colonoscopies performed by 40 endoscopists at the same hospital network, over July to December 2022, were included in a validation cohort. The updated coding analytic program accurately extracted all patient names with 100% concordance, and a 99.9% accuracy in ADR and SDR. The sensitivities of ADR and SDR were 99.9% and 99.6% respectively, with specificities of 100% for both ADR and SDR (Table 1).

	Initial phase Before search term modification (%)	Validation phase After search term modification (%)
Colonoscopies performed in:		
Patients >50 years old	72.4	74.0
Non-IBD patients	91.3	90.3
Patients without previous colonic resection	91.9	92.3
Accuracy	98.9	99.9
Adenoma Detection Rate (ADR)		
Sensitivity	99.5	99.9
Specificity	99.2	100
Positive Predictive Value	98.6	100
Negative Predictive Value	99.7	99.9
Serrated polyp Detection Rate (SDR)		
Sensitivity	99.6	99.6
Specificity	100	100
Positive Predictive Value	100	100
Negative Predictive Value	99.9	99.9

Table 1: Performance of coding analytics before and after modification of coding search terms.

The discrepancies in the validation phase arose from 2 histology mismatches, that were a result of missing histology reports from the hospital's histology database program. Excluding this software error renders the coding analytic program to be 100% accurate.

Conclusion: This study demonstrated and validated an automated extraction coding algorithm to have an accuracy of almost 100% in determining ADR and SDR for endoscopists in a large tertiary healthcare colonoscopy service. Wider adoption of these coding analytics may enable significant improvements in auditing of colonoscopy quality that is more time-efficient.

Disclosure: Nothing to disclose.

PP1185

TREATMENT STRATEGY FOR THE COLORECTAL LESIONS INVOLVING THE DIVERTICULUM ; SINGLE-CENTER RETROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Endoscopic treatment of the colorectal lesions involving the diverticulum is difficult, due to the lack of muscular layer. There have been no investigations of the safety and feasibility of treatment strategy for the polyp close to or extending into the diverticulum. We investigated the outcomes of our treatment strategy for involving the diverticulum and verify the safety and the feasibility of our strategy.

Aims & Methods: Between November 2014 and January 2022, 33 cases of 33 diverticular polyp (16 males/17 females, age were 74 (54-92) years old) were enrolled in this study. Our treatment strategy for the colorectal lesions involving the diverticulum is determined by the location of polyps and diverticulum, the size of polyp, and the potential of malignancy. Cold polypectomy (CP) and gel-immersion EMR (GIEMR) are selected for the benign polyp of 10 mm or less that can be snared. The polyp with large diverticular openings, we try to inverted diverticulum.When snaring is difficult, ESD is performed. The lesions close to the diverticular opening could be resected by first incising and trimming the area close to the diverticular opening. When lesions extending into the diverticulum, ESD with the ring thread traction is performed. If traction alone cannot complete the procedure, ESD with a minor incision in the muscular layer is used in combination with traction.

Results: 3 cases of CSP, 8 cases of GI EMR, and 22 cases of ESD were performed. All cases in which CSP was performed were flat type, two polyps were located in the ascending colon and one in the sigmoid colon, the median size of polyps is 3 (3-5) mm, and all polyps were adenomas. The median time of treatment was 3 (2-5) minutes, en-bloc resection was achieved in all cases, and resected margins were all negative. GI EMR: Endoscopic classification were flat type lesions in 5 cases and elevated type lesions in 3, Four polyps were located in the ascending colon and one each in the cecum, transverse colon, descending colon, sigmoid colon, the median size of lesions is 10 (8-15) mm, the pathological findings were adenomas in 5 cases and SSLs in 3 cases. The median time of treatment was 5 (2-10) minutes, en bloc resection in all cases, and margins were negative. ESD: Of the 22 cases, 17 lesions located near the diverticular opening, and 5 lesions extended completely into the diverticulum. The lesions that extended into the diverticulum, 1 case was resected by diverticulum inversion, 3 cases by ring thread traction, and 1 case by traction with a minor incision in the muscular layer. Endoscopic classification were flat type lesions in 11, elevated type lesions in 11, 5 lesions were located in the cecum, 10 lesions in the ascending colon, one lesion in transverse colon, 6 lesions in sigmoid

colon, the median size of lesions is 25 (10-108) mm, the pathological findings were adenomas in 5 cases and intramucosal carcinoma in 17 cases. The median time of treatment was 35 (14-120) minutes, the median diameter of resection was 35 (20-110) mm, no complications were observed, and the horizontal margins were negative.

Conclusion: Endoscopic treatment can be performed safely by selecting a treatment method/strategy suitable for the characteristics of the colorectal lesions involving the diverticulum.

Disclosure: Nothing to disclose.

PP1186

THE VALIDITY OF FORCED COLD SNARE POLYPECTOMY: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: CSDP (Cold Snare Defect Polypectomy) after CSP (Cold Snare Polypectomy) for colorectal lesions has been reported to be a factor related to pathological incomplete resection because it causes incomplete mucosal resection and specimen fragmentation. When CSP is performed, it is difficult to resect only with snaring, so it may be necessary for the endoscopist to pull the snare sometimes. However, There is no previous reports about CSP with this technique, and no study has examined “Forced” CSP (FCSP). We have the impression that CSDP is often recognized empirically in FCSP, and we investigated the frequency, safety, and validity of FCSP.

Aims & Methods: A prospective observational study was conducted with the primary endpoint being the frequency of FCSP among the CSPs performed at our hospital from November 2020 to June 2021. The patients were classified into the FCSP group and the conventional CSP group (CCSP). The rate of perforation was evaluated for safety, and the incidence of CSDP and the rate of unclear pathological margins were evaluated for validity.

Results: CSP was performed in 1391 lesions, and Forced CSP was performed in 110 lesions (7.9%). There were no cases of perforation, but CSDP was significantly higher in the Forced CSP group (96.4% (106/110) vs 6% (77/1281), p<0.001), and cases with unclear pathological margins were also used. It was significantly higher in the Forced CSP group (12.7% (14/110) vs 5.7% (75/1279), p=0.0126).

In an investigation of predictors for the need for Forced CSP, cecal polyps (OR, 2.6; 95% CI=1.483-4.55; p<0.001) and polyps ≥6 mm (OR, 11.36; 95% CI=7.277 -17.727; p<0.001) was identified as an independent related factor in the multivariate analysis.

Conclusion: FCSP does not affect the complication rate, but the incidence of CSDP and the rate of unclear pathological margins are significantly high. Further investigation at multiple institutions is desired in the future.

Disclosure: Nothing to disclose.

PP1187

QUANTITATIVE FLUORESCENCE MOLECULAR ENDOSCOPY USING CETUXIMAB-800CW TO EVALUATE RESPONSE TO NEOADJUVANT CHEMORADIOTHERAPY IN LOCALLY ADVANCED RECTAL CANCER; LESSONS LEARNED

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Introduction: Treatment of patients with locally advanced rectal cancer consists of neoadjuvant chemoradiotherapy (nCRT) followed by surgery[1]. Remarkably, standard treatment does not consider the fact that 15-27% of rectal cancer patients achieve a pathological complete response (pCR) after nCRT[2-5] and may not need the surgery. Unfortunately, current imaging modalities lack sensitivity and specificity to adequately predict a pCR. Previously, we have proven the potential of bevacizumab-800CW for assessing the pCR[6]. Cetuximab-800CW targets endothelial growth factor receptor (EGFR) which is tumor-specific and may therefore be even more promising as biomarker.

Aims & Methods: This study aimed to determine the safety and feasibility of quantitative fluorescence molecular endoscopy (qFME) using cetuximab-800CW for evaluation of response to nCRT in rectal cancer. Patients received an intravenous dose of 15 mg cetuximab-800CW preceded by 75 mg unlabeled cetuximab 2-4 days prior to the endoscopy. In vivo FME was performed to analyze fluorescence in both potential residual tumor and healthy tissue and biopsies were taken from both sites. Additionally, both in vivo and ex vivo the fluorescent signal intensity was quantified using spectroscopy. Subsequently, extensive ex vivo analyses were performed on both biopsies and the resected specimen including immunohistochemistry and fluorescence microscopy for specific localization of the fluorescent drug and observation of the immune cell composition.

Results: Five out of ten included patients had a pCR after nCRT. Quantification showed a significantly higher fluorescent signal in the (former) tumor area when compared to healthy tissue in both patients with a partial (p<0.0001) and complete response (p<0.0001). Although immunohistochemical EGFR analysis in the biopsies showed a significantly higher expression in tumor epithelium when compared to healthy mucosa (p=0.0070) and fibrosis (p=0.0083), a clear difference between tissue with residual tumor and a pCR could not be distinguished (p=0.5334). Fluorescence microscopy revealed that specific binding of cetuximab-800CW to tumor epithelium was only visible in the submucosa. Remarkably, aspecific binding to macrophages was observed in the mucosa of both patients with a pCR and partial responders resulting in enhanced off target fluorescence signals.

Conclusion: Even though cetuximab-800CW was visualized in the “former” tumor area using qFME and during subsequent ex vivo analysis of the biopsies, cetuximab-800CW could not be used to identify pCR patients. However, due to our extensive further analysis we discovered that specific binding to tumor epithelium was not enough located at the luminal side to be detected during qFME and that the detected signal may be caused

by aspecific binding to off target uptake of mucosal macrophages. Novel techniques like ultrasound guided needle biopsy single fiber fluorescence spectroscopy that can measure fluorescence below the superficial layer may enable the use of cetuximab-800CW during qFME for monitoring after nCRT in rectal cancer.

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Disclosure: Nothing to disclose.

PP1188

A PROOF CONCEPT STUDY OF NAVIGATION SYSTEM USING ARTIFICIAL INTELLIGENCE FOR COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION

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Introduction: Colorectal endoscopic submucosal dissection (ESD) is an effective treatment for large colorectal tumors, but the technique is more difficult and is associated with more complications such as bleeding and perforation compared to EMR. Therefore, accurate identification of blood vessels and muscle layers is essential for safe colorectal ESD. However, it is often difficult to perform the treatment while recognizing all of the image information on the monitor.

Therefore, in this study, we conducted a proof of concept study to determine whether deep learning can be used to identify the submucosa and muscular layer in images taken during ESD procedures.

Aims & Methods: We used 11 procedure videos randomly selected from cases of colorectal ESD performed at our center between January 2020 and July 2022. The videos were cropped every second as still images, and these still images were labeled with semantic segmentation (hereafter referred to as segmentation). This is a method of labeling each pixel in an image, and Artificial intelligence (AI) trained with this method can segment regions of the target image according to the tissues and devices depicted in the image.

In this study, 16 different labels were performed for each pixel of each image, including mucosa, submucosa, muscular layer, and blood vessels. Of the 11 labeled case images, 9 cases were used for training and 1 case with no duplicate training was used for validation. The training images were machine learned with a representative method of medical image segmentation called U-NET and evaluated for accuracy.

Results: Characteristics of patients and tumors of the 11 cases in this study were male to female ratio of 7:4, mean age of 71.9 years (36-83), mean tumor diameter 25.2 mm (3-54 mm), colon/rectum ratio of 8:2, adenoma to T1 cancer ratio 5:6. One thousand and five hundreds sixty-one images were used for training, and 90 images were used for evaluation as validation. The accuracy (corresponding to the number of pixels correctly answered out of the labeled pixels) of the trained AI to the validation images was 83.0%. The submucosa, muscular layers, and vessels, which have a large labeled area, were relatively discriminated.

Conclusion: The use of segmentation technology demonstrated the feasibility of real-time ESD navigation by AI. In the near future, we aim to further improve the system by increasing the number of training images.

Disclosure: Nothing to disclose.

PP1189

DEVELOPMENT OF A ROBOTIC COLONOSCOPE EQUIPPED WITH DOUBLE-BEND AND DOUBLE-BALLOON STRUCTURE

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Introduction: Currently, colorectal cancer is the second leading cause of death worldwide[1]. Therefore, colon cancer screening tests such as colonoscopy and fecal occult blood test (FOBT) are performed to reduce the mortality and incidence of colorectal cancer[2-5]. Although FOBT is a simple test, positive patients eventually require colonoscopy to confirm the presence of lesions. Thus, colonoscopy is gold standard to detect and diagnose colon cancer. However, performing a colonoscopy requires a high level of skill in colon insertion, making it challenging for beginner colonoscopists to achieve total colonoscopy. Furthermore, cases involving longer colons and adhesions require even more advanced techniques. Therefore, a new colonoscope that allows safe and easy colon insertion is desired.

Aims & Methods: To simplify colon insertion, a prototype of robotic colonoscope was developed using 3D printer. The device consists of an outer and an inner tube with a balloon and a bending function. Therefore, the mechanism is characterized by the tip of the inner tube being pushed out to the off-axis by tip direction of outer tube. The insertion method is expected to avoid excessive stretching of the intestinal tract. They are independently and electrically manipulated to bend and push/pull using servo motor via a controller, so it has potential to insert total colon alone.

The model was designed with a maximum outer diameter of 14 mm. Therefore, it can insertion test using colon model. In this study, insertion to colon model of case 1 (Colonoscope training model, KYOTO KAGAKU Co., LTD, Japan) was investigated using the developed device.

Results: Investigation of the operation of the developed device confirms that the controller can be used to control bending of the outer and inner tubes, inflation and deflation of balloons attached to the outer and inner tubes, and pushing and pulling of the inner tube. The maximum angles of the outer and inner tubes were approximately 90 and 180 degrees, respec-

tively. The balloons were confirmed to inflate to a diameter of approximately 7 cm, which is sufficient for intestinal fixation. In addition, the tips of the outer and inner tubes could lift up to 200 and 50 g, respectively.
In the insertion test, the device was reached from the anus to the cecum in approximately 440 s by a non-medical operator alone. In addition, the device can be inserted into the colon model without excessive stretching during the test.
Conclusion: In this study, a prototype of robotic colonoscope with double-balloon and double-bend tube was developed to simplify insertion, and it was confirmed well operated properly. In insertion test, the device could be reached to cecum of colon model (Case 1) by non-medical operator alone. In addition, the behavior was free from over-extended colon model, thus, it suggests that the mechanism of prototype can contribute to comfortable colonoscopy.
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Disclosure: Nothing to disclose.

PP1190

T1 COLORECTAL CANCER PATIENTS' PERSPECTIVE ON INFORMATION PROVISION AND THERAPEUTIC DECISION-MAKING AFTER LOCAL RESECTION

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Introduction: Early-stage colorectal cancer (T1CRC) patients are confronted with complex medical information and considerations throughout the course of their treatment. This study explored patients' perspective on information provision and therapeutic decision-making.
Aims & Methods: Patients who underwent endoscopic or local surgical resection for T1CRC were eligible for participation in this cross-sectional multicenter study. Information provision was evaluated using the EORTC QLQ-INFO25 questionnaire (INFO25)(1). In patients with a high-risk T1CRC we additionally evaluated patients' perception of involvement in decision-making regarding the choice to opt for or refrain from additional treatment after local resection, and the degree of decisional conflict using the decision conflict scale (DCS)(2).
Results: In the 98 responders (response rate: 71.5%), patients with high-risk T1CRC (n=45) reported to have received more information on multiple disease aspects compared to patients with low-risk T1CRC (n=53). However, the need for more information was not significantly different between both groups (p=0.31). Overall, 29 patients expressed a need for more information, with 'prevention' and 'post-treatment care' reported as the most common areas with unmet information needs. Of the 45 patients with high-risk T1CRC, 24 (53.3%) underwent additional treatment, whereas 21 (46.7%) opted for close monitoring. Twenty-seven patients (60%) reported that they were actively involved in this decision (i.e. 'I made the decision myself'), while 18 patients (40%) reported to be passively involved (i.e. 'I let my physician make the decision' or 'I didn't feel like there was a choice'). Satisfaction scores regarding information provision were similar between patients that underwent additional treatment or opted for close monitoring (range 0-100, 70.8 vs. 73.0, p=0.77). Higher educated patients were more likely to report active involvement in therapeutic decision-making compared to lower educated patients (92.9% vs. 43.3%, p=0.002) and to eventually undergo additional treatment (78.6% vs. 40%, p=0.02). The satisfaction scores regarding how the treatment decision was made did not differ significantly between patients with higher and lower levels of education (range 0-100, 83 vs. 85.1, p=0.78).
Conclusion: From the T1CRC patient's perspective, this study found that higher educated patients were more likely to be actively involved in therapeutic decision-making than lower educated patients, although decisional satisfaction was irrespective of educational level. With respect to information needs, patients expressed a desire for more information on disease prevention and post-treatment care.
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PP1191

IMPROVING AUTOMATED REPORTING IN COLONOSCOPY: AN ARTIFICIAL INTELLIGENCE POWERED FRAME-BY-FRAME POLYP RE-IDENTIFICATION APPROACH

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Introduction: Automated identification and discrimination of individual colorectal polyps through artificial intelligence (AI) is a crucial step towards the development of colonoscopy report generation systems. The basic information of a colonoscopy report should contain the total number of identified polyps and characteristic images of the polyps, which will determine the follow-up time and treatment. However, there is no widely adopted solution to accomplish this task.
Aims & Methods: In this study, we propose an AI-based pipeline for automatic individual polyp identification and retrieval of corresponding polyp images to simplify and accelerate colonoscopy report generation. A pipeline consisting of a Siamese Twin Neural Network and a hierarchical density-based spatial clustering method was implemented for individual polyp

identification and discrimination. The AI model was trained and validated using frames containing polyps which were extracted from 549 and 61 full-length colonoscopies videos respectively, recorded in 7 different endoscopy centers. The pipeline was tested on frames containing a total of 29 different polyps extracted from 10 colonoscopies. The evaluation metrics were two measures to estimate the quality of clustering ranging from 0 (no correlation) to 1 (perfect correlation): normalized mutual information (NMI) and adjusted rand index (ARI). Additionally, we calculated the precision of corresponding individual polyp images.

Results: Testing on frames with visible polyps obtained from 10 colonoscopy examinations demonstrated that the pipeline achieved an NMI of 0.862 and an ARI of 0.835, indicating that at least 80% of the data can be accurately clustered and identified. The average precision was 0.763, representing the probability of retrieving the correct and corresponding individual polyp images.

Conclusion: We have developed a pipeline that uses artificial intelligence techniques to identify individual polyps and retrieve representative polyp images. These approaches have the potential to simplify and accelerate the process of automatically generating a colonoscopy report, while also providing characteristic images for each detected polyp for future use.

Disclosure: Nothing to disclose.

PP1192

CHROMOCOLONOSCOPY WITH MICROENCAPSULATED PATENT BLUE V - AN EFFECTIVE OPTION FOR COLONIC MUCOSAL STAINING

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Introduction: Chromoendoscopy improves the visualization and differentiation of mucosal structures and enhances the polyp and adenoma detection rates. The dye-spray technique is a lengthy and laborious procedure. An oral formulation could serve as alternative, as demonstrated by Methylene Blue MMX. In contrast to methylene blue, patent blue V (E131) is an EFSA-approved food dye and practically free of side effects.

Aims & Methods: The aim of our case series was to encapsulate patent blue V in shellac food-grade microcapsules for oral intake and to evaluate the delayed release and mucosal staining as proof of principle.

Capsules filled with shellac microcapsules containing 100 mg patent blue V were produced by food technology for pH-dependent release in the ileum.

Between December 2016 and March 2022, 37 patients scheduled for a chromocolonoscopy volunteered to receive oral microcapsules for staining instead of the conventional dye-spraying procedure. 20 of the patients were additionally scheduled for a gastroscopy. Patients self-administered 4 capsules during the second half of the bowel preparation with Klean-Prep (Norgine), at the latest 5 hours before chromocolonoscopy. Staining was rated by a score (0 points = not stained, 4 points = optimal even staining).

Results: The best staining quality was observed between the cecum and the sigmoid (ranges between 3.3 and 3.6 points). The terminal ileum (2.9 points) and rectum (3.1 points) were also stained acceptable. Absence of staining or overstaining were not reported. The mucosa in the upper gastrointestinal tract was not stained (0 points) in patients who underwent a gastroscopy on the same day. The polyp detection rate in our cohort was approximately 64%, the adenoma detection rate was 56%. The patent blue V capsules produced a good staining intensity, contrast of lesions, polyps and adenomas. The staining quality was rated equivalent to experience with dye-spraying chromocolonoscopy, with the advantage of clean equipment and a reduction of colonoscopy time.

Conclusion: Patent blue V microcapsules produced an even staining of the mucosal surface for chromocolonoscopy. Delayed-release patent blue V may be a superior and safe alternative to dye-spray techniques and Methylene Blue MMX with potential advantages in time of the procedure, sedation, cleaning, costs and skills. After this proof of concept, a randomized study with delayed-release patent blue V appears warranted.

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Disclosure:

European patent No. 3445336; GW, EMT, JK, KS, SS, ME are listed as inventors

GHW is employed part-time by CONARIS Research Institute AG (Kiel, Germany).

SS reports consulting fees from Ferring

PP1193

FACTORS AFFECTING SWITCH TO HYBRID ESD DURING ENDOSCOPIC SUBMUCOSAL DISSECTION OF COLORECTAL SUPERFICIAL LESIONS, A RETROSPECTIVE SINGLE-CENTRE STUDY

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Introduction: Colorectal endoscopic submucosal dissection (ESD) is not widely performed in western countries due to technical complexity, risk of adverse events, and procedure time. Hybrid ESD (H-ESD) - partial submucosal dissection followed by snare-assisted resection – may be useful

to achieved endoscopic resection in difficult situations. In our center we use H-ESD as rescue therapy during conventional ESD in case of unstable position, inability to achieving appropriate and safe knife angle, advanced submucosal fibrosis or thin submucosal layer and patient instability.

Aims & Methods: We retrospectively analyzed colorectal ESD performed in our centre between January 2014 and March 2023, colorectal lesions in inflammatory bowel diseases were excluded. Univariate and multivariate analyses were conducted to examine factors that may have influenced switch to H-ESD.

Results: A total of 281 colorectal ESDs for superficial neoplasms in 276 patients were considered. 160 patients (58%) were male with an average age of 68,9 years. In 55 (19,6%) cases ESD was switch to H-ESD.. 171 lesions were located in the colon (60.8 %) and 110 (39.1%) in the rectum; mean maximum diameter of the neoplasms was 35,9 mm (SD 18,4 mm). En bloc resection and complete resection (en bloc resection and R0) were achieved in 259 (92 %) and 245 (86 %) cases respectively.

On univariate analysis, the use of waterjet system-assisted knife (OR 0,3; 95% CI 0,17-0,57), underwater-ESD (OR 0,24; 95% CI 0,09-0,63), rectal localization (OR 0,17; 95% CI 0,07-0,40) and granular laterally spreading morphology (OR 0,40; 95% CI 0,21-0,75) were significantly associated to the achievement of complete ESD. Proximal colon localization (OR 3,9; 95% CI 2,08-7,30), severe submucosal fibrosis (OR 4,9; 95% CI 2,51-9,63), non-granular laterally spreading morphology (OR 2,31; 95% CI 1,27-4,21) and maximum diameter < 40 mm (OR 3,91; 95% CI 1,83-8,38) were related to the switch to H-ESD. On multivariate analysis only waterjet system-assisted knife use and U-ESD were significantly correlated with achievement of complete ESD; severe submucosal fibrosis and proximal colon localization resulted significantly related to the switch to H-ESD.

	Univariate Logistic Regression			Multivariate Logistic Regression		
VARIABLE	OR	CI	P	OR	CI	P
Proximal colon	3,90	2,08-7,30	<0.0001	3,0481	1,21-7,68	0.0181
Rectum	0,17	0,07-0,40	<0.0001	0,3956	0,13- 1,21	0,1048
LST NG	2,31	1,27-4,21	0.0061	0,6277	0,22-1,78	0,3812
LST G	0,40	0,21-0,75	0.0039	0,4494	0,15-1,32	0,1452
Maximum diameter < 40 mm	3,91	1,83-8,38	0.0004	1,9589	0,81-4,76	0,1378
Severe submucosal fibrosis (F2)	4,91	2,52-9,63	<0.0001	4,6588	2,10-9,88	0.0001
Waterjet system-assisted knife	0,30	0,17-0,57	0.0002	0,4297	0,21-0,88	0.0219
Underwater ESD	0,24	0,09-0,64	0.0039	0,1612	0,06-0,47	0.0008

Conclusion: The use of waterjet system-assisted knife and underwater technique reduce the need to switch to H-ESD during endoscopic submucosal dissection of superficial colorectal lesions. Severe submucosal fibrosis and proximal location are risk factors for the need for the H-ESD switch.

Disclosure: Nothing to disclose.

PP1194

RESECT AND DISCARD IN THE ERA OF ARTIFICIAL INTELLIGENCE: A NOVEL CADX ALGORITHM FOR CHARACTERISATION AND SIZING OF POLYPS MEETS PIVI THRESHOLDS

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Introduction: The use of optical diagnosis for "resect and discard" and "diagnose and leave" strategies has been postulated for several years, but despite promising early results this has not been implemented outside of expert centres due to the challenge of accurate characterisation and sizing (1,2). Computer aided diagnosis (CADx) has shown promising potential for improving optical diagnosis. However, there is still no data on real-time sizing and characterisation together which is what will be required for the introduction of this strategy and meeting Preservation and Incorporation of Valuable endoscopic Innovations (PIVI) thresholds.

Here we aimed to assess the performance of a novel CADx algorithm and its use during real-time colonoscopy.

Aims & Methods: A dedicated colon CADx algorithm was developed to categorise polyps by histology (neoplastic or non-neoplastic) and by size (diminutive or non-diminutive). In the first phase of this study, the system was tested on a customised video based platform using prospectively collected endoscopy videos. Ground truth for characterisation was histology and for sizing was the use of an instrument e.g. biopsy forceps along with 3 expert endoscopists review.

The next phase was a pragmatic study to test real-time performance of CADx during colonoscopy. In this phase endoscopists were asked to characterise and size of polyps which were removed or biopsied for histology. Videos were recorded for external validation by 3 expert endoscopists.

Results: In video based analysis, 292 polyp videos (202 neoplastic and 90 non-neoplastic) were assessed using the CADx device. Video based AI sizing demonstrated sensitivity, specificity, accuracy and NPV for non-diminutive size of 93.40%, 79.03%, 93.40% and 95.45% respectively. Video based characterisation results are summarised in Table 1.

In real-time analysis, 116 (66 neoplastic and 50 non-neoplastic) polyps in 36 patients were assessed with CADx during real-time colonoscopy. Real-time characterisation results are summarised in Table 1. Real-time concordance for sizing between endoscopist and AI as diminutive or non-diminutive was 84.61%. Subgroup analysis was carried out for video based and real-time CADx for performance on diminutive polyps. The NPV for diminutive rectosigmoid polyps for adenomatous diagnosis was 93.3% in real-time.

There was 97.2% concordance between surveillance intervals (ASGE and BSG guidelines) based on histology versus AI diagnosis for diminutive polyps and histology for non-diminutive.

	Video based CADx (n=292)		Real-time CADx (n=116)	
	WLI	IE	WLI	IE
Sensitivity (%)	86.14	91.76	89.20	90.50
Specificity (%)	85.56	78.75	82.70	94.10
Accuracy (%)	85.96	87.79	87.10	92.10
NPV (%)	73.33	80.77	86.00	88.90

Table 1. Overall CADx performance.

Conclusion: This is the first study demonstrating the outcome of AI based sizing and characterisation of polyps in real time. The system meets PIVI 1 and PIVI 2 threshold suggesting we are close to being able to implement 'resect and discard' and 'diagnose and leave strategies'. Further validation from a multicentre prospective study will help guide this.

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PP1195

THE INFLUENCE OF PATIENT AND EXAMINER FACTORS ON SEDATION USAGE AND INTUBATION RATES DURING COLONOSCOPIES: PRELIMINARY RESULTS OF A RETROSPECTIVE COHORT STUDY

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Introduction: In the Region Zealand 17.000-18.000 colonoscopies are performed annually, predominantly in an outpatient setting with or without sedation. The usage of sedation is often given on an on-demand basis, however, multiple factors like preexisting abdominal pain, preferences of the endoscopist or the patient, and local guidelines may be at play. The most common drugs used as sedatives in our region are midazolam and fentanyl and only to a lesser extend propofol or general anesthesia.

Aims & Methods: The aim of the study is to describe the usage of sedation in relation to elective outpatient colonoscopy stratified for demographics, and to analyze the influence of sedation on the colonoscopy completion rate.

This is a cohort study of patients undergoing elective colonoscopy at any hospital unit in Region Zealand from 01-Jan-2018 to 31-December-2022. All data were entered prospectively into the Endo-Database and analyzed using descriptive statistics and Chi-square test. A multivariate analysis is planned including further data such as examiner factors, but not yet completed. The results given here are therefore preliminary.

Results: From January 1st, 2018 to December 31st, 2022 (5 years) 43,364 men and 42,122 woman with a median age of 66 years (range 3-102) underwent colonoscopy. 356 (0.4%) had general anaesthesia, 1272 (1.5%) had propofol, 53,671 (62.8%) had midazolam and fentanyl, and 29,799 (34.9%) had no sedation. A total of 249 endoscopists at all levels of experience performed the examinations.

Significantly more woman than men received sedation during the procedure: 33,421 (79.6%) woman vs. 21,878 (50.7%) men, p<0.00001. This difference were independent of the reason for colonoscopy (cancer control, screening, HNPCC, adenoma control, referral in "cancer package", or referral for other reasons).

Caecum or the terminal ileum was reached for 91.1% of woman and 91.4% of men, p=0.143. The usage of sedation significantly influenced the completion of the colonoscopy:

For men 93.3% of colonoscopies were complete with sedation versus 91.2% without sedation, p<0.00001. For woman 92.7% of colonoscopies were complete with sedation versus 88.5% without sedation, p<0.00001.

Procedures registered (No)	Endoscopists (No)	Procedures/ endoscopist (mean)	Sedated* (%)	Completion (%)
1-199	137	35	70	86
100-299	40	171	69	90
300-1000	47	564	69	87
1000-2000	18	1519	69	86
2000-3635	7	2956	51	92

*With midazolam and fentanyl

The table show the number of procedures performed by the endoscopists, percent of patients receiving sedation and percent complete procedures (cecum or ileum reached). The endoscopists with >2000 procedures reach cecum even without sedation. Otherwise no clear trend is found.

Conclusion: Woman received sedation significantly more frequently than men. Sedation increased the completion rate of colonoscopy in both genders seemingly more in females. Endoscopists with >2000 procedures in 5 years reached cecum even with a low usage of sedation. The current abstract is limited by univariate analysis at a preliminary stage.

Disclosure: Nothing to disclose.

PP1196

OPTIMIZATION AND MULTI-CENTER VALIDATION OF A COMPUTER-AIDED POLYP DETECTION SYSTEM IN COLONOSCOPY

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Introduction: Colorectal cancer (CRC) is the third most common type of cancer and leading cause of death from cancer worldwide. Colonoscopy for CRC screening is widely implemented by countries worldwide to reduce the incidence and mortality of CRC. However, the overall missed diagnosis rate of colorectal adenoma under colonoscopy is 22%. In recent years, computer-aided polyp detection (CADe) has developed rapidly, yet the majority of research concentrates on the analysis and testing of image sets and video with polyps. However, in practical applications, numerous video clips do not contain polyps but instead feature considerable noise. These images or video clips will cause a lot of false positive detection. High false positive rate will reduce the overall accuracy and ease of use of the system, and increase the burden of endoscopists.

Aims & Methods: The purpose of this study is to optimize the existing polyp model, improve its specificity without reducing the sensitivity of the model and make it more suitable for clinical use.In view of the speed advantage of YOLOv5 in target detection, we used YOLOv5 model to complete the detection of polyps in colonoscopy video.The training set contained 8166 positive images with polyps and 11417 negative images without polyps. The positive polyps were obtained from 2834 patients while the negative images were from 1852 patients. All the patients were enrolled from Renmin Hospital of Wuhan University between November 2016 and December 2019.ALL the images with polyps were annotated using an online image annotation tool, VGG Annotator (http://www.robots.ox.ac.uk/~vgg/software/) by Endoscopists with more than 5-year experience of colonoscopy operation from the Endoscopy Center of Wuhan

University.At the same time, the method of adding negative marker boxes to false positive images was creatively used to suppress false positive detection ,Using noise as the background and negative marker boxes as the object to be predicted. In the training process, more noise features are extracted as the background. In the prediction process, the step of filtering the negative mark box is added to filter too many false positive images to achieve the purpose of suppressing false positive. At the same time, the Mosaic data enhancement method is used to train the model and realize the optimization of the model.

Results: We retrospectively collected polyp images from nine centers from 2021 to September 2022. After excluding unqualified images (such as surgery, blur, chromoendoscopy, etc.), we finally collected 3906 adenoma images, 3406 inflammatory polyp images and 2523 sessile serrated lesions SSL images for external validation of the model. In addition, 4186 images without polyps were collected. All polyps are manually marked by the endoscopists. The sensitivity of the polyp detection model is described from three levels: image level, 0<IOU<0.5, and IOU>0.5. The total sensitivity of the model for identifying all types of polyps reached 96.25%, 96.09%, and 91.32%, respectively. The sensitivity of adenomas was 98.39%,98.28%and 94.96%. At the same time, The sensitivity of inflammatory polyps was 95.98%, 95.77%, and 91.57%. The overall sensitivity of sessile serrated lesions was 93.30%, 93.10%, and 85.33%, respectively (Table 1).The specificity of the model was 97.66%.

Conclusion: We have optimized the existing polyp detection model by adding the negative marker box and Mosaic data enhancement, which improves the specificity of the model without reducing the sensitivity of the model, reduces the false positive rate, and is more conducive to clinical use.

Disclosure: Nothing to disclose.

PP1197

IMPACT OF IMMERSIVE VIRTUAL REALITY DURING OUTPATIENT SEDATION-FREE COLONOSCOPY: A RANDOMIZED PROSPECTIVE CONTROLLED STUDY

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Introduction: Colonoscopy is the gold standard for accurate exploration of the colon. Thus, it must be performed as efficiently as possible with the respect of pre-established quality standards to ensure optimal exploration. The patient's tolerance considerably affects the quality of sedation-free examinations and exposes to a high rate of interruption. Pharmacological sedation can solve this issue, however it can expose to significant adverse events and is not always available.

Aims & Methods: The aim of this study was to evaluate the impact of intraprocedural immersive virtual reality (VR) combining visual and auditory distraction in the improvement of the tolerance and the progress during unsedated colonoscopy. We conducted a prospective controlled study from February to April 2023 including outpatients presenting to the endoscopy unit for unsedated colonoscopy after consent. Patients were randomized into two groups: Group 1: colonoscopy with virtual reality headset. Group 2: control group without intervention.The material used was a virtual reality headset provided with a fully adjustable headband. The video content displayed on the hardware is made of several clips showing nature scenes. The audio content was adapted to allow optimal communication with the patient. We have excluded patients with severe visual and/or auditory impairment, dementia, cognitive impairment and epilepsy. All participants initially completed a form covering health issues and a validated anxiety questionnaire (STAI). After colonoscopy, all patients completed a form with questionnaires assessing per-procedural patient comfort (Gloucester), anxiety (STAI) and pain (EVS). In addition, patients in the intervention group completed a satisfaction questionnaire (NPS: net promoter score) assessing their experiences with the VR headset.

Results: In total, 63 patients were included in the final analysis: intervention group G1 (n=33) and control group G2 (n=30). The mean age was of 57 years. No patient encountered a technical problem with the equipment used and no adverse events occurred during the immersive experience. The two groups were comparable in terms of age, gender, comorbidities, body mass index (BMI) and colonic preparation assessed by the Boston score. A slightly lower time to caecal intubation was noted in the intervention group without significant difference (G1: 19 min vs G2: 26 min, p=0.07). Patients with VR mask expressed lower levels of post-procedural anxiety than those in the control group (Mean STAI G1: 47 vs G2: 53, p<0.01) and a significant decrease in the STAI score compared to pre-endoscopy values (8 points vs 4 points, p<0.01). The per-procedural pain assessed by EVS was significantly lower in the patients using VR (Mean G1: 0.44 vs G2 :1,32, p<0.01). Moreover, endoscopic examination was found to be more comfortable with virtual reality based on the Gloucester scale p <0.01. No patient reported any impediment to communication with medical staff due to the VR mask. Four patients were not satisfied with the resolution of the videos and 8 patients have expressed their preference to choose the content themselves. Patients of the intervention group were greatly satisfied with the VR experience with a mean NPS at 30.

Conclusion: Immersive VR technology is a promising, non-invasive and well-accepted simple tool for improving tolerance by reducing colonoscopy induced pain and anxiety allowing an optimized examination. It can be a useful alternative to conventional sedation if undesired or contraindicated or in health care institutions with a lack of adequate anesthesia facilities.

Disclosure: Nothing to disclose.

PP1198

A RIGIDIZING OVERTUBE FOR EXPEDITING ENDOSCOPIC RESECTION OF COMPLEX GASTROINTESTINAL POLYPS REGISTRY

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Introduction: Endoscopic removal of large gastrointestinal polyps can be technically challenging. A novel rigidizing overtube (ROT) was developed as a platform to facilitate endoscopic removal of these polyps. The purpose of our study was to prospectively evaluate the clinical efficacy and safety of ROT in the management of GI polyps.

Aims & Methods: This was an observational, prospective, single-center study between May 2021 - March 2023 enrolling patients undergoing EMR (endoscopic mucosal resection) or ESD (endoscopic submucosal dissection) for large polyps. The primary outcome was device safety and technical success of ROT. Safety and performance data were collected intraprocedurally and at 1 month post. Secondary endpoints included clinical

success, insertion times, total procedure time, and investigator feedback post-procedure. Technical success was defined as a successful placement of the overtube resulting in safe manipulation of the lesion/polyp. Clinical success was defined as the ability for the ROT to allow endoscopic removal of polyps without changing the initial resection intent.

N= 109 subjects (114 polyps)	
Male, n (%)	54 (49.5%)
Age, mean +/- SD	65.4 +/-9.8
BMI, mean +/- SD	29.3 +/- 6.3
Concomitant medications	
Aspirin use, n (%)	23 (21.1%)
Other antiplatelet use, n (%)	2 (1.8%)
Anticoagulation use, n (%)	10 (9.2%)
Comorbidities	
Diverticulosis, n (%)	34 (31.2%)
Previous abdominal surgery, n (%)	26 (23.9%)
Obesity, n (%)	40 (36.7%)
Location	
Duodenum, n (%)	6 (5.3%)
Ileocecal valve, n (%)	8 (7%)
Ileum, n (%)	1 (0.9%)
Cecum, n (%)	23 (20.2%)
Ascending colon, n (%)	51 (44.7%)
Transverse colon, n (%)	21 (18.4%)
Descending colon, (%)	4 (3.5%)
Previous polyp manipulation	
Previous tattoo, n (%)	46 (42.2%)
Previous resection attempt, n (%)	9 (8.3%)
Outcomes of polyps removed via ESD (endoscopic submucosal dissection) or EMR (endoscopic mucosal resection) using the assistance of the ROT	N= 114 polyps
EMR intent, n (%)	26 (22.8%)
ESD/Hybrid ESD intent, n (%)	88 (77.2%)
Intervention changed, n (%)	26 (22.8%)
Technical success, n (%)	112 (98.2%)
Clinical success, n (%)	88 (77.2%)
Overall Total Procedure time, min +/- SD	85.2 +/- 40.8
ESD Total Procedural Time, min +/- SD	91.6 +/- 38.9
EMR Total Procedural Time, min +/- SD	69.6 +/-41.5
Mean time to reach polyp, min +/- SD	6.98 +/- 4.7
Mean size of all polyps, mm +/- SD	65.1mm +/- 57.7
Polyps undergoing EMR, n=33 (28.95%)	
Mean surface area of polyps undergoing EMR, mm2 +/- SD	425.3mm2 +/- 332.02
En bloc resection, n (%)	12 (36.4%)
Fibrosis, n (%)	13 (39.4%)
Previous manipulation	
Tattoo	9 (27.3%)
Endoscopic resection	1 (3.03%)
Biopsy	18 (54.5%)
Difficult location, n (%)	28 (84.8%)
Polyps undergoing ESD, n=81 (71.1%) (Hybrid ESD, n=25)	
Mean surface area for polyps undergoing complete ESD, mm2 +/- SD	719.9mm2 +/- 618.8
Mean dissection speed for ESD, cm2/hr	9.33cm2/hr
En bloc resection, n (%)	73 (90.1%)
R0 resection, n (%)	68 (84%)
Adverse events, n (%)	6 (5.5%)
Device related, n	0
Post polypectomy syndrome, n	1
Delayed bleeding, n	3
Small bowel obstruction, n	1
Death	1

Table. Demographical data and polyp characteristics for patients undergoing endoscopic resection of GI polyps using the ROT (rigidizing overtube).

Results: A total of 109 subjects were enrolled into the study comprising 114 total polyps. The most common polyp location was the ascending colon and cecum (Table). 28.95% and 71.05% of polyps were removed via EMR and ESD/Hybrid ESD, respectively (Table).

Technical and clinical success was achieved 98.24% and 77.19% of the time, respectively. Total mean size of all polyps was 65.1mm +/- 57.7. There was a significant difference in total procedure time between EMR and ESD (69.6 minutes +/-41.5 vs 91.6 minutes +/- 38.9, p=0.0087). Dissection speed for polyps undergoing ESD was 9.3cm2/hr. Tissue traction during ESD was only needed in 45.6% of polyps most commonly via clip-band traction. En bloc and R0 resection rates for polyps removed via ESD were 90.1% (n=73) and 84% (n=68), respectively. On endoscopist feedback, the ROT was thought to assist in resection in 98.2% of polyps, although the polyp was in a somewhat/very difficult location 76.3% of the time. For polyps in difficult locations, the ROT was able to maintain scope position without falling back even once 64.9% of the time. There was no device related malfunctions that necessitated device removal. Mean time to reach the polyp was only 6.98min +/- 4.7. No device related adverse events occurred (Table 2).

Conclusion: In this prospective study, the novel rigidizing overtube was safe and maintained a high technical/clinical success rate during the resection of GI polyps. Its ease of use, ability to provide stability, and conduit function allow for efficient endoscopic resection despite difficult polyp locations. Further randomized studies are needed to determine when its use should be implemented during endoscopic resection.

Disclosure: Mohamed O. Othman: Mohamed O Othman is a consultant for Olympus, Boston Scientific Corporation, Abbvie, ConMed, Neptune Medical and Apollo.

Salmaan A. Jawaid: Salmaan Jawaid is a consultant for ConMed and Boston Scientific Corporation.

Tara Keihanian: Tara Keihanian is a consultant for ConMed and Neptune Medical.

PP1199

NATIONALLY AUTOMATED COLONOSCOPY PERFORMANCE FEEDBACK INCREASES POLYP DETECTION: THE NATIONAL ENDOSCOPY DATABASE – AUTOMATED PERFORMANCE REPORTS TO IMPROVE QUALITY OUTCOMES TRIAL (NED-APRIQOT) A RANDOMISED CONTROLLED TRIAL

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Introduction: People can die from unwarranted variation in colonoscopy quality; endoscopists with low polyp detection rate have higher post-colonoscopy colorectal cancer incidence and mortality. The UK's National Endoscopy Database (NED) automatically captures real-time patient data and provides endoscopy key performance indicators (KPIs).

Aims & Methods: The primary objective of this study was to assess if a theory-informed and evidence-based behaviour change intervention, involving automated feedback of endoscopist case-mix adjusted Mean Number of Polyps (aMNP), improves detection performance.

The NED Automated Performance Reports to Improve Quality outcomes Trial (APRIQOT) is a national multicentre, prospective, cluster-randomised control trial. UK NHS endoscopy centres were randomised to intervention or control arms. Intervention-arm endoscopist were emailed personalised and tailored monthly reports automatically generated within NED. These contained their aMNP and an action plan, developed using evidence from qualitative interviews and informed by behaviour change theory, and access to a bespoke website. The primary outcome was endoscopists' aMNP during the 9-month intervention. Secondary outcomes included traditional KPI. Analysis plans and a full trial protocol were published.(1)

Results: During November 2020-July 2021, 541 endoscopists across 36 centres (19 intervention; 17 control) performed 54,770 procedures during the intervention period, and 15,960 procedures during the 3-months post-intervention. Comparing intervention-arm to control-arm endoscopists during the intervention period: aMNP was 7% higher although not statistically significance (95% confidence interval (CI) -1% to 14%; p=0·08). Unadjusted MNP (10%, 95%CI 1-20%, p=0.04) and polyp detection rate (PDR) (10%, 95%CI 4-16%, p=0.002) were significantly higher. Intervention participants were significantly more likely than controls to be above the aMNP minimum standard (OR 1.77, 95%CI 1.02-3.10, p=0.04). Differences were not maintained in a 3-month post-intervention period. The intervention effect on aMNP was modified by centre workload (aMNP in low-workload centres: intervention 108.85 vs. control 92.75; high-workload centres: intervention 100.48 vs. control 102.5; p for interaction=0.01).

Within the intervention-arm, endoscopists accessing the website had higher aMNP than those who did not (118 vs 102 aMNP, p=0.03). Intervention arm endoscopists prescribed hyoscine butylbromide in a larger proportion compared to the control group (p<0.001). There was no difference in withdrawal times between groups.

Conclusion: Our evidence-based and theory-informed automated feedback intervention impacted behaviour and significantly improved MNP and PDR during the intervention period. aMNP was non-significantly higher, but more intervention endoscopists achieved minimum standards. Differences were not maintained post-intervention, suggesting feedback should be ongoing.

We demonstrate a highly efficient, scalable and entirely automated process for endoscopy feedback; and the positive impact it can have on performance. This methodology holds great potential to improve clinical practice and patient outcomes in a wide range of settings.

Intervention effects were greater in lower workload centres, this may reflect the increased effectiveness of feedback on lower baseline performance. Endoscopists engaging in the intervention benefited most. Low-performing endoscopists have the most to gain from feedback intervention, and future research should focus on engagement in feedback.

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Disclosure: Nothing to disclose.

PP1200

A CONTROLLED, RANDOMIZED CLINICAL TRIAL ON MANNITOL VERSUS PEG-ASC FOR BOWEL PREPARATION. EFFICACY AND SAFETY RESULTS FROM SATISFACTION STUDY

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Introduction: Bowel preparation is recognized as the most burdensome aspect of the whole colonoscopy procedure, sometimes even worse that the examination itself, and represents a major barrier to screening colonoscopy. Mannitol could significantly improve patient acceptability as it is rapid, requires a single dose, a low volume and has a pleasant taste. The SATISFACTION study compared oral mannitol 100g/750ml with standard split-dose 2L PEG-ASC (MoviPrep®).

Aims & Methods: The SATISFACTION Phase III study was an international, multicentre, randomized (1:1), parallel-group, endoscopist-blinded non inferiority trial. Primary endpoint was the proportion of patients with adequate bowel cleansing. Secondary endpoints concerned efficacy (adenoma detection rate, caecal intubation rate, time of evacuation), safety

(intestinal gases concentration, haematobiological parameters, adverse events) and patient satisfaction. The study included 703 patients (352 treated with mannitol and 351 with PEG-ASC) undergoing elective colonoscopy.

Results: Mannitol was not inferior to PEG-ASC for proportion of patients with adequate cleansing (91.1% and 95.5% respectively; p value for the non-inferiority =0.0095). There was no significant difference for secondary efficacy endpoints. The profile of acceptability was significantly better in mannitol group for easy to use, taste, willingness to use (p<0.0001 for all parameters). The concentration of intestinal gases (H_2, CH_4) was similar in the two groups and well below those potentially critical.

Conclusion: Mannitol was not inferior to PEG-ASC for proportion of patients with adequate cleansing (91.1% and 95.5% respectively; p value for the non-inferiority =0.0095). There was no significant difference for secondary efficacy endpoints. The profile of acceptability was significantly better in mannitol group for easy to use, taste, willingness to use (p<0.0001 for all parameters). The concentration of intestinal gases (H_2, CH_4) was similar in the two groups and well below those potentially critical.

Disclosure: Prof. Gian Eugenio Tontini and Prof. Maurizio Vecchi received a consultant fee from NTC Pharma. Anna Orsatti is a current NTC Pharma employee

PP1201

RENAL REPLACEMENT THERAPY DOES NOT AFFECT BOWEL PREPARATION SUCCESS

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Introduction: Adequacy of bowel preparation (ABP) directly affects colonoscopy performance and adenoma detection rate. Studies attributed a role to the dosing regimen of the bowel cleansing agent, social and economic factors and comorbidities. However, data on the impact of kidney failure and renal replacement therapy (RRT) are lacking.

Aims & Methods: This study investigated how ABP compares between patients on RRT and age-matched subjects with normal kidney function. All patients on RRT undergoing an elective colonoscopy between January 2016 and December 2021 were identified from the medical records of a university hospital, and matched to 2 closest age controls undergoing colonoscopy at the same date ± 7 days. Study subjects and controls were compared for demographics, comorbidities including history of abdominal surgery, use of bowel transit-influencing drugs, residential care stay and colonoscopy-related data (bowel preparation regimen, sedation type, colonoscopy findings, ABP defined as a cumulative Bristol Bowel Preparation Score >= 6 and a score of >= 2 for each colon segment). Statistical significant contributors to ABP were assessed by logistic regression.

Results: Ninety-one patients on RRT (76 on haemodialysis and 15 on peritoneal dialysis) and 182 controls were identified. Patients on RRT were older (69±12 vs. 64±14y, p=.008) and less frequently women (34% vs. 50%, p=.013). They had more diabetes (40% vs. 24%, p=.008), more history of abdominal surgery (32% vs. 21%, p=.047) and took more bowel transit-influencing drugs (50% vs. 28%, p<.0001). Bowel preparation regimens were equally distributed between both groups.

There was no difference in the rate of ABP between groups (87% vs. 81%, p=NS). Logistic regression analysis did not reveal an association between RRT and ABP. ABP was negatively influenced by residency in residential care, overnight stay in the hospital before colonoscopy, history of central nervous system disease, and positively by split-dose regimen (Nagelkerke R square 0.329, p=<.001).

Conclusion: Despite less favourable associated conditions, ABP in RRT patients remains comparable to controls. Split-dose regimen, neurological conditions and in-hospital stay are significant predictors of adequate bowel preparation.

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Disclosure: Nothing to disclose.

PP1202

ENDOSCOPIC SUBMUCOSAL DISSECTION TO TREAT LESION LOCATED ON ILEOCAECAL VALV: A MULTICENTER RETROSPECTIVE STUDY

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Introduction: The evolution of endoscopic techniques allows the treatment of multiple lesions previously reserved for surgical treatment. There are few data of the feasibility of endoscopic submucosal dissection (ESD) for the resection of lesions involving the ileocecal valve and/or invading the terminal ileum. The objective of this study was to assess the efficacy and safety of ESD in this indication.

Aims & Methods: All patients who benefit from an ESD for ileocecal valve lesion were identified from a prospective database. The precise location of the lesion (anal/caecal lip, anterior/posterior commissure, ileal invasion) was collected retrospectively from computer reports and a review of endoscopic films when available. The primary endpoint was the R0 resection rate defined as En Bloc resection with histological free lateral and deep margins.

Results: A total of 116 patients (median age 71 years, 55.2% men) in 3 expert centers were identified. The majority of lesions were granular laterally spreading tumors (LST). The median diameter of the lesions was 45 mm (IQR 36-60) by 35 mm (IQR 27-45). 44.8% (52/116) of the lesions invaded the terminal ileum over 10 mm. The lesion covered less than 50% of the valve in 63.6% of cases, more than 75% in 4% of cases, and the entire valve in 3% of cases.

The median speed of ESD was 25.2 mm2/min (IQR 16.6-46). The en bloc resection rate was 93.9% and the R0 resection rate was 78.4%. Resection was curative in 74.1% of patients (90/116). Factors associated with failed R0 resection were ileal involvement (59.2% vs 85.9% p = 0.041), anal lip involvement (67.8% vs 89.7% p = 0.012) and an involvement of more than 50% of the valve circumference (66.7% vs 84.1% p = 0.011).

Four ESD failed due to muscle ascension (retractile sign) (2/4), a perforation of the ESD resected piece, and a difficult positioning to perform the ESD. Seven patients presented postoperative complications (6.0%) including 6 delayed bleeding and one perforation requiring surgical management.

Conclusion: ESD could be proposed in expert centers as the first option to treat lesions developed on the ileocecal valve. Ileal involvement, anal lip involvement and involvement of more than 50% of the valve appear to be predictive factors for failure.

Disclosure: Nothing to disclose.

PP1203

ADENOMA MISS RATE IN BACK-TO-BACK ENDOCUFF-ASSISTED COLONOSCOPY. A SINGLE-CENTER PROSPECTIVE STUDY

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Introduction: To conduct a back-to-back endoscopy study and to evaluate the contribution of endocuff assisted colonoscopy to the detection of missed adenomas in a mixed population of colorectal cancer (CRC) screening/surveillance and symptomatic patients. To the best of our knowledge, this is the first study on this issue.

Aims & Methods: It is a prospective study conducted from March 2021 to March 2022 in a tertiary endoscopy department. Two consecutive same day, endocuff assisted, colonoscopies were performed in 124 patients. ClinicalTrials.gov Identifier: NCT04805567.

Results: 124 patients were enrolled (58.9% male/ median age 62 years). All examinations were complete (100% cecum intubation, 54% ileal intubation). The indications were CRC screening (77 patients, 62.1%), post-polypectomy surveillance (24 patients, 19.4%) and diagnostic assessment (23 patients, 18.5%). 54.8% of the patients had diverticulosis. 368 polyps were overall found and removed. 321 in the first and 48 in the second examination. Only 4 patients with no adenoma found in the first examination had one adenoma found in the second examination. The overall miss rate for adenomas was 12.01% and 11.32% for adenomas≥10mm.

Conclusion: This back-to-back study has shown that endocuff- assisted colonoscopy has a low adenoma miss rate. These data further strengthen the existing evidence recommending the use of endocuff for decreasing the adenoma miss rate.

Disclosure: Nothing to disclose.

PP1204

EXISTING ARTIFICIAL INTELLIGENCE SYSTEMS DO NOT IMPROVE SESSILE SERRATED LESION DETECTION: A META-ANALYSIS OF RANDOMIZED CONTROLLED STUDIES

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Introduction: Serrated lesions in the colon, that can contribute to up to 20% of colon cancers, are often difficult to detect during standard white light colonoscopy (SC). Artificial intelligence specifically Computer-aided Detection (CADe) has been shown to positively impact the adenoma detection rate (ADR) and adenomas per colonoscopy, but data on SSLs are scarce. We aimed to evaluate the effect of CADe on detecting SSLs byperforming a meta-analysis of all the randomized controlled trials.

Aims & Methods: PubMed, Embase, and Cochrane databases were searched (upto November 2022) to identify randomized controlled studies comparing CADe and SC. Our primary outcome was the comparison of pooled estimates of SSL-detection rate (SSLDR) between those undergoing CADe and SC. The secondary outcome was the mean number of SSL per colonoscopy (SSLPC). Subgroup analyses were performed for studies only including screening or surveillance colonoscopy. Risk ratios (RR) and mean differences (MD) with 95% confidence intervals (CI) were calculated for dichotomous and continuous variables, respectively, using the random effects model. Study heterogeneity was assessed using i^2 statistics and prediction intervals

Results: 12 RCTs were eligible with a total of 9237 patients: CADe group-4595 patients (mean age 58.5 years; 53.5% men) and SC group-4642 (mean age 58.4 years; 52.1% men). There was no significant difference in SSLDR between CADe (4.6%) vs. SC (4%) with a Risk Ratio of 1.15 (95% CI 0.95-1.39, i^2= 0%) (Table 1a).

Similarly, for SSLPC, there was no significant difference between CADe and SC (MD 0.01, 95% CI -0.02 –0.03, i^2= 98%). When our analysis was limited to studies including only screening or surveillance colonoscopy, again, there were no significant differences between CADe and SC in terms of SSLDR (5.7% vs 4.9%, RR 1.15, 95% CI 0.92-1.45) and SSLPC (MD -0.02, 95% CI -0.07 – 0.030).

Outcome		No of Patients		SSLDR (%)		RR	95% CI	Prediction Interval	I^2 %
		CADe	SC	CADe	SC				
SSLDR	All Studies	4595	4642	4.6	4.0	1.15	0.95 – 1.39	0.93 - 1.42	0
	Screening/ Surveillance Only	2475	2524	5.7	4.9	1.15	0.92 - 1.45	0.80 - 1.67	0

Table 1. Comparison of SSLDR between CADe and Standard Colonoscopy

Conclusion: Compared with standard colonoscopy, currently evaluated AI systems do not show improved sessile serrated lesion detection rate or mean sessile serrated lesions per colonoscopy, even when including only screening or surveillance colonoscopy. Further RCTs should be designed with SSL as one of the primary outcomes using highly trained AI systems.

Disclosure: No Relevant Financial Disclosure.

PP1205 WITHDRAWN

PP1206

EXPECTED VALUE OF AI-ASSISTED POLYP DETECTION, SIZING AND CHARACTERISATION BY NON-EXPERT ENDOSCOPISTS, A PROSPECTIVE MULTICENTRE INTERNATIONAL TRIAL

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Introduction: We aimed to study the impact of a novel AI system on non-expert endoscopists detection, characterisation and sizing of colorectal polyps compared to experts in view of the recent ESGE position statement on the expected value of AI in GI endoscopy.

Aims & Methods: Prospectively collected endoscopy videos from 12 centres in Europe and Japan were uploaded on a bespoke online platform. All polyps were histologically proven and sized by 3 experts. The AI model detects polyps and classifies them as neoplastic/non-neoplastic and diminutive/non-diminutive. We asked 6 experts to detect, characterise and size polyps without AI support, and 6 non-experts to detect, characterize and size polyps assisted by AI.

Results: A total of 600 videos including 298 polyps were included. The average sensitivity, specificity, accuracy and NPV of adenoma diagnosis by non-experts+AI compared to experts on EI was 90.84% vs 86.81% (p value 0.003), 76.46% vs 85.21% (p value <0.001), 86.45% vs 86.32% (p value 0.917), and 78.59% vs 73.96% (p value 0.084) respectively. Agreement between histology-based and non-experts+AI based surveillance intervals (BSG guidelines) was 91%.

Conclusion: This study suggests AI system may potentially bridge the gap between expert and non-expert endoscopists in regards to polyp detection, sizing and optical diagnosis and support adoption of resect-and-discard strategy. However, AI did not meet PIVI threshold required for diagnose-and-leave strategy (NPV of 90%).

Disclosure: K Takoh, T Okuno and S Goda are employed by NEC Japan.

PP1207

ARE TISSUE SAMPLING GUIDELINES FROM THE ESGE IN COLITIS FOLLOWED IN CLINICAL PRACTICE?

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Introduction: Guidelines for tissue sampling have been published by The European Society of Gastrointestinal Endoscopy (ESGE) on colitis. They recommend in patients with clinical signs and endoscopic signs of colitis, performing segmental biopsies (at least two from each segment), which should be placed in different specimen containers (ileum, caecum, ascending, transverse, descending, and sigmoid colon, and rectum). The ESGE recommends pancolonic dye-based chromoendoscopy or virtual chromoendoscopy with targeted biopsies of any visible lesions during surveillance endoscopy in patients with inflammatory bowel disease. ESGE also recommends that, in patients with known ulcerative colitis and endoscopic signs of inflammation, at least two biopsies be obtained from the worst affected areas for the assessment of activity or the presence of cytomegalovirus.

Aims & Methods: We aimed to observe clinical practice and compare these to the ESGE guidance in patients attending endoscopy for colitis.
A single centre, retrospective of patients with colitis attending endoscopy at a district general hospital was performed. 50 consecutive patients with new diagnosis of colitis, 50 consecutive patients with colitis for surveillance, and 20 consecutive patients with colitis for assessment of severity of activity were studied. Findings from clinical practice observed was scrutinised and compared to ESGE guidance. Data was obtained from the endoscopy reporting tool (unisoft) and from the electronic patient records.

Results: 32 of the 50 patients (64%) with endoscopic signs of colitis followed guidance on biopsy protocol as per ESGE. In this study, the caecal intubation rate was 94%, with terminal ileal intubation rate of 80%. In this group 25/50 (50%) the colitis activity was documented by way of either the Mayo score or Ulcerative colitis endoscopy index of severity.
29 of 50 patients (58%) with colitis having a surveillance colonoscopy followed the ESGE biopsy protocol. 4 of 50 patients (8%) had chromoendoscopy as part of their colonoscopic surveillance procedure.
17 of 20 patients (85%) biopsies assessed for activity of colitis had biopsies. 7 of 17 patients (41%) having a biopsy had a comment regarding CMV inclusion bodies on histology. The histology request form specifically asked for assessment of CMV inclusion bodies in 5 of 17 patients (29%).

Conclusion: From this study of clinical practice of patients attending endoscopy for colitis, either in terms of new diagnosis, surveillance, or for colitis severity assessment with presence of CMV, the tissue sampling protocol of the ESGE is poorly implemented. We recommend improved dissemination of the guidelines within the endoscopy department to improve practice. Specifically asking for CMV inclusion bodies to histopathology on the request form may increase its assessment.

Disclosure: Nothing to disclose.

PP1208

QUANTITATIVE EVALUATION OF FALSE-POSITIVE ALERTS DURING POLYP DETECTION IN COLONOSCOPY

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Introduction: Previous studies have demonstrated the superiority of the CADe system in the detection of polyps and adenomas in randomized controlled setting, even among less experienced endoscopists. While implementing CADe systems in routine clinical practice, however, several studies have found that the efficacy of CADe on adenoma diminished. What accounts for these conflicting results is worth exploring.False positives (FPs) have become an important issue in the application of artificial intelligence (AI) to detect polyps during colonoscopy. The occurrence of FPs may lead to fatigue and distraction of endoscopists and even unnecessary biopsies. Excessive FPs can reduce users' trust in the model and then affect enthusiasm for its use. We aimed to quantitatively evaluate the impact of FPs of computer-aided (CADe) system on endoscopists and explore a reasonable minimum false positive threshold.

Aims & Methods: The FPs levels of the model were divided into four gradients: 0-5, 5-10, 10-15 and 15-20 false positives per minute (FPPM). A total of 56 colonoscopy videos were retrospectively collected. By varying the model confidence based on the original CADe system, colonoscopy videos with different false-positive gradients were generated. Using a crossover design, 10 endoscopists were randomly assigned to the CADe-assisted first group and the unassisted first group. All endoscopists were asked to watch colonoscopy videos of all false-positive gradients, with the CADe-assisted group watching the model-processed colonoscopy videos and the unassisted group watching the original colonoscopy videos.

With the hypothesis that the increase in FPs for CADe leads to an increase in missed polyps, polyp missed rate (PMR) was set as the primary outcome.

Secondary outcomes included the number of false positives (NFPs), false negative rate (FNR), false positive rate (FPR) of the endoscopists and the change in fatigue of the endoscopists before and after each reading.

Results: PMR increased from 19.2% to 49.2% when the FPPM increased from 0-5 to 5-10 in the CADe-assisted group (odds ratio, 4.079; 95% CI, 2.287-7.275, P<0.001). For the analysis of different false-positive gradients, compared with the routine colonoscopy group, group 0-5 achieved a lower PMR in CADe-assisted group (37.5% vs 19.2%; odds ratio, 4.143; 95% CI, 1.815-9.458, P<0.001), while PMR of group 5-10 increased from 39.2% to 49.2% (odds ratio, 2.714; 95% CI, 1.141-6.457, P<0.05). In addition, group 15-20 showed a lower FNR in CADe-assisted group (24.3%) than routine colonoscopy group (45.7%), and a higher FPR (71.4% vs 54.3%; odds ratio, 5.000; 95% CI, 1.448-17.271, P<0.05). Endoscopists' fatigue did not change significantly when using CADe with different false-positive levels.

Conclusion: The level of FPs of the CADe has a significant negative impact on its auxiliary effect. Future design of CADe should keep FPPM under 0-5.

Disclosure: Nothing to disclose.

PP1209

COMPARATIVE ANALYSIS OF EFFICACY AND SAFETY BETWEEN ORAL SODIUM SULFATE TABLET AND 1 L POLYETHYLENE GLYCOL PLUS ASCORBATE

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Introduction: Low-volume bowel preparation solutions, including 1 L polyethylene glycol plus ascorbate (PEG-A), have been developed to improve tolerability because of the low tolerability of high-volume polyethylene glycol agents.

However, 1 L PEG-A still has its typical odor that is not pleasant for most patients. The oral sodium sulfate tablet (OST) is a new agent with simethicone as a preloaded component. OST may have the better tolerability because of little odor due to its tablet formula.

Aims & Methods: We aimed to investigate the efficacy, safety, and tolerability of OST compared to 1 L PEG-A. We randomized patients aged 18 years or older who underwent colonoscopy into the OST (group A) and 1 L PEG-A (group B) groups. Bowel preparation efficacy was assessed on the Boston bowel preparation scale (BBPS) and bubble scale. Bowel preparation success was defined as BBPS score ≥ 6. The bubble scores ranged from 0 to 3 per segment (total from 0 to 9), with a lower score indicating lower bubbles in the colonic lumen. Safety and tolerability were evaluated using a systematized questionnaire.

Results: A total of 171 patients (group A: 87, group B: 84) were included in the final analyses. The average BBPS score of group A was 8.0±1.3, which was similar to that of group B (7.7±1.4) (p=0.215). The proportion of patients showing bowel preparation success was 95.4% in the group A whereas that in the group B was 96.4% (p=0.736). The adenoma detection rate was also similar between groups A (59.6%) and B (41.9%) (p=0.087). The bubble scale in the group A was 0.2±0.9, which was significantly better that that of the group B (1.9±1.7) (p<0.001).

All adverse events were mild in both groups. The group A showed lower frequency of nausea compared to the group B (14.9% vs. 38.1%, p=0.001). Overall satisfaction was better in the group A (8.1 ± 2.1 vs. 6.4 ± 2.8, p<0.001).

Conclusion: Although both OST and 1 L PEG-A were efficacious, safe, and tolerable for bowel preparation of colonoscopy, the OST showed fewer bubbles and slightly better tolerability.

Disclosure: Nothing to disclose.

PP1210

DIFFERENCES IN TYPES OF PRECURSOR LESIONS BETWEEN INDIVIDUALS OVER AND UNDER 50 YEARS

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Introduction: Colorectal adenomas are commonly found in individuals over the age of 50, but their occurrence in younger individuals is increasing. However, it is still unknown if colorectal cancer in young patients follow different pathways. Therefore, this study aims to compare the types of colorectal adenomas/lesions in individuals under the age of 50 versus those over 50.

Aims & Methods: To assess the differences in adenoma subtypes amongst individuals aged 50 and older versus those under the age of 50.

Results: 488.767 screening colonoscopies between 2008 and 2023 were analyzed within the Austrian quality assurance program. 17.216 (3,5%) individuals were under and 471.551 (96,5%) were above. 14,3% (n=2.454) patients under 50 and 25,5% (n=120.018) above had adenomas. 11.8% (n=289) of precursor lesions within those under and 7,9% (9503) above, were Sessile serrated lesions (p<0,001). 3,3% (n=81) were traditional serrated adenomas (TSA) among those <50 and 1,1% (n=1.362) above (p<0,001). 12.7% (n=311) vs. 12.6%(n=15.120; p=0,92)) of adenomas were tubulovillous and 0,57% (n=14) vs. 0,76% (n=915) (p=0,28)were villous comparing <50a and >50a. 71,7% (n=1.759) of adenomas within individuals under 50 and 77,6% (n=93.118) above were tubular (p=0,12).

	Age		
Type of precursor lesion	<50	<50	p-value)
sessile serrated lesion SSA	11.8% (n=289)	7.9% (n=9503)	40.1 (p<0.001)
traditionell serrated Adenoma TSA	3.3% (n=81)	1.1% (n=1362)	92.7 (p<0.001)
tubulaer	71,7% (n=1759)	77,6% (n=93118)	6.3 (p=0.012)
tubulovilloes	12,7% (n=311)	12,6% (n=15120)	0.01 (p=0.92)
villoes	0.57% (n=14)	0.76% (n=915)	1.16 (p=0.28)
Adenomas/lesion total	14.3% (n=2,454)	25.5% (n=120.018)	
Total	17216	471551	

Conclusion: Individuals under 50 have a significant higher proportion of SSA and TSA but a significant lower proportion of tubular adenomas than those aged 50 and older.

Disclosure: Nothing to disclose.

PP1211

DEVELOPMENT AND VALIDATION OF SPEECH AND IMAGE RECOGNITION BASED SYSTEM FOR REAL-TIME REPORTING DURING COLONOSCOPY

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Introduction: Colonoscopy is the gold standard for colorectal cancer screening. Proving the integrity of the colorectal exam has become a mandatory procedure, and the colonoscopy report is the only way to prove the integrity of the colonoscopy procedure. Unfortunately, even with a structured report generator, some key quality fields were often incomplete. A substandard report may mislead patients and have a negative impact on subsequent follow-up. Moreover, these systems do not allow endoscopists to record their findings during the endoscopic procedure. Instead, this can only be done after the procedure. The labor-intensive ways of reporting require more personnel, increasing the risks of errors and costs.

Aims & Methods: We aimed to develop and validate a novel reporting system for real-time reporting during colonoscopy based on speech recognition and image recognition, which is available during endoscopic procedures and able to generate standard photographic and textual reports. The system automatically captured images of anatomic landmarks and bowel segments according to information received by the speech recognition model from the endoscopist about the bowel segment. Moreover, for each lesion, system identified mucosal lesions and captures typical images in real time. Each individual lesion observation was captured as one typical image tagged with lesion type and bowel segment. In addition, detailed information about the lesion and colonoscopy procedure was incorporated into this system, such as the size of polyps, the morphology of polyps, withdrawal time, bowel preparation and biopsy. Finally, the semi-structured colonoscopy report with images and text was automatically generated, along with specific information about lesions and bowel mucosa. The endoscopists could recheck and edit the content of texts. After all the processes, the report with images and texts with automatic generation and manual review was generated. 15 AI algorithm modules were incorporated into the report system to achieve real-time analysis and records of abnormalities and landmarks during colonoscopy.

Results: For colonoscopy video preprocessing: the accuracy of DCNN1, 2 and 3 reached 100%, 98.9% and 98.6%, respectively. For anatomic segment capture and assessment: the accuracy of DCNN4 reached 100%. For lesion capture and diagnosis: the accuracy of DCNN5, DCNN6, DCNN7 and DCNN8 were 93.1%, 97.3%, 90.0% and 89.3%, respectively. For detailed information obtaining for endoscopic lesions: the accuracy of DCNN 9, DCNN10, DCNN11, DCNN12, DCNN13 reached 88.9%, 89.0%, 100%, 95.4% and 80.6%.

DCNN1: distinguish in-vivo images from in-vitro images	DCNN2: filter out unqualified images (blurred and flushing images)	DCNN3: identify white light (WLI) images and non-white light (non-WLI) images
DCNN4: receive voice messages about key landmarks from the endoscopists	DCNN5: detect and locate common lesions (melanosis coli, erosion and ulcer)	DCNN6: identify polyps
DCNN7: detect diverticulum	DCNN8: identify hemorrhoids	DCNN9: evaluate the morphology of polyp detected (pedunculated, sessile and flat)
DCNN10: evaluate the size of polyp	DCNN11: receive voice messages about lesions from the endoscopists, including the location and the number of polyps	DCNN12: for polyp NICE classification
DCNN13: for polyp JNET classification	DCNN14: evaluate the bowel preparation (BBPS)	DCNN15: identify biopsy forceps

For additional information process for image capture: the accuracy of DCNN14 was 95.3%, and UNet++ achieved an overall IoU of 0.92 in DCNN15. Further video validation and crossover study are in preparation. The detailed functions of the model are shown in the table.

Conclusion: A novel reporting system for real-time reporting during colonoscopy based on speech recognition and image recognition, which is available during endoscopic procedures and able to generate standard photographic and textual reports has potential to improve the quality of colonoscopy reports.

Disclosure: Nothing to disclose.

PP1212

DEVELOPMENT AND VALIDATION OF ARTIFICIAL INTELLIGENCE ALGORITHM FOR AUTOMATED BOWEL PREPARATION SCORING

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Introduction: Reliable assessment of bowel cleanliness is important for qualified colonoscopy including improved adenoma detection with lower risk of interval colorectal cancer. However, current bowel preparation scoring systems are limited by inter-observer variability because the bowel preparation status is assessed by the operating endoscopists.

Aims & Methods: This study aimed to investigate whether the artificial intelligence, deep learning algorithm could assess bowel preparation status objectively. Convolutional neural network was developed using retrospectively collected 1400 still colonoscopy images from 346 colonoscopy procedures. Three experts reviewed and annotated the training images and videos based on Boston Bowel Preparation Scoring (BBPS) system (0-3).

We validated the developed algorithm with 522 stll images from 219 colonoscopies and tested the performance of the algorithm with 369 still images from 128 colonoscopies. In addition, we validated the algorithm using 113 10-sec video clips and tested the performance of the algorithm on 30 full colonoscopy videos.

Results: In the still image test set, the algorithm achieved the accuracy of 78.7% for 4 classes of BBPS. The algorithm achieved the accuracy of 93.9% for binary classification of BBPS (0-1: inadequate vs. 2-3: adequate). In the 10-sec video validation set, the algorithm demonstrated the accuracy of 74.3% for 4 classes of BBPS. In the 10-sec video validation set, the algorithm showed the accuracy of 94.7% with 0.983 of area under the ROC for binary classification of BBPS. In the test of the algorithm with the withdrawal phase of full colonoscopies (80 segments; 25 right colon, 25 transverse colon, and 30 left colon), the overall accuracy was 91.3%. The sensitivity for inadequate bowel preparation was 86.7% in the test with full colonoscopy videos.

Conclusion: The deep learning algorithm developed for objective assessment of bowel preparation based on BBPS showed good performance in the test with still colonoscopy images and full colonoscopy videos.

Disclosure: Nothing to disclose.

PP1213

RISK FACTORS FOR POST-POLYPECTOMY BLEEDING IN PATIENTS WITH END-STAGE RENAL DISEASE UNDERGOING COLONOSCOPIC POLYPECTOMY

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Introduction: Considering the impaired platelet function in uremic patients, the risk of post-polypectomy bleeding may increase in patients with end-stage renal disease undergoing colonoscopic polypectomy. Nevertheless, little is known about the risk factors of bleeding after colonoscopic polypectomy in these patients. This study investigated the incidence and risk factors of post-polypectomy bleeding, including immediate and delayed bleeding, in patients with end-stage renal disease (ESRD).

Aims & Methods: Ninety-two patients with ESRD who underwent colonoscopic polypectomy between September 2005 and June 2020 at a single tertiary referral center were included. The patients' medical records were retrospectively reviewed. Patient- and polyp-related factors associated with immediate PPB (IPPB) were analyzed using logistic regression analysis. Additionally, the optimal cutoff polyp size related to a significant increase in the risk of IPPB was determined by performing receiver operating characteristic (ROC) analysis and calculating the area under the ROC curve (AUC).

Results: In total, 286 polyps were removed. IPPB occurred in 24 (26.1%) patients and 46 (16.1%) polyps, and delayed post-polypectomy bleeding occurred in 2 (2.2%) patients. Regarding the hemostasis method for IPPB, clipping was used in 31 (67.4%) cases and a combined method with clipping and coagulation was used in 15 (32.6%) cases. According to multivariate analysis, the polyp size (> 7 mm) (odds ratio=5.259, 95% confidence interval [CI]: 2.367–11.684), old age (>70) (odds ratio=4.186, 95% CI: 2.012–8.708), and endoscopic mucosal resection (EMR) as the polypectomy method (EMR versus non-EMR: odds ratio=3.339, 95% CI: 1.440–7.743) were found to be independent risk factors for IPPB. According to the Youden index method, the optimal cutoff polyp size to identify high-risk polyps for IPPB was 7 mm (AUC=0.755; sensitivity, 76.1%; specificity, 69.6%).

Conclusion: Colonoscopic polypectomy should be performed with caution in patients with ESRD, especially in those with the following risk factors: advanced age (>70 years), polyp size >7 mm, and EMR as the polypectomy method.

Disclosure: Nothing to disclose.

PP1214

NARROW-BAND IMAGING FOR REAL-TIME HISTOLOGY PREDICTION OF ADVANCED COLORECTAL NEOPLASIA – A PROSPECTIVE STUDY

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Introduction: With the improvement of endoscopic resection techniques, there has been recent interest in real-time in vivo characterization of polyp histology. Of all the new imaging technologies for characterizing polyp histology, narrow-band imaging (NBI) has been the most extensively studied and is easy to feasible. Correct histological prediction allows determining the optimal endoscopic technique for resection of lesions with the achievement of R0 resection. The NBI International Colorectal Endoscopic Classification (NICE) and the Japanese NBI Expert Team (JNET) classification are mostly used to predict the depth of invasion.

However, the effectiveness of diagnostics using NBI in clinical practice is variable and is associated with low sensitivity for superficial invasive carcinoma.

Aims & Methods: Primary aim was to determine and compare the diagnostic accuracy of NICE and JNET classifications in predicting histology in community practice. Secondary aim was to determine the positive predictive value (PPV) for the NICE and JNET classification.

In this single-center prospective study we have included 211 patients aged 18–75 years (130 men, 62%; 81 women, 38%; mean age 60 years) who underwent colonoscopies with endoscopic resection of advanced colorectal neoplasia (defined by size lesions ≥ 10 mm). The NICE and JNET classifications were used for each lesion. The results were compared with the final histopathological finding to determine and compare NICE and JNET classification accuracy.

Results: 257 lesions were analyzed including 8 (3.1 %) hyperplastic polyps, 47 (18.3 %) sessile serrated polyps, 152 (59.1 %) adenomas with low grade dysplasia, 36 (14.0 %) high-grade adenomas, 12 (4,7 %) intramucosal carcinomas, 1 (0.4 %) T1sm1 carcinoma and 1 (0.4 %) T2 carcinoma. A total of 199 lesions (77.4 %) were correctly classified according to the JNET classification and 241 lesions (93.8 %) were correctly classified according to the NICE classification. The PPV for NICE 1 lesion was 95.9 %, NICE 2 97.0 % and NICE 3 22.0 %. The PPV for JNET 1 lesions was 95.9 %, JNET 2A 83.0 %, JNET 2B 52.2 % and JNET 3 22.5 %.

Conclusion: The NICE classification was associated with a higher proportion of correctly classified lesions (93.8 %) compared to the JNET classification (77.4 %). However, NBI virtual chromoendoscopy shows a low PPV for HGD adenomas, intramucosal carcinomas and T1sm1 carcinomas (NICE 2 22.1 %, JNET 2B 52.2 %). Therefore, additional investigations in these lesions are still required with magnifying chromoendoscopy prior a final decision of endoscopic therapy. Improvement of predictive accuracy of these lesions and determining the limiting factors will be the subject of further investigation.

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PP1215

CLINICAL VALIDATION OF POLYDEEP A COMPUTER-AIDED DIAGNOSIS SYSTEM (CADE/X)

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Introduction: Polydeep is a CADe/x system that has demostrated a high diagnostic yield for in vitro detection and characterisation of colorectal polyps. We have designed a diagnostic accuracy study, Polydeep Advance 1 (NCT05514301) in order to confirm these preliminar results.

Aims & Methods: Polydeep Advance 1 is a unicentric prospective diagnostic test trial. Endoscopists performed the colonoscopy blinded to Polydeep. A second observer alerted the endoscopists when Polydeep detected a lesion not identified by the endoscopists. The main objective of this study was to compare Polydeep sensitivity for colorectal polyps (adenoma and serrated lesion with confirmed histology) detection with experienced endoscopists.

Additionally, we evaluated the diagnostic accuracy for detection of colorectal adenomas, advanced colorectal lesions (advanced adenoma or serrated lesion) and lesions ≤ 5mm.

Finally, we evaluated the characterization capacity of Polydeep for neoplasia detection (adenoma, Sessile Serrated Lesion-SSL, and Traditional Serrated Adenoma-TSA) and compared it with the optical diagnosis of endoscopists using the NICE classification.

Results: We included 205 patients (mean age 63.0 ± 6.2 years, 51.1% male) in the trial, between February and April 2023. The indications for colonoscopy were positive fecal immunochemical test (124) and surveillance after colorectal adenomas (81). We excluded 8 patients due to incomplete colonoscopy. Endoscopists detected 384 lesions (39 not detected by Polydeep). In contrast, Polydeep detected 409 additional lesions, but the endoscopists only confirmed 26 of these lesions. In total, 410 lesions were detected and resected/biopsed. Out of these lesions, 22 were not retreived, 4 were colorectal adenocarcinoma and 384 were colorectal polyps

(231 adenomas, 35 SSL, 3 TSA, 73 hyperplastic polyps) and 42 were normal mucosa. We show in the attached table the results of the diagnostic accuracy of endoscopists and Polydeep for histologically confirmed colorectal polyps. With regard to the optical diagnosis, Polydeep classified as neoplastic (>50% probability) 273 (73.6%) of the lesions detected and gave no classification in 24 (6.4%) of the lesions. The endoscopists classified 242 as NICE II and 142 as NICE I. In the lesions with histological diagnosis, Polydeep showed a 82.6% sensitivity and 31.1% specificity for neoplasia detection. On the other hand, the sensitivity and specificity of the NICE II classification were 76,5% and 61,8% respectively.

	Sensitivity (%)		Specificity (%)		Positive predictive value (%)		Negative predictive value (%)	
	Poly-deep	Endo-scopist	Poly-deep	Endo-scopist	Poly-deep	Endo-scopist	Poly-deep	Endo-scopist
Polyp	91.5%	94.1%	14.3%	9.5%	89.7%	89.4%	17.1%	16.7%
Adenoma	92.6%	94.4%	11.8%	7.2%	61.3%	60.6%	51.4%	45.8%
Advanced lesion	98.6%	98.6%						
Polyp ≤ 5mm	89.5%	92.3%	14.6%	9.8%	86.4%	86.1%	18.8%	17.4%

Conclusion: We confirm the preliminar results of Polydeep in the clinical validation. These results will be confirmed in ongoing multicentric trials.
Disclosure: Nothing to disclose.

PP1216

MAGNETIC BALLOON TECHNOLOGY FOR COMPLETION OF VERY DIFFICULT COLONOSCOPIES: A CASE SERIES

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Introduction: Colonoscopy is not a difficult procedure for most of the colonoscopists. However, some procedures can be challenging even for highly-skilled 4th-level colonoscopists (Kudo's classification). Magnetic balloon technology was developed to facilitate loop solving and colonoscopy completion.
Aims & Methods: Patients with prior incomplete sedated colonoscopy performed by the author were selected if tortuosity, redundancy or laxity were reported in prior failed colonoscopy. For each patient a colonoscopy with magnetic balloon was rescheduled and performed in the same center (Ospedale San Giuseppe, Empoli, Firenze, Italy) by the same endoscopist (4 th level expert according to Kudo's classification with completion rate higher than 98%).
Complete colonoscope insertion was judged by the colonoscopist if ileocecal valve and the appendiceal orifice could be observed. Magnetic balloon technology includes a balloon catheter that can be inserted on demand in the 3,2 mm colonoscope tool channel, filled with a syringe of ferromagnetic fluid and anchored with an external permanent magnet. The magnetic anchorage is performed to facilitate manoeuvres to solve loops and thus straightening and shortening the colonoscope.
Results: From February to March 2022 a colonoscopy with magnetic balloon and conscious sedation with midazolam and fentanyl were performed in four Caucasian patients (50-74 yrs, 3 males, BMI: 24,6- 37,1). All patients completed the colonoscopy with magnetic balloon. Tortuosity, laxity and/or redundancy were identified in all cases. Magnetic balloon anchorage has been always achieved even in an obese male patient (BMI 37,1). No adverse events occurred.
Conclusion: Magnetic balloon technology may represent a new safe and effective on demand solution forcompleting very difficult colonoscopies and preventing rescheduling of a second procedure.

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PP1217

ENDOSCOPIC RESECTION OF A PEDUNCLATED TYPE ADENOMA: PROS AND CONS OF COLD SNARE POLYPECTOMY

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Introduction: While cold snare polypectomy (CSP) has been proven effective and safe in the resection of small polyps, it is not actively recommended for the pedunculated (Ip type) polyps in the European Society and Gastrointestinal Endoscopy and US Multi-Society Task Force on Colorectal Cancer guidelines. Although Japanese guidelines recommend that CSP should be limited to lesions less than 10 mm, preoperatively diagnosed as adenomas, the guideline does not address how to resect pedunculated (Ip type) adenomas. This study aims to examine the pros and cons of CSP for the resection of Ip type adenoma.
Aims & Methods: Among patients with colorectal adenomas resected endoscopically at Nippon Medical School Hospital in Japan, from January to July 2020, 85 lesions in 67 consecutive cases of type Ip, and 762 lesions in 346 cases of non-Ip type (types Is, Isp, and II) resected by CSP, were observed.
Regarding clinicopathologic features, R0 resection rate, and adverse events, we evaluated the difference in the resection method (Ip-CSP group vs Ip-hot polypectomy (HP)/EMR group) as Study 1; and the macroscopic classifications (Ip-CSP group vs Non-Ip-CSP group) as Study 2.
Results: In Study 1, 23 lesions were included in the Ip-CSP group and 62 lesions were included in the Ip-HP/EMR group. A higher percentage of proximal colon lesions (74% vs. 27%, p<0.001) and smaller mean tumor size (5.1±1.6mm vs. 11±5.0mm, p<0.001) were observed in the Ip-CSP group, compared to Ip-hot polypectomy (HP)/EMR group. The R0 resection rate was also significantly lower in Ip-CSP group (61% vs. 90%, p=0.03). While the R0 resection rate tended to be low for lesions 6 mm or greater (67%/93%), no difference was observed among lesions less than 5 mm (59%/50%). No perforation or postoperative bleeding was observed in both groups.
In Study 2 using 23 lesions for the Ip-CSP group and 762 lesions for the Non-Ip-CSP group, no significant difference was observed in tumor location or mean tumor diameter, as well as R0 resection rates (61% vs. 45%, p=0.13). No perforation was observed in either group. Postoperative bleeding was observed only in the Non-Ip group for 5 lesions (0.7%).
Conclusion: To achieve pathological complete resection for Ip adenomas, HP/EMR should be selected for adenoma with a diameter of 6 mm or greater. Conversely, CSP was considered acceptable for lesions of 5 mm or less. Further studies with a larger number of patients are warranted.
Disclosure: Nothing to disclose.

PP1218

UNIFIED MAGNIFYING ENDOSCOPIC CLASSIFICATION (UMEC) OF GASTROINTESTINAL LESIONS: A NORTH AMERICAN VALIDATION STUDY

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Introduction: Magnifying endoscopy enables the diagnosis of advanced neoplasiathroughout the gastrointestinal tract.The Unified Magnifying Endoscopic Classification (UMEC)framework unifies optical diagnosis criteria in the esophagus, stomach, and colon, dividing lesionsinto three categories: non-neoplastic, intramucosal neoplasia, and deep submucosal invasivecancer.This study aims to ascertainthe performance of North American endoscopists when usingthe UMEC.

Aims & Methods: In this retrospective cohort study, five North American endoscopists without priortraining in magnifying endoscopy independently diagnosed images of gastrointestinal tract lesionsusing UMEC. All endoscopists were blinded to endoscopic findings and histopathological-diagnosis. Using histopathology asthegold standard, the endoscopists' diagnostic performancesusing UMEC were evaluated.

Results: A total of299 lesions (77 esophagus, 92 stomach, and 130 colon) were assessed. Foresophageal squamous cell carcinoma, the sensitivity, specificity, and accuracy ranged from 65.2%(95%CI: 50.9–77.9) to 87.0% (95%CI: 75.3–94.6), 77.4% (95%CI: 60.9–89.6) to 96.8% (95%CI:86.8–99.8), and 75.3% to 87.0%, respectively. For gastric adenocarcinoma, the sensitivity,specificity, and accuracy ranged from 94.9% (95%CI: 85.0–99.1) to 100%, 52.9% (95%CI: 39.4–66.2) to 92.2% (95%CI: 82.7–97.5), and 73.3% to 93.3%. For colorectal adenocarcinoma, thesensitivity, specificity, and accuracy ranged from 76.2% (95%CI: 62.0–87.3) to 83.3% (95%CI:70.3–92.5), 89.7% (95%CI: 82.1–94.9) to 97.7% (95%CI: 93.1–99.6), and 86.8% to 90.7%.Intraclass correlation coefficients indicated goodto excellent reliability.

Conclusion: UMECis a simple classification thatmay be used to introduce endoscopists tomagnifying narrow-band imaging and optical diagnosis, yielding satisfactory diagnostic accuracy.

Disclosure: Nothing to disclose.

PP1219

ENDOSCOPIC SUBMUCOSAL DISSECTION IN SCARRED COLO-RECTAL LESIONS: A RETROSPECTIVE MULTICENTRIC STUDY WITH LONG-TERM FOLLOW-UP

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Introduction: Scarred colo-rectal lesions still represent an endoscopic challenge due to technical feasibility and histologic radicality. The optimal endoscopic technique of choice remains controversial.

Endoscopic submucosal dissection (ESD) has been proposed as an option since it allows "en-bloc" resection and low rates of recurrence [1],[2].

Nevertheless, it represents a time-consuming procedure, burdened by complications in non-experts' hands. Hybrid ESD (H-ESD), has been suggested as rescue therapy in cases where complete ESD is not feasible [3].

Aims & Methods: We retrospectively analyzed a prospectively collected cohort of 180 patients who underwent ESD for scarred colorectal lesions at San Raffaele Scientific Institute in Milan and Arcispedale Santa Maria Nuova, Reggio Emilia, Italy, between January 2009 and October 2022. Procedures were performed by expert endoscopists, who had completed more than 60 colo-rectal ESD. Primary outcome was to assess technical success, defined as the completion of an "en-bloc" ESD.

Technical failure was defined as the need of conversion to H-ESD to complete the procedure. Secondary outcomes included: curative resection (cR), defined as submucosal invasion < 1,000-micron, complete resection (CR), defined as en-bloc resection with free histologic margins and recurrence rate at follow-up. Lesions characteristics, technical data of procedures, adverse events rate were also collected. Predictive factors of technical success were assessed through univariate analysis and multivariate logistic regression.

Results: Mean age was 68.42±11.4 years (range 38-89), with a 56/44 female to male ratio. Most of the lesions were in the rectum (50.6%), followed by left colon (13.9%), transversum (9.4%) and right colon (26.1%). Grade of fibrosis was mostly severe (F3 56.7%; F2 24.4%; F1 18.9%), due to previous treatment attempts (70.6%) or biopsy sampling (29.4%). Mean diameter of lesions was 35.06±20.04 cm^2 with a mean procedural time 99.9±60.4 min and a mean dissection speed of 9.13±8.13 mm^2/min.

Technical success with completion of the ESD was 62.2% (112/180) with an overall en-bloc resection rate of 96.4%, while conversion to H-ESD was needed in 37.8% (68/112) of cases with en-bloc resection rate of 32.3%, due to severe fibrosis (38/68), difficult access (17/68), perforation (4/68), hemodynamic instability (2/68). Overall, CR rate was 60.6%, while cR was obtained in 92.3% of cases.

No difference between ESD and H-ESD were found in term of neither CR and cR (p=0.725 and p=0.787 respectively). Nine patients (4.8%) were referred for additional surgery due to non-curative histology after endoscopic treatment (adenocarcinomas 11.7% and neuroendocrine carcinomas 1.7%). In total, 24 adverse events (13.3%) occurred, the majority in completed ESD group (20/24 cases), mostly perforations (7%) which were all managed endoscopically. Recurrence occurred in 13 patients (7%) during a mean follow-up period of 374 days (range 55-1808). At the multivariate analysis fibrosis due to previous treatment (OR 3.08 [95 % CI 1.25-7.58], p=0.0243), high grade of fibrosis (OR 2.30 [95 % CI 1.35-3.93], p=0.0021) and right colon location (OR 1.96 [95 % CI 1.48-2.62], p=0.000003) resulted as predictive factors of technical failure.

Conclusion: ESD is a feasible, safe and effective treatment for colorectal-scarred lesion, when performed by expert endoscopists, showing high rates of "en-bloc" resection and assuring high histologic radicality and low rate of recurrence. H-ESD is a viable rescue treatment when the completion of ESD is not feasible.

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PP1220

IMPACT OF PARTICIPATION TIME IN A NATIONAL COLORECTAL CANCER SCREENING PROGRAM ON QUALITY PARATEMTERS OF ENDOSCOPISTS

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Introduction: Previous studies showed that adhering to high-quality screening colonoscopy leads to markedly decreased incidence and mortality of colorectal cancer. However, more is needed to know about the impact of the duration of participation on quality parameters.

Aims & Methods: This study aims to evaluate the relationship between the duration of endoscopists' participation within the Austrian quality assurance program for screening colonoscopy and their quality parameters. A generalized linear mixed model, adjusted for sex and age, was utilized to evaluate the effect of the time elapsed since participation on quality parameters, such as adenoma detection rate (ADR), advanced adenoma detection rate (AADR) and carcinoma detection rate (CDR).

Results: 392 endoscopists provided data from 326,445 screening colonoscopies from 2007 to 2022. Results showed that each year of participation in the quality assurance initiative led to a 1.02% increase in ADR (95% CI [1.004-1.034], p-value = 0.013) as well as a 1.17% increase in CDR (95% CI [1.107-1.245], p-value <0.001) adjusted for patients' age and sex. The advanced adenoma detection rate increased by 1.00% each year of participation (95% CI [0.983-1.023], p-value = 0.762).

Conclusion: The participation of endoscopists in the quality assurance initiative was associated with a significant increase in ADR and CDR for each year of participation. However, the increase in AADR was not statistically significant.

Disclosure: Nothing to disclose.

PP1221

RETROSPECTIVE STUDY OF TWO DIFFERENT ENDOSCOPIC RESECTION REGIMENS ON THICK-STALKED PEDUNCULATED RECTAL POLYPS AND POSTOPERATIVE BLEEDING

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Introduction: To evaluate the effects of three different endoscopic resection regimens on thick-stalked pedunculated rectal polyps and postoperative bleeding

Aims & Methods: A retrospective analysis was conducted on the clinical data of 265 patients with thick-stalked pedunculated rectal polyps who were treated between January 2018 and Novenber 2022. They were divided into an endoscopic submucosal dissection group (ESD group, n=124), pre-ligation of stalks with clips or nylon ring group (pretreatment group, n=141). The clinical efficacy (complete resection rate), the bleeding rate, length of hospital stay were observed.

Results: No significant differences were observed in clinical efficacy within the two groups (P>0.05). However, the incidence rate of bleeding in the ESD group was lower than that of the pretreatment group (4.0% *vs.* 10.6%, *P*<0.05).The length of hospital stay in the ESD group was longer than the pretreatment group(4.6±1.9 days vs 3.4±1.5 days, *P*<0.05).

Conclusion: The ESD group is the preferential one because of its obviously lower bleeding rate. However, this method must be conducted by skilled endoscopist.

Disclosure: Nothing to disclose.

PP1222

A PRE-COLONOSCOPY PERSONALIZED DIGITAL PLATFORM MARKEDLY REDUCES AMBULATORY COLONOSCOPY ‚NO-SHOW' RATES

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Introduction: Colonoscopy is a well-established screening tool for detection of colorectal lesions. Colonoscopy waiting lists can last for months, however, the rates of unperformed procedures due to patients' absence ('no-show') are 8-15% globally.

Aims & Methods: The aim of this study was to evaluate whether a personalized digital platform would reduce 'no-show' rates for ambulatory colonoscopies.

We retrospectively analyzed prospectively collected data regarding scheduled ambulatory colonoscopies. The GistMD digital platform includes a patient-tailored animated video, individualized according to age, gender, comorbidities and language. It also includes links to written instruction forms and consent forms, and a set of reminders. During 01/2022-06/2022, a link to the GistMD system was randomly sent to patients before a scheduled colonoscopy. The study group ('GM-Link') included all patients that were sent the link by SMS. The control group received standard written instructions by email.

Results: During the study period, a total of 2114 colonoscopies were included. The GistMD link was randomly sent to 1621 (76.7%) patients ('GM-Link') and standard written prepration instructions to 493 (23.3%) controls ('No link').

The 'no-show' rates were reduced by half among the 'GM-Link' group compared to controls [190 (11.7%) vs. 114 (23.1%), respectively, p<0.001]. This significant ‚no-show' rate reduction in the 'GM-Link' group compared to

the 'No Link' group was consistent among males and females subgroups analysis (11.8% vs. 27.5%, p<0.001 and 11.7% vs. 19.3%, p=0.003, respectively) and among all age groups (p<0.05, for all groups). Furthermore, the 'GM-Link' group was divided according to usability: 1. 'No video' - Video was not watched at all, 757/1621 (46.7%), 2. ,Min users' - Watched<75% of the video,77/1621 (4.8%) and 3. 'Max users' - Watched >75% of video, 787/1621 (48.6%). There was a "dose-dependent" trend between usability groups and 'no-show' rates: 'No link' - 23.1%, 'No video'-17.4%, 'Min users' -10.4%, 'Max users'- 6.4% (P<0.001).

In two multivariate logistic regression adjusted for age, sex and morning vs. afternoon colonoscopy, 'GM-Link' receivers and 'Max users' were each independently associated with 51% and 76% ,no show' rate reduction compared to 'No link' controls (OR 0.491, P<0.001 and OR 0.242, p<0.001, respectively). According to number needed to treat analysis, the number of sent links required for prevention of one ,no show' was 8 links. In terms of economical calculations, using the digital platform will reduce the monthly income loss due to 'no-show' by ~70,000 ILS (~17,550 euro) and the yearly income loss by ~840,000 ILS (~210,500 euro), considering 400 colonoscopies/month of which 35% include polypectomy.

Conclusion: Implementation of a digital platform significantly reduced 'no show' rates for ambulatory colonoscopy. This reduction can result in increased efficiency and reduced financial losses as well as shorter waiting times in gastroenterology units.

Disclosure: Nothing to disclose.

PP1223

OPTICAL DIAGNOSIS IN COLONOSCOPY: MORE TO IT THAN MEETS THE AI

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Introduction: Computer-Aided Diagnosis (CADx) allows for real-time characterisation of polyps. In a small number of studies to date, CADx accuracy in polyp characterisation has been similar to expert endoscopists and better than novel endoscopists. CADx may allow for a resect and discard strategy with sub-centimetre polyps which would have significant economic impacts on our health service. CADx may also be a useful tool in improving the accuracy and efficiency of polyp diagnosis and management in a training setting.

Aims & Methods: To compare the performance of expert endoscopists, trainee endoscopists and CADx in characterising colonic polyps.

In this multi-centre prospective comparison study, two endoscopists performed high-definition colonoscopies with GI Genius (Medtronic, Dublin, Ireland) between August and November 2022. All detected polyps were photo-documented (white light imaging, narrow band imaging and near focus), resected and retrieved. CADx diagnosis was recorded (adenoma/non-adenoma/no prediction). Histologic diagnosis was recorded. Blinded to both CADx and histologic diagnosis, expert and trainee endoscopists independently predicted polyp type based on photo documentation. Comparison of diagnosis was made between experts, trainees & CADx and compared against final histologic diagnosis. Sensitivity and specificity was calculated for each group using histologic diagnosis as gold standard.

Results: 139 polyps across two centres were photo-documented during the study timeframe. Expert endoscopists (Sensitivity 91.67% [95% CI 77.53-98.25%]) were better at polyp characterisation than both CADx (Sensitivity 84.31% [95% CI 71.41-92.98%]) and trainee endoscopists (Sensitivity 87.23% [95% CI 74.26-95.17%]). Expert endoscopists (Sensitivity 77.27% [95% CI 54.63-92.18%] and trainee endoscopists (Sensitivity 63.16% [95% CI 38.36-83.71%]) performed better than CADx (Sensitivity 42.11% [95% CI 20.25-66.50%]) in the characterisation of non-adenomatous polyps.

Conclusion: Our data corresponds with previously published studies. Interestingly, trainee characterisation was similar to CADx predictions in our study. Both trainee endoscopists are experienced endoscopists nearing the end of their respective training schemes. CADx polyp characterisation may be useful in an earlier training phase but further studies are necessary. A resect and discard strategy utilising CADx does not at present appear feasible.

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Disclosure: Nothing to disclose.

PP1224

CLINICAL OUTCOMES OF NOVEEL TECHNOLOGY FOR COLORECTAL SUBMUCOSAL DISSECTION: ANALYSIS OF POLYP SURFACE AND FIBROSIS WITH THE PROCEDURAL TIME

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Introduction: The 'Speedboat-RS2/SRS2' (Creo-Medical/Wales/UK) is the first multi-modality device, incorporating bipolar-radiofrequency/BRF energy cutting, microwave energy coagulation/MWC, an integrated needle for submucosal injection and a rotatable blade with a heat insulated hull for protection.

Aims & Methods: A prospective cohort of colorectal Speedboat-assisted Submucosal Dissection (SSD) was initiated for a duration of three operational years. One experienced operator performed all cases. Short and long-term clinical outcomes were recorded. Linear regression was used to explore whether factors, such as polyp size/surface/location/morphology could implicate with the duration of the procedure in minutes.

Results: 184 patients were subject to SSD using tunnelling technique. 19 abandoned (14 for muscle retraction sign, 7 advanced cancer), 5 for medical emergencies. Out of 165, endoscopically complete en-bloc resection was achieved in 91.5% (n=151), curative rate 82% (n=18). Conversion to piecemeal resection 8.5% (n=14)due to inappropriate booking and scope difficulties.Within the en-bloc group, mean polyp 5.45cm +/- 2.81 SD, mean polyp surface 22.63cm2 +/- 25.03 SD.Overall mean procedural time in minutes was 105.98 +/- 82.78 SD. Non-rectal polyps 75/151 (49.7%), non-granular polyps 51/151 (34%), high dysplastic polyps 36/151 (25.2%), cancers 20/151 (14%). Six out of 20completely excised (R0) T1 cancers had no recurrence in endoscopy (4/6) or surgery (2/6). Fourteen out of 20T1 cancers with adverse histology features had no residual malignancy in the surgical specimen with 2/4showed LN metastases requiring chemotherapy. A case of advanced NET within a benign adenoma requiredchemotherapy. Three out of 14 opted for surveillance only with no recurrence on endoscopy in two of them.First surveillance endoscopy available for 71/151 (47%) with no recurrence identified.MWC used to pre-coagulate and control bleeding in all cases. Hemostatic monopolar forceps was required in11/151 cases. Endoscopically controlled delayed bleeding occurred in 3 patients (2%).

No perforation wasrecorded.Regression analysis revealed significant effect of cm2 size and fibrosis on the duration of the procedure (p <.001, R2 = .778), indicating an increase of 2.271t minutes per 1cm2 of increase in polyp surface and anincrease of 37.34 minutes when severe fibrosis is encountered; with a baseline time of 23 mins reflecting polypof 10cm2.

Conclusion: These first results demonstrate that Speedboat is an effective and safe device for submucosal colorectal dissections. SRS2 performed in a timely manner, and the preliminary correlation of the time of the procedure affected by polyp surface and degree of fibrosis warrants further analysis.

Disclosure: Nothing to disclose.

PP1225

CURATIVE OUTCOMES IN SMALL PT1 LESIONS RESECTED BY EITHER ESD OR EFTR: A NORTH-EASTERN ITALIAN EXPERIENCE

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Introduction: ESD (endoscopic submucosal dissection) and EFTR (endoscopic full-thickness resection) are treatments of choice in the endoscopic resection of small and superficially submucosal invasive GI lesions. It is often challenging to assess the best curative option in this setting. ESD is currently thought to be the gold standard technique.

Aims & Methods: We retrospectively analyzed all gastrointestinal pT1 lesions < 30 mm resected by either ESD or EFTR in our Unit from 2016 and December 2022. As primary endpoints we assessed en bloc resection, R0 resection (clear margins) and curative resection (no further need for surgery) rate. As secondary endpoints we analyzed mean procedural time, cost and adverse events that occurred within or after both procedures. Statistical analysis was performed with Pearson chi-square test.

Results: 35 ESD and 32 EFTR were enrolled. En bloc resection was achieved in, respectively, 90 % (32/35) and 96% (30/32), with no statistical difference (RR 0.93, p= 0.9), likewise R0 resection (29/35, 83% vs 30/32, 96%, RR 0.86, p=0.7) and curative resection (23/35, 66% vs 20/32, 64%, RR 1.03, p= 0.7). Mean procedural time was lower in EFTR, although not significantly (67 ± 37 min vs 50 ± 15.6 min, p=0.7), while adverse events rate was similar (5/35, 13% vs 3/32, 10%). Eventually, mean procedural cost per hospitalization day was lower in ESD than EFTR (1503 ± 360 € vs 2260 ± 210€), considering a medium hospitalization time of 2.4 days and 2 days, respectively.

Conclusion: ESD and EFTR turned out to be equally successful in achieving R0 and curative resection in pT1 small lesions, so that ESD should remain gold standard in an experienced setting, even though EFTR could allow easier and faster en bloc resection in most challenging ESD, albeit more expensive.

Disclosure: Nothing to disclose.

PP1226

FRAILTY INDEX AND COMORBIDITIES PREDICT ADVERSE EVENTS FOLLOWING COLONOSCOPY IN THE ELDERLY: A SINGLE-CENTER EXPERIENCE

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Introduction: The number of colonoscopies performed on elderly patients is increasing because of the rapidly progressed aging population, but in the case of elderly patients, safety and advantage of colonoscopy are still insufficient when compared with procedure risk. FI-lab, which is a frailty index calculated by laboratory test and vital sign, and is expected to be a measure that can predict the clinical outcome of elderly patients. We evaluated and analyzed the safety of colonoscopy by analyzing the association between the adverse events of colonoscopy with FI-lab and Charlson's comorbidity index (CCI).

Aims & Methods: A total of 8154 patients were enrolled in this study retrospectively at a Gangnam Severance Hospital from July 2017 to August 2022. Patients were aged 60 or older, underwent colonoscopy for screening, and there were blood test results within two months before and after the procedure.

Those who underwent endoscopy for therapeutic purposes, those under the age of 59, and those who missed blood test results or vital sign records were excluded. FI-lab was calculated by the closest blood test results at the time of the procedure and the vital signs at the time of the procedure, and CCI was calculated based on the patient's history recorded in the hospital and the age at the time of the procedure. The occurrence of side effects was based on an unplanned visit to the emergency room or hospitalization within a month after the procedure.

Results: The total number of participants was 8154, with 3102 in the 60-64 age group, 2160 in the 65-69 age group, 1506 in the 70-74 age group, 904 in the 75-79 age group, and 482 in the age group of 80 years or older.

The study population comprised 4354 males (53.4%). The mean age of the participants was 67.9 years, ranging from 60 to 94 years. The CCI mean was 3.31. The mean value of the FI-lab was 0.168.

Most of the participants (86.2%) had a low frailty index, followed by 11.9% with a moderate frailty index, and 1.9% with a high frailty index. Adverse events of colonoscopy within 30 days were occurred in 115 cases, gastrointestinal events such as perforation or bleeding were 27, mortality cases were 9, major adverse events were 48, minor events were 67. CCI and FI-lab were showed strong associations with complications (p<0.001, each), and categorized FI-lab showed statistically significant differences between low group and moderate or high group (p<0.001).

	Without AE	AE	p-value
number	8039	115	
Age, mean, years(range)	67.9(60-94)	71.8(60-91)	<0.001
Male sex, number(%)	4277(53.2)	77(67.0)	0.003
CCI, mean	3.29	4.9	<0.001
FI-lab, mean	0.167	0.261	<0.001
low(<0.25), number(%)	6977(86.8)	53(46.1)	
moderate(0.25-0.4), number(%)	925(11.5)	44(38.3)	
high(>0.4), number(%)	137(1.7)	18(15.6)	

Table. Factors affected to adverse events.

Conclusion: CCI and FI-lab can be a predictive scoring system in elderly patients who received screening colonoscopy. Therefore, if CCI or FI-lab is high, physicians should decide and perform colonoscopy carefully.
Disclosure: Nothing to disclose.

PP1227

PREVALENCE OF INCIDENTAL ASYMPTOMATIC TERMINAL ILEITIS DIAGNOSED ON ILEO-COLONOSCOPY

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Introduction: Terminal ileitis is the endoscopic manifestation of a wide range of diseases: inflammatory, infectious, vasculitic, ischemic, drug-induced and malignancy. When it comes to asymptomatic terminal ileitis, it is incidentally found on screening ileo-colonoscopy. The prevalence of this entity was not well established and is found in few studies with heterogenous results.
Aims & Methods: We conducted this study to define the prevalence and histopathologic characteristics of asymptomatic terminal ileitis. This is a cross-sectional study. The study population is composed of all the patients that underwent a colonoscopy between September 2020 and March 2023. Selection bias were avoided by excluding patients with inflammatory bowel disease (IBD), sacroiliitis, chronic diarrhea, elevated calprotectin, medical history of ileitis diagnosed either on previous colonoscopy or on imaging showing wall thickening, and those with altered anatomy (colectomy with ileo-colic anastomosis).
Results: A total of 3901 colonoscopies were realized in a single center between September 2020 and March 2023; 3035 met our inclusion criteria based on medical history and the indication of the colonoscopy that excluded the above-mentioned reasons. Ileal intubation was performed in 91.4% (n=2773) of these cases, representing the final study population. Terminal ileitis was found in 5% (n=139) of patients, of whom 58.3% (n=81) were men and 41.7% (n=58) were women. The median age at diagnosis was 50 and and the mean age was 49.43 +/-15.5. The three main indications for colonoscopy were: colorectal cancer screening in 57.5% (n=80) of cases, gastrointestinal red flag symptoms including bleeding, anemia, and weight loss in 28.8% (n=40) of cases, and abdominal pain in 13.7% (n=19) of cases. Biopsies were performed in 90.6% (n=126) of ileo-colonoscopies and showed, regardless of the indication, normal histology, erosive and ulcerated ileitis, and non specific and other findings in 12.7% (n=16), 36.5% (n=46) and 44.4% (n=56) of samples respectively. Definitive Crohn's disease diagnosis was found in 5.75% (n=8) of asymptomatic ileitis patients.
Conclusion: The prevalence of asymptomatic terminal ileitis was 5% in our population. This finding was not associated with the indication of the colonoscopy, namely colorectal cancer screening, gastrointestinal red flag symptoms including bleeding, anemia, and weight loss and abdominal pain. The clinical significance of this finding requires longitudinal follow-up studies to assess the incidence of IBD or other conditions.
Disclosure: Nothing to disclose.

PP1228

CAP CUFF ENHANCED COLONOSCOPY: DOES IT IMPROVE POLYP DETECTION AND MAKE RETROFLEXION UNNECESSARY?

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Introduction: Screening for colorectal cancer (CRC) by colonoscopy has contributed to a steadily declining rate of incidence and mortality related to CRC in recent years. The caveats of the former are difficult mucosa and polyp visibility, among others. The Cap cuff is an endoscopy-enhancing device aiming to improve mucosal inspection, and thus, polyp detection. However, there is limited evidence-based knowledge surrounding its true clinical impact.
Our study investigates the degree of clinical effectiveness of the Cap cuff-enhanced colonoscopy (CCEC) when assessing for colonic polyps and distal rectal pathology.
Aims & Methods: We conducted a non-randomized trial by recruiting consenting and eligible participants aged 18 years or older, that were undergoing either a screening, surveillance, or urgent colonoscopy at the Montfort Hospital (Ottawa, CAN) from August 2022 to February 2023. All participants (N=375) underwent an CCEC. The colon was assessed once; while the rectum was initially assessed with direct visualization and subsequently reassessed by retroflexion. The polyps were removed and documented. Our study's primary outcome focused on evaluating the CCEC's impact on colonic polyp detection rate (cPDR) when compared to retrospective controls of standard colonoscopy dating from January 2017 to August 2022. It also focused on investigating the distal rectal pathology detection rate (rPaDR) with Cap cuff-enhanced direct visualisation (CCEDv) compared to Cap cuff-enhanced retroflexion (CCER). Secondary outcomes included procedure safety and patient tolerance. cPDR data was acquired by the review of prospective and retrospective operative reports for polyp presence.
The control group was established by sample-matching based on age and sex. rPaDR data was acquired by the review of participant's operative report for distal rectal pathology presence and modality of pathology visualisation.
Results: The results demonstrate a lower overall cPDR in the treatment group compared to the control group (72.2% vs. 88.7%, respectively; p< 0.01). By age group, the CCEC demonstrated a cPDR of 60.2% for participants aged 31-50 years (n=88) compared to 82.9% in the retrospective control group (n=88), 74.8% for participants aged 51-65 (n=171) compared to 89.4% in the retrospective control group (n=142) and 79.5% for participants aged 66+ (n=112) compared to 93.7% in the retrospective control group (n=112). CCEC's cPDR for participants 18-30 years was not statistically significant (n=4) but included in the overall cPDR. As for the rPaDR, specifically for rectal polyp detection (n=16), 2 polyps were only viewed by CCEDv, while 6 polyps were only viewed by CCER. The other 8 were viewed by both CCEDv and CCER.
Regarding hemorrhoid detection (n=159), CCER was a significantly better modality compared to CCEDv (89.9% vs. 1.3%, respectively; p< 0.01). A majority tolerated the procedure very well (94.7%) and there were no adverse events associated with the usage of the Cap cuff during the study.
Conclusion: In contrast to prior promising studies, the CCEC failed to meet expectations. CCEC did not distinguish itself from standard colonoscopy. With respect to distal rPaDR, sole CCEDv was significantly inferior to CCER, demonstrating the importance of the use of retroflexion during colonos-

copy despite the use of the Cap cuff. This study unveils possible criticisms in the clinical effectiveness of the Cap cuff. Further studies should evaluate these initial findings by means of a larger scaled study.
Disclosure: Nothing to disclose.

PP1229

RELEVANCE OF SYMPTOMS TO PREVALENCE OF COLONIC NEOPLASIA IN PATIENTS UNDERGOING COLONOSCOPY

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Introduction: Due to long waiting lists and limited resources, referring patients for colonoscopy requires assessment of both need (indication) as well as urgency of performing the procedure. Symptomatic patients are usually perceived as more urgent when compared to asymptomatic individuals sent for screening.
Aims & Methods: Our aim was to explore if indication for colonoscopy had any association with colon cancer or colon polyp incidence, size and number. We hypothesised that patients with most common symptoms (rectal bleeding, change in bowel movements, abdominal pain) were more likely to have pathological colonoscopy findings when compared to asymptomatic individuals sent for screening or due to positive faecal occult blood test (FOBT).
We performed a retrospective analysis of prospectively collected data included 7701 colonoscopies performed between January 2017 and December 2021 in Sestre Milosrdnice University hospital, Zagreb, Croatia. We included patients undergoing first-time colonoscopy due to history of either rectal bleeding, change in bowel movements or abdominal pain, as well as asymptomatic individuals without family history screened with colonoscopy (with or without positive guaiac-based FOBT). Exclusion criteria were all other indications for colonoscopy and a repeated procedure. Final dataset included 2321 patients. Statistical analysis was done in Python 3.2 with statsmodels module for creating logistic regression models to analyse relationships within data.
Results: Mean age in the cohort was 59 +\- 15 years, with 56.8% being female. When comparing symptomatic to asymptomatic individuals, adenomas were found in 30.1% vs. 40.6% and carcinomas in 4.0% vs. 4.2% respectively.
After adjusting for age and sex there was however no significant difference between these two groups regarding polyps or carcinoma findings. For polyp detection OR was 0.61 (95% CI 0.41- 1.09); for polyp size >2cm OR 0.68 (95% CI 0.38-1.2) and for carcinoma detection 1.15 (95% CI 0.56 -2.33). Age was the only factor that was consistently associated with pathological colonoscopy findings, as follows: for every year of age odds of finding an adenoma increased by 1.027 (95% CI 1.021-1.033), having >5 adenomas increased by 1.04 (95% CI 1.016-1.065), and finding a carcinoma by 1.057 (95% CI 1.039-1.075). None of the investigated factors were associated with polyp size.
Conclusion: Presence of most common symptoms/causes for sending patients to colonoscopy does not seem to increase the odds of pathological findings and therefore should not raise the urgency of performing the endoscopy. Increasing age is the only consistent risk factor for colonic neoplasia in these patients.
Disclosure: Nothing to disclose.

PP1230

COLON CAPSULE ENDOSCOPY IN A UK DISTRICT GENERAL HOSPITAL: WHAT ARE THE REAL ISSUES?

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Introduction: Colon capsule endoscopy (CCE) is deemed to be feasible, safe and accurate and has a similar diagnostic sensitivity to colonoscopy in routine clinical practice [1]. The ScotCap project study suggested that CCE could enable 70% of patients to avoid a colonoscopy if used as a primary diagnostic tool [2]. Our study looks at the data collected from a district general hospital to ascertain what the real terms issues with using CCE are and therefore whether protocols need to be altered to enable CCE to be used within a small centre as a primary diagnostic tool.
Aims & Methods: An observational restrospective study using data for all completed CCE was collected between February 2020 and February 2022 at Barnsley District General Hospital, South Yorkshire, United Kingdom by using our online request system and the reports that were generated. This data was then categorized into relevant sub-categories such as age, indication and outcome- both in terms of clinical findings and whether subsequent endoscopic evaluation was required. The data was analysed using R and Excel.
Results: A total of 142 colon capsule was done with the predominate age group ranging from 51 to 70 years old. The main 2 indications were positive faecal immunochemical test (FIT) 46.9% (67/143) and iron deficiency anaemia (IDA) 11.9% (17/143). The results from the capsules did show 23.8% had poor bowel preparation and 18.9% was a normal examination. Following this, 12% had either diverticulosis or poor bowel preparation with pathology (example polyps or inflammation seen). Based on the results, 52% of all capsules still recommended further endoscopy either colonoscopy or flexible sigmoidoscopy for better visualisation.
Conclusion: The predominant impact on the quality of the results was related to poor bowel preparation requiring almost half of capsule endoscopy to proceed with further direct endoscopic visualisation. Addressing the issue and improving the quality of bowel preparation could potentially improve the sensitivity for pathology detection and reduce of the endoscopy burden on the unit.
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Disclosure: Nothing to disclose.

PP1231

CORRELATION BETWEEN PRESCRIBING DOCTOR ATTRIBUTES AND INTESTINAL CLEANLINESS IN COLONOSCOPY: A COHORT STUDY OF 22522 PATIENTS

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Introduction: This study aimed to analyze the correlation between different attributes of doctors who prescribe colonoscopies and the cleanliness of the intestine to guide the development of colonoscopy application protocols.

Aims & Methods: Data on colonoscopy cases conducted in the gastroenterology department of Hangzhou First People's Hospital between April 2018 and March 2021 were collected. The gender, age, professional attributes of the prescribing doctors, and Boston Bowel Preparation Scale (BBPS) score were recorded.

In addition, the correlation between the prescribing doctors' characteristics and the intestine's cleanliness was analyzed.

Results: The study included 22,522 patients with a mean BBPS score of 6.83±1.94. There were 16,459 male and 6,063 female doctors with similar BBPS scores (P = 0.212). The study found no significant difference in BBPS scores between 19,338 physicians and 3,184 non-physicians (P = 0.154). However, BBPS scores differed significantly between 18,168 gastroenterologists and 4,354 non-gastroenterologists (P = 0.016) and between 19,990 intestinal-related specialties and 2,532 non-intestinal-related specialties (P = 0.000).

In addition, BBPS scores were significantly different between 18,126 prescribing doctors with colonoscopy ability and 4,352 without (P = 0.014). However, there was no significant difference in BBPS scores among doctors of different ages (P = 0.190). The study found significant differences in BBPS scores between male and female patients and those under or over 40 years (P = 0.000).

Conclusion: To improve colonoscopy preparation quality, priority should be given to doctors in gastroenterology, intestinal-related specialties, and with colonoscopy operation ability. Their expertise may result in better education and improved bowel cleanliness.

Disclosure: Nothing to disclose.

PP1232

EFFECTIVENESS OF SCREENING COLONOSCOPY IN REDUCING COLORECTAL CANCER INCIDENCE IN GERMANY: A TARGET TRIAL EMULATION

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Introduction: In Germany, screening colonoscopy has been offered to all adults aged 55 or older since 2002. In parallel to screening colonoscopy, fecal occult blood testing is offered (Guaiac test until 2017, fecal immunochemical test afterwards) and, in addition, there is a high use of diagnostic colonoscopies. In view of this context, we aimed to quantify the effectiveness of screening colonoscopy in reducing colorectal cancer (CRC) incidence in Germany in men and women aged 55–69 years.

Aims & Methods: Using a German claims database (GePaRD, 20% population coverage) we included persons at average CRC risk aged 55–69 years and without a colonoscopy, polypectomy or fecal occult blood test before baseline.

We emulated a target trial with two arms: Colonoscopy screening vs. no colonoscopy screening at baseline. We estimated adjusted cumulative CRC incidence over 11 years of follow-up stratified by sex (at the time of the conference, 14-year follow-up data will be available).

Results: Overall, we included 99,101 men (women: 99,288) in the screening arm and 583,861 men (women: 664,052) in the control arm. In men, the adjusted 11-year CRC risk was 1.89% in the screening group and 2.85% in the control group resulting in a relative risk of 0.66 (95% CI: 0.63–0.73). In women, the adjusted 11-year CRC risk was 1.31% in the screening group and 1.96% in the control group resulting in a relative risk of 0.67 (95% CI: 0.63–0.73).

Conclusion: Our study shows that screening colonoscopy in Germany is effective in preventing CRC both in men and women. In the interpretation of the strength of the effect (~33% incidence reduction), the high background prevalence of diagnostic colonoscopy should be considered.

As previously shown, screening colonoscopy accounts for less than half of the overall 10-year prevalence of colonoscopy in persons aged 55-69 years in Germany.

Disclosure: Nothing to disclose.

PP1233

EFFECT OF LOW-VOLUME AND INTERMEDIATE VOLUME BOWEL PREPARATION ON COST-EFFECTIVENESS AND QUALITY OF LIFE: OPEN-LABEL, NON-INFERIORITY, RANDOMIZED CONTROLLED TRIAL

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Introduction: Bowel preparation is essential for colonoscopy. Patients often experience bowel preparation as the most deterrent factor for undergoing colonoscopy. To alleviate burden for patients, intermediate (2L) and low-volume (1L) bowel preparation solutions have been developed. Little is known on the effect of low-volume bowel preparation on patient reported outcomes.

Aims & Methods: We aimed to assess the impact of bowel preparation on quality of life and productivity loss. We performed an open-label, non-inferiority, randomized trial in 4 centers in the Netherlands. Patients scheduled for screening, surveillance, or diagnostic colonoscopy were invited to participate and 1:1 randomized between a split-dose 2L Poly Ethylene Glycol with ascorbate (2LPEG+Asc, intermediate volume) laxative or a split-dose 1L PEG+Asc laxative with added sodium sulfate (low-volume). Before and after bowel preparation, patients filled out the following validated questionnaires: *Institute for Medical Technology Assessment Productivity Costs Questionnaire* (iPCQ), *Mayo Florida bowel preparation tolerability questionnaire* (MBTQ), *Short form 36* (SF-36), and *Euroqol group 5 Dimensions 5 Levels* (EQ-5D-5L). Colonoscopy data included Boston bowel preparation score (BBPS) and surveillance interval as provided by the endoscopist. Primary outcome was non-inferiority of low-volume to intermediate volume bowel preparation, defined as the rate of adequately prepared colonoscopies with a non-inferiority margin of 5%.

Secondary outcomes included change in SF-36 and EQ-5D-5L scores after bowel preparation, tolerability, and impact on working productivity.

Results: We included 467 patients (intermediate-volume, n=229 and low-volume, n=238). Questionnaire response rates were 86.3% and 88.7%, respectively (p=0.378). Low-volume bowel preparation was non-inferior to intermediate volume bowel preparation, with adequate cleaning rates of 96.8% (95% confidence interval [CI] 93.5-98.6) and 96.1% (95%CI 92.6-98.0), respectively (p=0.801). Low-volume bowel preparation had a higher high-quality cleaning rate (i.e., BBPS 3-3-3) with 72.7% vs 63.4% in the intermediate-volume group (P=0.032). No clinically significant changes were found on the EQ-5D-5L and SF-36 questionnaire. Patients in the low-volume group were more willing to repeat the bowel preparation with 60.1% vs 47.8% in the intermediate volume group (p=0.034), but nausea/vomiting and a bad taste were more frequent in the low-volume group (p=0.007 and p=0.006, respectively).

Absenteeism and impaired working productivity were present in 15.1% and 23.0% of patients, respectively, but did not differ significantly between groups or before and after bowel preparation.

Conclusion: Low-volume bowel preparation is non-inferior to intermediate volume bowel preparation but has a higher willingness to repeat compared to intermediate volume bowel preparation, at the expense of more non-serious side-effects. This data can help patients to select their preferred bowel preparation.

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Competing interests: Author P.S. receives unrestricted grants from Pentax (Japan), Norgine (UK), Motus GI (USA), MicroTech (China) and The eNose Company (Netherlands) and is in the advisory board of Motus GI (USA) and Boston Scientific (USA). Authors F.I, K.H., R.M.S., L.W., A.T. and M.R. declare no competing interests.

PP1234 WITHDRAWN

PP1235 WITHDRAWN

PP1236

CLINICAL EFFICACY OF LUMEN-APPOSING METALLIC STENTS FOR LOWER GASTROINTESTINAL ANASTOMOTIC STRICTURES

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Introduction: Benign gastrointestinal strictures are often refractory to endoscopic dilations and standard covered stents have been disappointing. Our aim was to evaluate the clinical efficacy of lumen apposing metallic stent in the treatment of short and anastomotic benign strictures"

Aims & Methods: This study was conducted by the endoscopic department at a tertiary level hospital in France. Consecutive patients who underwent lumen apposing metal stent placement from February 2018 to August 2021 for lower gastrointestinal benign anastomotic strictures were prospectively followed for a minimum of 6 months. Primary outcome measure was clinical success, defined as improvement or resolution of underlying symptoms; secondary endpoints were technical success and adverse events.

		IBD versus non IBD patients		
	Overall (n = 20)	No (n = 6)	Yes (n = 14)	p
Technical success, n (%)	20 (100)	6 (100)	14 (100)	/
Clinical success, n (%)	16 (80)	4 (83.4)	11 (78.6)	0.292
Any adverse event (%)	2 (10.0)	0 (0.0)	2 (14.3)	0.871
Post-procedure pain (%)	2 (10.0)	0 (0.0)	2 (14.3)	0.871
Incarcerated stent (%)	1 (10)	0 (0.0)	1 (7.1)	1.000
Spontaneous migration	10 (50.0)	2 (33.3)	8 (57.1)	0.240
Death unrelated to the procedure	1 (5.0)	1 (16.7)	0 (0.0)	0.654
Follow up (years) (mean (SD))	1.26 (0.94)	1.66 (1.07)	1.09 (0.86)	0.222

Results: A total of 20 patients bearing as many strictures were included and underwent a total of 22 procedures for stent placement. Etiology of GI stricture included : prior carcinologic surgery (n = 5), IBD surgery (n = 14), sigmoiditis (n= 1).

Technical success was achieved in 22/22 procedures. Mean follow-up was 1.26 +/- 0.94 years . Sustained clinical success (up to the end of follow-up) was observed in 16/20 patients (80%). Three adverse events occurred in 2 patients patients (10%), including 2 cases of post procedure pain and one unextractable stent. An indwelling stent was left in situ permanently in 1 patient while all the other remaining stents were easily removed (n= 19 , 95%).

Conclusion: Lumen apposing metal stent for the treatment of benign anastomotic strictures is technically feasible and safe with a high rate of clinical success on the medium term. Also, removal of lumen apposing metal stent is generally easy and safe. lumen apposing metal stent may be an option to treat selected patients with benign anastomotic stricture.

Disclosure: Nothing to disclose.

PP1237

10 YEAR REVIEW OF ENDOSCOPY UTILISATION IN PATIENTS POST ILEAL POUCH-ANAL ANASTOMOSIS SURGERY

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Introduction: Pouchoscopy is indicated for pouch assessment and surveillance following ileal pouch-anal anastomosis (IPAA) surgery. Annual surveillance is suggested in cases who are at high risk of neoplasia (i.e. Primary Sclerosing Cholangitis (PSC)/ colonic dysplasia/ neoplasia), and 5 yearly in low risk patients[1,2].

Biopsies are recommended. With the pressures on endoscopy services continuing we reviewed endoscopy utilisation in our cohort of pouch patients.

Aims & Methods: We searched via health informatics for all patients who underwent IPAA surgery at our centre the Queen Elizabeth Hospital, Birmingham, United Kingdom, from 2012 to 2022. Via case note review, we reviewed indication, timing, presence of high-risk features and pouchoscopy report

Results: 56 patients underwent surgery for formation of new IPAA during this study period. The majority were performed were performed from 2012- 2015 (36 cases, 62%). 6 (10%) were undertaken as a single stage procedure, the remainder were 2 stage and 1 (1.8%) was a conversion from an ileo-rectal anastamosis. Indication for IPAA was medically refractory inflammatory bowel disease (IBD) in 48 (86%) cases, colonic dyslpasia in the context of IBD in 5 (9%), and 3 (5%) had an underlying genetic disorder for malignancy e.g. FAP or HNPCC. 16 patients had high risk features (PSC colitis=5, Dysplasia/neoplasia =11), although 2 were referred elsewhere for surveillance.

148 pouchoscopies were performed on this cohort of patients, with an average of 1 pouchoscopy every 3 years from IPAA date (range: 1 pouchoscopy per 0.4 – 10 years). The majority (113, 76%) of procedures were for pouch symptoms e.g. frequency, pain. Biopsies were taken in 98 (66%). Dye spray surveillance was not performed. No biopsy showed pouch or rectal neoplasia, but 73 (74%) showed pouchitis/cuffitis/inflammation.

Despite high resource utilisation, adherence to surveillance protocols remained poor.

	Appropriate number of pouchoscopies as per guidelines	Appropriate number of pouchoscopies with biopsies	Number of patients who did not undergo pouchoscopy despite pouch duration >1 years (high risk) or >5 years (low risk)
High risk (n=14)	2 (14%)	1 (7%)	3 (21%)
Low risk (n=40)	30 (75%)	29 (73%)	10 (25%)

2 patients went on to have their IPAA excised, and 5 have since died; 2 due to PSC associated liver failure, 2 due to non-pouch malignancy and 1-details unavailable.

Conclusion: This study shows poor implementation of pouch surveillance guidelines yet high use of endoscopy for pouch assessment often without biopsy. Our findings suggest that surveillance for neoplasia is an overlooked component of the care of patients who have under IPAA surgery. Furthermore, there is uncertainty within guidelines about frequency of surveillance particularly in low risk groups, although these patients do have a recognised risk of neoplasia[2,3].

We recommend that endoscopists take biopsies routinely when assessing pouch such as Type C mucosa in the pouch (mucosa exhibiting permanent persistent atrophy and severe inflammation) has a greater propensity for neoplastic changes. In addition, more data is needed to determine the risk of neoplasia in different subgroups of patients who have undergone IPAA surgery, as well as develop robust guidelines on use of endoscopy in pouch management.

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Disclosure: Nothing to disclose.

PP1238

PILONIDAL SINUS AND EFFECTIVENESS OF SURGICAL TREATMENT BY OPEN EXCISION: EXPERIENCE OF A MOROCCAN DEPARTMENT

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Introduction: The pilonidal sinus is a dermal-epidermal recess with hair elements that leads to suppuration of the gluteal groove, with no natural tendency for spontaneous healing. Numerous surgical techniques have been developed, but to date, there is no consensual management. The aim of our study is to demonstrate the efficacy of open resection in the surgical treatment of pilonidal sinus.

Aims & Methods: A retrospective study was conducted in our proctology department, spanning a 6-year period from January 2016 to July 2022. We included 237 patients with pilonidal sinus operated by open excision. All patients were followed up with regular consultations every 15 days for 3 months and then once a month for 6 months, for a period of 2 years in order to monitor healing and look for complications or recurrences. Healing was defined as complete healing of the surgical site. Statistical analysis was performed using SPSS25 software. Quantitative variables were described as mean and standard deviation and qualitative variables were described as numbers and percentage.

Results: The mean age was 24 years (16-51 years). The sex ratio was 8.9 (24F, 213H). In all our patients, we performed a wide and meticulous shaving of the upper gluteal region and the intergluteal fold preoperatively. The surgical procedure consisted of a monobloc excision taking all the fistulous orifices and extending to the retro-coccygeal aponeurosis. The incision was parabolic upwards opposite the sacrum. After controlling hemostasis, we coagulated the edges of the wound in order to promote budding from the depth to the surface and thus allow directed healing, which would avoid the persistence of deep cavities, which would be a source of infection. Finally, we placed a wick in the surgical site and closed with a pressure dressing. The first dressing was changed 24 hours after the

procedure and every other day for 6 weeks. We then recommended that the patients continue their care (daily cleaning with an antiseptic solution, careful drying and weekly shaving of the areas surrounding the surgical site) without covering the wound. In our series, the postoperative morbidity, evaluated at 11.8%, included 21 cases of superinfection of the surgical site (12%) and 7 patients (2.9%) presented a hemorrhage requiring a hemostatic procedure. 95.8% (n=227) of the patients obtained a complete healing. The average healing time was 79 days with extremes between 6 weeks and 12 weeks. The final scar was linear, median and aesthetic. 4.2% of patients (n=10) had a recurrence. They underwent open excision again. Of these patients, 4 had a recurrence and were operated on a 3rd time successfully.

Conclusion: According to the results of our study, open excision is a safe and effective surgical technique for pilonidal sinuses, despite a long healing time.

Disclosure: Nothing to disclose.

PP1239

NOVEL SURGERY FOR REFRACTORY MIXED CONSTIPATION: ANALYSIS OF THE TECHNICAL NOTES AND OUTCOME TO TONGJI PROCEDURE

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Introduction: To discuss a new surgical strategy: Tongji procedure (subtotal colectomy combined with modified Duhamel procedure), of which the indications, technical notes and outcomes were analyzed.

Aims & Methods:

The 220 patients with refractory slow-transit constipation associated with outlet obstruction was strictly included between February 2019 and February 2023. The patients induded 60 males and 160 females. Their age were 18-80 years (average 46±14). The 198 patients received laparoscopic-assistant Jinling procedure, and 32 patients with open Jinling procedure. The pre- and post-operation data were collected. The follow up rate were 100%, 95.1%, 92.8% and 91.7% at 3, 6, 12 and 24 months.

Results: There was no surgery-related death. Mean hospital day was (8±1.5) days. Most complications were managed conservatively without significant events. The common complications after surgery were adhesive intestinal obstruction (3.2%), anastomosis bleeding (5.1%) and anastomosis leakage (3.9%). The gastrointestinal quality of life index score was 72±9 preoperatively and increased to 68±11, 99±6, 105±9, 106±9 at 3, 6, 12 and 24 month follow-up, respectively (t=62.1, -25.1, -126.5, -143.2, P<0.01). The Wexner constipation scale was 21.9±4.5 preoperatively and decreased to 9.6±2.4, 5.9±2.1, 4.6±1.9, 4.5±1.8 at 3, 6, 12 and 24 month follow-up, respectively (t=48.6, 61.8, 58.2, 45.9, P<0.01). The satisfactory rate was 77.5%, 92.1%, 93.0% and 94.1% at 3, 6, 12, and 24 month follow-up.

Conclusion: Tongji procedure provides a good surgical option for refractory slow-transit constipation associated with outlet obstruction.

Disclosure: None.

PP1240

LASER THERAPY IN PROCTOLOGY: PRELIMINARY RESULTS OF A A PROSPECTIVE BICENTRIC MOROCCAN STUDY

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Introduction: Laser therapy is a relatively recent technique that allows the treatment of anal fistulas (FIstula-tract LAser Closure: FilaC®), and anal fissure (Laser anal fissure: LSL) with the FilaC fibre, pilonidal sinuses with the SiLaC® fibre (Sinus Pilonidalis treatment), and haemorrhoids with the Laser Hemorrhoido Plasty fibre (LHP®).

Aims & Methods: Our study aims to report the preliminary results of a prospective bicentric study including all patients treated with laser therapy in two private hospitals.

This prospective descriptive study includes 141 patients treated with laser therapy for proctological pathology (anal fistulas, pilonidal sinuses, anal fissures, and hemorrhoids) performed in two proctology units. The majority of these procedures were performed under spinal anesthesia.

Data were collected directly from the patients using an evaluation form. We studied their clinical data and the immediate and medium-term postoperative follow-up

Results: 141 patients were included. The mean age was 44 years (18-76 years). 78% were male and 22% female (sex ratio = 3.5). The anal fistula was the main indication for laser therapy, with FilaC® performed in 105 patients (74.5%), followed by SiLaC® in 16 patients (11.3%), LHP® in 7 patients (5%) and 4 cases of LSL (2.8%).

9 patients benefited from combined treatment: 5 LHP®+ LSL patients (3.5%), 2 FilaC®+ LSL patients (1.4%), 1 FilaC®+ SiLaC® patient (0.7%), and 1 FilaC®+ LHP® case (0.7%). 79 patients (73.2%) benefited from initial drainage of the fistula with a loose seton for 1 to 5 months before FilaC®, while 29 patients (26.8%) with a short direct extrasphincteric fistula benefited from laser therapy. 18 patients were lost to follow-up (12,8%). 104 patients (84,5%), all pathologies combined, progressed well with 19 cases of failure (15,5%) with a follow-up time of 1 to 50 months.

Fistulas healed in 74 patients (80%). There were 18 confirmed failures. 15 of these were treated surgically with 4 FilaC. Failure was diagnosed within an average of 6 months and was manifested by persistent leakage with no healing of the external orifice.

There were no continence problems after the procedure. 16 patients were lost to follow-up. In patients with LHP, 2 patients (15,4%) experienced early post-operative bleeding requiring surgical suturing. All patients treated with SiLaC® had a favorable outcome. The 4 patients treated for anal fissures were satisfied with the procedure.

Conclusion: Laser proctology is a minimally invasive conservative procedure with significant postoperative pain reduction. In the literature, the success rate of this technique ranges from 65 to 80%. Our hospitals were the first in Morocco to introduce this procedure. Preliminary results from our pilot study showed satisfying healing in 84.5% of patients. However, long-term confirmation is required.

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Disclosure: Nothing to disclose.

PP1241

ENHANCED SURGICAL PERFORMANCE OF LAPAROSCOPIC COLORECTAL SURGERY USING ARTICULATED INSTRUMENTS (ARTISENTIAL®) AS COMPARED TO THAT USING CONVENTIONAL DEVICES: SINGLE INSTITUTION, OPEN, BEFORE-AND-AFTER PROSPECTIVE STUDY

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Introduction: Rigid surgical instruments used for conventional laparoscopic surgery provide limited movement, and it is difficult to perform skillful surgery due to their long, jointless straight features. Articulated instruments could have the same advantages seen in robotic surgery, such as excellent control in smaller spaces, restoration of more intuitive and ergonomic movements, and the ability to overcome obstacles on a direct visual line.

The aim of this study was to evaluate the surgical performance and clinical outcomes of patients following laparoscopic colorectal surgery with multijoint laparoscopic instruments, ArtiSential® (LivsMed, Seongnam, Korea), compared with those using conventional instruments.

Aims & Methods: Patients aged 19–80 years undergoing elective laparoscopic surgery for colorectal disease between December 2021 and November 2022, were consecutively enrolled. The first 20 cases underwent conventional laparoscopic surgery, and the latter 50 cases underwent laparoscopic surgery using ArtiSential®.

Unedited operative videos were submitted to the Crowd-Sourced Assessment of Technical Skills (C-SATS) platform for evaluation using the Global Operative Assessment of Laparoscopic Skills (GOALS), which is a validated tool for technical proficiency.

Each of GOALS' four domains (bimanual dexterity, depth perception, efficiency, and tissue handling) was scored on a Likert scale between 1 and 5, scoring anchor, with a total score ranging from 4 to 20. The learning curve analysis was performed using the cumulative sum control chart (CUSUM) for GOALS grades (Registration number: KCT0006798).

Results: There was no significant difference between group with regards to type of operation, hospital stay, and 30-day postoperative complication. The GOALS' grades were similar between the two groups (15.7 ± 0.7 vs. 15.9 ± 0.5, P = 0.190), but the scores in two domains (depth perception and tissue handling) were significantly higher in the ArtiSential® group (3.9 ± 0.3 vs. 4.0 ± 0.2, P = 0.014 and 3.9 ± 0.2 vs. 4.1 ± 0.2, P = 0.048, respectively) compared with those in the conventional group.

In addition, patients in the ArtiSential® group experienced a shorter operation time (122.3 ± 58.9 vs. 88.1 ± 35.1, P = 0.022) and less intraoperative blood loss (56.5 ± 69.9 vs. 29.8 ± 1.4, P = 0.002) than those in the conventional group. According to the CUSUM learning curve analysis, the first 10 cases using ArtiSential® were in the inexperienced phase, and the remaining 40 cases were in the experienced phase.

The GOALS' score in the experienced phase of ArtiSential® was improved compared with that in the conventional group (16.0 ± 0.5 vs. 15.7 ± 0.7, P = 0.037).

Conclusion: A plateau in the learning curve of laparoscopic colorectal surgery performed with an articulated instrument was observed in approximately 10 cases, and it can be expected that surgical proficiency in the experienced phase increases without deterioration of clinical outcome as compared to that in conventional surgery.

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PP1242

END-TO-END ANASTOMOSIS FOLLOWING TOTAL MESORECTAL EXCISION IS NOT INFERIOR TO OTHER TYPES OF RECONSTRUCTIVE TECHNIQUES: SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Colorectal malignancy ranks third in global cancer incidence, with 1.9 million cases and nearly 1 million deaths reported in 2020. Total mesorectal excision (TME) is the gold-standard treatment for rectal cancer. Our meta-analysis evaluated surgical and functional outcomes of various anastomoses types, comparing end-to-end (EEA) to either side-to-end (SEA) or colonic J pouch (CJP).

Aims & Methods: Our protocol was registered on PROSPERO (CRD42022368907) beforehand. The systematic search was conducted on the 8th of November, 2022 in three major databases (Pubmed, Embase and CENTRAL). Randomized controlled trials (RCT) assessing adult patients following TME, where EEA was compared to another type of anastomosis were included.

For data synthesis a random-effects model was used. In the case of categorical outcomes such as anastomotic leakage (AL) and mortality, the effect size was risk ratio (RR) with a 95% confidence interval (CI), whereas in the case of bowel movement mean difference (MD) with a 95% CI was used. The Risk of bias was evaluated using the Revised Cochrane risk-of-bias tool for randomized trials (ROB-2). The certainty of evidence level of the included studies was performed using GRADE-Pro.

Results: Following a careful search and selection process, 29 studies out of 4459 were included in our analysis. Comparing EEA to CJP, in terms of early (30 days) morbidity, we have found no difference in either AL (RR: 1.03; CI: 0.84;1.26) or mortality (RR: 0.77; CI: 0.30; 1.98). The functional outcome of patients was evaluated, and daily bowel movement was assessed at two-time points. At 6 months postoperatively, the EEA group had a slightly higher number of stools per day (MD: 1.89; CI: 0.39; 3.39), however at one year the MD dropped down to 1.59 (CI: -0.66; 3.84), reaching a statistically non-significant result. Because of limited data, only AL was assessed for the comparison with SEA, where no difference was found (RR: 1.19; CI= 0.60; 2.35). Twelve RCTs showed a high risk of bias due to unblinded surgeons, intervention deviations, and loss of follow-up data. According to the GRADE approach, the quality of evidence was moderate (AL, mortality) to low (bowel movement) because of the high risk of bias and imprecision.

Conclusion: In terms of early postoperative morbidity, EEA is not inferior to other types of reconstruction techniques. Regarding bowel movement, the slightly impaired intestinal function will resolve within one year following surgery. EEA should be used routinely following TME.
Disclosure: Nothing to disclose.

PP1243

THE EFFECT OF DIABETES MELLITUS ON OUTCOMES FOLLOWING RESECTIONAL COLORECTAL SURGERY

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Introduction: Diabetes mellitus affects 6-7% of the population in the United Kingdom (UK), with a consistently increasing prevalence over the last 15 years. The impact of diabetes on outcomes after resectional colorectal surgery have yet to be fully quantified. We aimed to investigate the effect of diabetes mellitus on perioperative outcomes following resectional colorectal surgery using a national cohort.
Aims & Methods: All adult patients undergoing colorectal resections in England registered in the Clinical Practice Research Database (CPRD) with linked Hospital Episode Statistics (HES) data between 2010 and 2020 were included. Data relating to diabetes status and insulin use were extracted using CPRD read codes. Gestational diabetes and type 3c diabetes subtypes were excluded. The primary outcome was all-cause 90-day mortality, whilst secondary outcomes included hospital length of stay and unplanned hospital readmission within 90 days of discharge.
Adjusted hazard ratios (HR) were calculated using Cox proportional hazard models for 90-day mortality and 90-day readmission. Length of stay was analysed using an accelerate failure time model, with results presented in the form of adjusted time ratios (TR).
The hazard and time ratios resulting from these multivariate models were adjusted for patient age, sex, deprivation, comorbidity burden (excluding diabetes), operative urgency (elective *versus* emergency), operative indication (benign *versus* malignant disease) and surgical access (open *versus* minimally-invasive). P values of <0.05 were considered statistically significant. All data were analysed using STATA v17.
Results: 106139 (50% male) patients with a median age of 66 years (Interquartile Range (IQR) 52 to 76) were included. The prevalence of diabetes in this cohort was 10% (n = 10931), including 653 (6%) patients with Type 1 and 10278 (94%) with Type 2 diabetes. 20% of all patients with diabetes had a record of insulin use.
The overall unadjusted 90-day mortality risk was 5.7%, with an increased hazard rate for patients with diabetes compared with those without diabetes (adjusted HR 1.28, 95% CI 1.18 to 1.40, p < 0.001).
This risk was higher in patients with diabetes with associated insulin use (adjusted HR 1.49, 95% CI 1.23 to 1.78, p < 0.001), and without insulin use (adjusted HR 1.24, 95% CI 1.23 to 1.36, p < 0.001), compared to patients without diabetes. The median length of stay was 8 days (IQR 5 to 15) for the overall cohort. Patients with diabetes experienced a 10% longer hospital length of stay (adjusted TR 1.10, 95% CI 1.08 to 1.11, p < 0.001) compared with those without diabetes. Emergency readmission within 90 days occurred in 23% of those operated for benign disease, *versus* 18% of patients operated for malignant disease. Patients with diabetes were more likely to experience 90-day readmission (adjusted HR 1.22, 95% CI 1.16 to 1.28, p < 0.001) compared with those without diabetes.
Conclusion: Patients with diabetes undergoing resectional colorectal surgery are at a higher risk of 90-day mortality, prolonged length of stay and 90-day readmissions.
Awareness of these increased risks should be considered during perioperative optimisation of the patient, as well as in consent discussions and the patient selection processes.
Disclosure: Nothing to disclose.

PP1244

LONG-TERM EFFICACY OF TRANSANAL DOPPLER-GUIDED HEMORRHOIDAL ARTERY LIGATION WITH MUCOPEXY (HAL-RAR) IN HEMORRHOIDAL DISEASE

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Introduction: Doppler-guided artery ligation with Mucopexy, or HAL-RAR, is a minimally invasive surgical technique that allows for better postoperative comfort. An anoscope linked with a light source and a doppler probe allows the proctologist to locate the submucosal branches of the superior rectal artery and to ligate them via a transfixing parietal approach.
Mucosal pexis is performed afterward : the mucosa of the prolapsed hemorrhoidal pedicles is vertically sutured, consequently leading to a plication of the prolapsed muco-hemorrhoidal tissue and its reposition inside the canal anal.
Nevertheless, long-term recurrence rate of internal hemorrhoidal disease after this procedure has been poorly studied.
Aims & Methods: The aim of our study is to evaluate the long-term recurrence rate of hemorrhoidal disease post Doppler-guided artery ligation (HAL-RAR) with Mucopexy in our center.
An ambispective observational and analytical study was conducted over a 5-year period, from January 2017 to January 2022. Surgical indications included grade II and III internal hemorrhoids that resisted to medical treatment and small localized non-circumferential grade IV hemorrhoids. Patients with external hemorrhoids, bulky grade IV hemorrhoids or pelvic floor disorders were excluded.
All data were analyzed using Jamovi version 2.0.0.0 software. Patient characteristics were described as number and percentage for qualitative items and median (interquartile range [IQR]) or mean (± standard deviation) for quantitative ones. A *p* value of ≤0.05 was deemed to be significant.
Our primary objective was to evaluate the rate of recurrence more than 24 months after surgery. The secondary objectives were to determine the clinical features of relapsing patients.
Results: 114 patients were included in this study. The mean age was 46.5 ± 9.6 years. The sex ratio was 6 (16f, 98H). Preoperatively, 69% (n=79) of the patients reported proctalgia, 53% (n=60) post-defecation rectal pain and 58% (n=66) prolapse. We staged the internal hemorrhoidal disease according to Goligher's classification, identifying 32 with grade II hemorrhoids, 61 with grade III hemorrhoids and 21 grade IV hemorrhoids.
At the end of a median follow-up of 4 years (7-2), 9 patients (7.9%) presented a recurrence, made in 6 cases of a muco-hemorrhoidal prolapse and in 3 cases of post-defecation rectal bleeding. None of our patients presented with anal stenosis or incontinence during the follow-up period. In our study, there was no statistically significant relationship between the recurrence and the preoperative clinical symptomatology (p=0.21) nor with grade of hemorrhoids (p=0.17).
Overall, 94% of the patients included were satisfied with this technique. 4 of the patients who relapsed benefited from Milligan-Morgan hemorrhoidectomy. However, they claimed that they were more satisfied following the HAL-RAR procedure.

Conclusion: Transanal doppler-guided hemorrhoidal artery ligation with mucopexy (HAL-RAR) is easy to perform and is a safe minimally-invasive technique. It can be considered an effective long-term treatment for internal hemorrhoidal disease.
Disclosure: Nothing to disclose.

PP1245

ROLE OF PREOPERATIVE CT RECONSTRUCTION IN RIGHT COLECTOMY WITH COMPLETE MESOCOLIC EXCISION FOR RIGHT COLONIC CANCERS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Complete mesocolic excision (CME) is a well-established procedure to treat right colonic cancers. Laparoscopic surgery improved post-operative outcomes but it has its own limitations such as lack of tactile feedback, ergonomically challenging, and a 2-dimensional view of the operative field. In addition to these features the complex and variable anatomy of the superior mesenteric artery and veins and its branches make laparoscopic right hemicolectomy with CME a challenging procedure often resulting in catastrophe.
Aims & Methods: Compare perioperative outcomes such as intraoperative blood loss, operative time, anastomotic leak, hospital stay, and harvested lymph nodes between right hemicolectomy and CME with and without preoperative CT reconstruction.
A systematic search of multiple electronic databases was conducted. A systematic review and meta-analysis were conducted according to the PRISMA guidelines 2020 (1) and AMSTAR 2 guidelines (2). Population: Adults of either sex that underwent right colectomy with CME. Intervention group: Patients that underwent right-sided colectomy with CME with preoperative CT reconstruction. Control group: Patients that underwent right-sided colectomy with CME without preoperative CT reconstruction. Outcomes: The different outcomes of this study were overall morbidity, intraoperative complications, anastomotic leak, blood loss, operative time, hospital stay, and harvested lymph nodes. Morbidity was considered when they occurred within 30 days after surgery. Study Selection: Two authors independently reviewed all abstracts of the studies that met the inclusion criteria. Disagreements were resolved through discussion after consulting with a third review team member.
Results: 4 studies published between 2013 and 2023 were included in the metanalysis (3-5). There were two RCTs, one prospective non-randomized trial, and one retrospective study. They included 420 patients, 203 in the preoperative navigation group and 217 in the no navigation group. The sex ratio of the included patient was 1.2 with male predominance. The mean age ranged between 64.3 to 71.7 years in the preoperative navigation group and from 58.9 to 71.6 years in the no preoperative navigation group. The mean BMI ranged from 26.3 kg/m² to 29.8 kg/m² in the two groups. All the included patients were operated using the laparoscopic approach. There was significantly lower blood loss in the preoperative CT reconstruction group compared to the non-CT reconstruction group (SMD= -1.75; 95% CI [-2.94, -0.56], p = 0.004). Operative time was shorter in the preoperative CT reconstruction group (SMD= -0.90; 95% CI [-1.10, -0.70], p < 0.00001). There was a higher number of the harvested lymph node in the preoperative CT reconstruction group (SMD = 0.33; 95% CI [0.14, 0.53], p=0.0007). There was no significant difference between the two groups in terms of hospital stay, anastomotic leak, intraoperative complication and overall morbidity.
Conclusion: This systematic review and meta-analysis concluded that the preoperative CT reconstruction group is associated with lower intraoperative blood loss, shorter operative time, and a higher number of harvested lymph nodes in comparison to the non-CT reconstruction group. This study did not find any difference between the two groups in terms of morbidity, intraoperative complications, anastomotic leak, and hospital stay. Future high-quality studies need to be undertaken to corroborate these findings and better understand the role of preoperative CT reconstruction in right hemicolectomy with CME for right colonic cancers.
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Disclosure: None.

PP1246

LAPAROSCOPIC VERSUS OPEN ADHESIOLYSIS IN ADHESIVE SMALL BOWEL OBSTRUCTION: A META-ANALYSIS OF MATCHED OBSERVATIONAL STUDIES AND RANDOMIZED TRIALS

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Introduction: Adhesive small bowel obstruction (ASBO) constitutes one of the most common causes of emergency room admissions worldwide. Although open adhesiolysis (OA) has long been the most widely adopted surgical approach, laparoscopic adhesiolysis (LA) is gaining momentum. However, current evidence remains controversial, as most of the studies suffer from a high risk of bias. This study aims to elucidate the comparative clinical outcomes and safety profiles of LA and OA in ASBO.
Aims & Methods:
A systematic search of Medline, Embase, CINAHL, Cochrane Central Register of Controlled Trials, and Scielo databases was performed to identify eligible studies that compared LA and OA for ASBO published up until March 2023. Only randomized controlled trials (RCTs) and matched observational studies were included. The primary outcomes encompassed duration of surgery, postoperative complications, mortality, and postoperative hospital stay. We used random-effects models for data pooling. Heterogeneity amidst studies was evaluated via the I2 statistic.

Results: From 1955 articles screened, six studies evaluating a total of 1053 patients (mean age: 65 years; 67% females) fulfilled the selection criteria and were included. From these patients, 39% had an ASA classification ≥3 (95% CI 23%-57%. I2: 96%), 21% had two or more previous abdominal surgeries (95% CI 6%-42%. I2: 94%), 8% had evidence of irreversible bowel ischemia detected at surgery (95% CI 5%-12%. I2: 31%) and 48% (n=507) underwent laparoscopic lysis of adhesions.

No significant differences regarding surgery duration (MD -5.52; 95% CI -15.98, 4.94. I2: 50%), iatrogenic bowel injury (OR 1.20; 95% CI 0.56, 2.55. I2: 0%), mortality (OR 1.30; 95% CI 0.46, 3.68. I2:0%), and the development of any postoperative complication (OR 2.61; 95% CI 0.19, 36.34. I2: 91.7%) were observed. However, LA was associated with a reduced postoperative stay compared to the open approach (MD -2.40; 95% CI -3.26, -1.54. I2: 12%).

Figure. Forest plot of postoperative hospital stay (days)

Conclusion: Although OA remains the standard procedure for the treatment of ASBO, LA appears to be a feasible approach to treat this condition in selected populations, with comparable results in terms of postoperative complications and mortality, while being associated with a significantly reduced postoperative length of stay. Additional RCTs with robust methodology should be performed in order to confirm these findings.

Disclosure: The authors have nothing to disclose.

PP1247

THE DUMPLING TECHNIQUE: A NEW METHOD FOR INJECTING FIBRIN GLUE INTO A POCKET CREATED BY ENDOSCOPIC SUTURE TO PREVENT DELAYED BLEEDING FROM POST-ESD ULCERS

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Introduction: Endoscopic submucosal dissection (ESD) is a common treatment for early-stage gastrointestinal cancers, but managing delayed bleeding from post-ESD ulcers can be challenging. With more patients taking antithrombotic drugs, reliable bleeding prevention methods are crucial. This study presents the Dumpling technique, a new solution for preventing delayed bleeding from these ulcers.

Aims & Methods: Dumpling technique: The technique involves using a double-lumen catheter to inject fibrin glue into the pocket created after suturing an artificial ulcer post-ESD. This technique not only covers the ulcer but also provides a tamponade effect through compression. The fibrin glue is encased by the sutured mucosa, giving it the appearance of a dumpling. An important point of this technique is the use of a double-lumen catheter for fibrin glue injection. Fibrin glue consists of a fibrinogen solution and thrombin solution. Single-lumen catheters cannot be used because the two solutions begin to form a gel in just a few seconds when mixed. One advantage of this technique is that it combines existing products, so no new product development time is required.

An artificial ulcer was created in the resected bovine rectum by ESD flow, fixed to a jig, and a defect of 2.7 mm in diameter was created using an Aorta/Vein Punch. Pig blood that had lost coagulability was then injected to create a hemorrhage model. First, pressure resistance was measured after clip sutures only. Next, the same ulcer was used as is, the blood was washed out, fibrin glue was injected, and pressure resistance was measured again and compared between the two groups (Clip suture group vs Dumpling technique group). In addition, to confirm the feasibility of the technique, the Dumpling technique was performed endoscopically on porcine explanted stomach and bovine explanted rectum, and the excised specimens were evaluated.

Results: The mean ± SD pressure resistance in the bleeding model was 40.2 ± 14.0 mmHg in the clip suture group and 134.5 ± 36.8 mmHg in the Dumpling technique group (N = 5). Feasibility checks confirmed that suture spacing could be performed endoscopically without problems by setting the suture spacing to allow catheter tip insertion. The resection specimen was confirmed to be sufficiently filled with fibrin glue in the pocket.

Conclusion: This study suggests that the Dumpling technique improves the bleeding prevention effect of ulcer closure. Although various methods of ulcer suturing are still being developed, the injection of fibrin glue itself is expected to be adoptable by many clinicians because it does not require high skill if the tip of the catheter can be inserted through the gap between the sutures. We plan to confirm the feasibility of the Dumpling method in an in vivo study using pigs, followed by a clinical trial to confirm the effectiveness of the Dumpling technique.

Disclosure: Mr. Takegawa is employees of KM Biologics Co., Ltd. and the fibrin glue (BOLHEAL®) used in this article is manufactured by KM Biologics Co., Ltd.

PP1248

MUCOSAL MICROBIOME ALTERATIONS IN PATIENTS WITH ANASTOMOTIC INSUFFICIENCY FOLLOWING COLORECTAL CANCER RESECTION

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Introduction: Colorectal carcinoma (CRC) is one of the most important indications for colorectal surgery despite the availability of screening measures. Anastomotic leakage is among the most common potentially life-threatening complications. Increasing evidence suggests a causal role of the gut microbiota in the pathogenesis of anastomotic leakage.

Aims & Methods: The aim of the study was to evaluate the dynamics of microbiome changes in patients with colorectal carcinoma before, during and after surgical intervention in relation to anastomotic insufficiency. From a total of 18 patients recruited, the records of 16 patients were systematically analysed according to inclusion/exclusion criteria and sequencing quality. Biopsies were taken from the 3 sites (proximal to the tumour, tumour region, distal to the tumour) before, during and after surgery. All patients received preoperative Metronidazole and Paromomycin for intraluminal bowel decontamination and a single intravenous dose of Ertapenem during surgery. DNA extraction was followed by amplification of the V1-V2 region of the 16S rRNA gene and Illumina sequencing.

Results: *Phocaeicola*, *Prevotella* and *Enterococcus* were the most abundant of the 259 different genera found in the cohort. Hierarchical clustering showed that samples from the same patient at the same time point generally had high similarity (66%), and in 6 cases all samples from more than one time point formed a cluster. These results were corroborated by comparing the Bray-Curtis similarity of sample sites and time points. Periinterventional procedures were associated with a significant decrease in diversity in samples collected during or after surgery.

Samples with anastomotic leakage had a different microbial structure at all time points, with Prevotella being more abundant in the anastomotic leakage group (p<0.0001), whereas *Phocaeicola* was more abundant in the sufficient anastomosis group (p=0.04). Systematic longitudinal analysis revealed an increasing abundance of bacterial species, particularly *Enterococcus* and *Escherichia/Shigella*, at subsequent sampling times.

Conclusion: The mucosal microbiota is substantially altered by colorectal surgery, and the microbiome of patients with anastomotic leakage differs from that of patients with sufficient anastomoses.

Further studies are needed to unravel the molecular and functional interactions between the microbiota and mucosal tissue.

Disclosure: Nothing to disclose.

PP1249

AN EXTREMELY SIMPLE EDUCATIONAL METHOD OF LEARNING HOW TO PROPERLY CONTRACT THE PELVIC FLOOR MUSCLES USING A BALLOON TO TREAT PELVIC FLOOR WEAKNESS

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Introduction: Fecal incontinence is a symptom characterized by the involuntary excretion of liquid or formed stool, so it impairs the quality of life. It is most often the result of weakened muscles of the pelvic floor, which were exposed to heavy loads and injuries during life.

The muscles of the pelvic floor provide support to the pelvic organs and play an important role in the retention and excretion of stool and urine, and the quality of sexuality. We can strengthen them with exercises, thus preventing or mitigating disorders of stool and urine retention.

Aims & Methods: Aim: Present a simple method of learning how to properly contract the pelvic floor muscles with a balloon.

Methods: A simple device, consisting of a balloon, a plastic tube, a bow-tie, and a 100-milliliter syringe was used. The balloon was attached to the plastic tube with a thread. Patients were included in education about the anatomy and physiology of the pelvic floor and how to perform exercises.

The patients lay on their left side with their hips and knees bent. The balloon was folded and wrapped around the back of the plastic tube. This part was smeared with anesthetic ointment and introduced into the rectum up to 10 cm deep.

When introducing it, we took into account that the anal canal is directed diagonally forward towards the symphysis and the rectum back towards the sacrum. The angle between the anal canal and the rectum was approximately 90°. The balloon was filled with air up to 30 ml. The plastic tube was slowly pulled outwards in the opposite direction of the rectum. When feeling the resistance, the balloon was on the upper part of the pelvic floor, up the entrance to the anal canal. The plastic tube was carefully pulled further in the same direction, so the patient usually felt and became aware of the position of the pelvic floor. If the patient did not feel it, the procedure was repeated several times.

After successfully identifying the position of the pelvic floor muscles, the patient was instructed to raise the pelvic floor or contract the muscles. With a properly isolated contraction of the pelvic floor muscles, the balloon pulled the plastic tube behind it. This was how the force of muscle contraction was evaluated.

Results: 117 anorectal manometries were performed. 69 (59.0%) patients had an indication of incontinence. Before the investigation, 14 (20.3%) patients performed Kegel exercises correctly. The other 55 (79.7%) patients performed Kegel exercises incorrectly. An educational school on how to use the pelvic floor muscles was introduced to these patients; 37 (67.3%) patients performed exercises correctly. The rest 18 were once again referred to education. 13 patients applied to the school, 8 were taught how to perform Kegel exercises correctly, and 5 patients failed. Out of total 55 patients who initially did not perform Kegel exercises correctly, 45 patients were educated on how to contract the pelvic floor muscles correctly leading to a success rate of 81.8%.

Conclusion: The balloon learning method helped the patient identify the position of the pelvic floor and contract the pelvic floor muscles in isolation. Learning how to properly contract the muscles of the pelvic floor with a balloon is a simple and effective method that requires recognition of the physiology of the pelvic floor and a lot of patience on the part of the doctor or healthcare worker.

After successfully completing education, the success of pelvic floor reconstruction depended primarily on the patient and his commitment to regular exercise.

Disclosure: No conflict of interests.

PP1250

A NOVEL PHYSIOLOGICAL ANALYSIS USING BLOOD FLOW VELOCITY MAY HAVE THE POTENTIAL TO DISTINGUISH COLONIC POLYPS: A PILOT STUDY

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Introduction: Magnifying endoscopy (ME) enables clear visualization of microvascular (MV) architecture and microsurface structure [1] [2] and allows real-time visualization of red blood cell flow within subepithelial microvessels. Mean MV blood flow velocity is significantly lower in early gastric cancer than in non-neoplastic lesions [3].

However, MV blood flow velocity in the colorectum has not been investigated and it is unclear whether it is useful for the qualitative diagnosis of colorectal polyps in clinical practice.

Aims & Methods: We aimed to calculate the blood flow velocity in colorectal polyps and the surrounding mucosa, and evaluate its usefulness for the differential diagnosis of colorectal polyps. We retrospectively reviewed videos of colorectal polyps that were endoscopically resected at our hospital between March 2019 and January 2023. All procedures were carried out with a high-resolution optical magnifying endoscope (EC-L600ZP7; Fujifilm Corporation, Tokyo, Japan) and endoscope video system (LASEREO; Fujifilm Corporation). The blood flow velocities of each lesion and surrounding mucosa were carefully evaluated using magnifying blue laser imaging (M-BLI) prior to endoscopic resection. All M-BLI video images were split into 30 fps, and mean blood flow velocities were calculated by the mean movement distance of one tagged red blood cell using split images of videos. We compared mean MV blood flow velocities between lesions and the surrounding mucosa.

Furthermore, we calculated the MV blood flow imaging ratio (inside lesion/surrounding mucosa) to avoid the influence of individual differences such as blood pressure.

Results: This study included 30 adenomas (ADs) from 20 patients and 20 hyperplastic polyps (HPs) from 13 patients. No significant differences in age or sex were found between lesion groups. The mean size for ADs and HPs were 4.8 ± 3.1 mm and 3.6 ± 1.8 mm, respectively. The macroscopic

type of ADs and HPs were 1 and 0 of 0-Isp, 20 and 13 of 0-Is, and 9 and 7 of 0-IIa, respectively. The mean MV blood flow velocity was significantly lower in ADs (1.65 ± 0.66 mm/sec; range 0.46–2.90) than HPs (2.83 ± 1.10 mm/sec; range 1.07–4.50) or the surrounding mucosa (4.12 ± 1.11 mm/sec; range 1.80–6.20; $p < 0.001$, respectively). The ratio of the blood flow velocity of lesions compared to the surrounding mucosa was significantly lower in ADs (0.41 ± 0.16; range 0.10–0.82) than HPs (0.89 ± 0.25; range 0.46 – 1.51; $p < 0.001$).

In summary, MV blood flow velocity was significantly lower in ADs than HPs and the surrounding non-neoplastic mucosa, suggesting blood flow in ADs may be congested. A lower subepithelial MV blood flow rate in ADs compared with non-neoplastic lesions may be due to a difference in caliber and tortuosity of microvessels.

	Adenomas				Hyperplastic polyps		
	Blood flow velocity (mm/sec)		(A) / (B)		Blood flow velocity (mm/sec)		(C) / (D)
	(A) Lesions	(B) The surrounding mucosa			(C) Lesions	(D) The surrounding mucosa	
mean ±SD	1.65±0.66	4.12±1.11	0.41±0.16	mean±SD	2.83±1.10	3.1 3±0.85	0.89±0.25
(range)	(0.46-2.90)	(1.80-6.20)	(0.1-0.82)	(range)	(1.07-4.50)	(2.30-5.07)	(0.46-1.51)

Conclusion: Our results suggest using MV blood flow velocity and ME as a novel dynamic diagnosis for the differential diagnosis of ADs and HPs. However, since this was a single-center retrospective study with a small sample size, further investigation is needed to validate our results and confirm their clinical usefulness.

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Disclosure: Nothing to disclose.

PP1251

SAFETY PROFILE OF LOW-POWER PURE CUT HOT SNARE POLYPECTOMY FOR NONPEDUNCULATED COLORECTAL NEOPLASMS: A MULTICENTER STUDY

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Introduction: Hot snare polypectomy (HSP) has been commonly applied for 10-19 mm polyps. The incidence of delayed bleeding after HSP for 10-19 mm is reported to be 2.1-2.8% [1-2], which is not negligible and expected to be higher in cases with antithrombotic drug use. Blended or coagulation currents are commonly used for HSP, but the coagulation current causes thermal injury to the deeper submucosal layer including larger vessels, resulting in a risk for delayed bleeding [3].

Cold snare polypectomy (CSP) reduces the risk for delayed bleeding compared with HSP [4], but CSP for colorectal polyps 10-19 mm is unsatisfactory for its higher rates of incomplete resection, leading to a higher incidence of local recurrence [5].

We hypothesized that low-power pure cut current (LPPC) without coagulation current can decrease thermal injury and conducted a phase I study assessing the feasibility of LPPC HSP for 10-14 mm adenoma (UMIN Clinical Trials Registry; UMIN000037678). Although there was no delayed bleeding among 90 patients with 100 polyps, sample size was insufficient to assess the safety of LPPC HSP.

Aims & Methods: This study aimed to evaluate the safety of LPPC HSP for colorectal neoplasms. In this multicenter, retrospective, observational study, consecutive patients who underwent LPPC HSP for nonpedunculated colorectal neoplasms 10-14 mm at two Japanese institutions between December 2018 and March 2022 were evaluated. Data were collected from medical records and prospectively recorded databases of endoscopic and pathologic findings. LPPC HSP was performed using a 10-mm or 15-mm thin hexagonal snare with either of the following modes; PureCut, effect 1, 10W (ESG-300), Autocut, effect 1, 10 W (VIO300D), or Autocut, effect 0.4 (VIO3). We analyzed the treatment outcomes of LPPC HSP. We also compared the delayed bleeding rate of LPPC HSP with the historical control of HSP, which was set as 2.1% (55/2629) based on the previous meta-analysis [1], and calculated the power value using a one-sample proportion test.

Results: A total of 339 patients with 410 lesions sized 10-14 mm were identified. The en bloc and R0 resection rates were 94.9% and 86.7%, respectively. Immediate bleeding requiring hemostasis developed in 4 lesions (1.0%). No perforation developed. Delayed bleeding developed in two patients, both of them required hospital admissions but were conservatively managed without endoscopic hemostasis or blood transfusion. Delayed bleeding rate was 0.6% per patient (2/339). LPPC-HSP was associated with a 71.4% reduction in the risk of delayed bleeding compared to the historical control (2.1%), with a power of 80.4% using a 2-sided significance level of 0.1.

Age, years, median (interquartile range)	71 (67-77)
Male sex (%)	232 (68.4)
Lesion size, mm, median (interquartile range)	11 (10-12)
Location right colon/left colon/rectum (%)	235 (57.3) / 141 (34.4) / 34 (8.3)
Morphology 0-IIa/0-Is/0-Isp (%)	189 (46.1) / 133 (32.4) / 88 (21.5)
Antithrombotic agents (%)	55/339 (16.2)
En bloc resection (%)	389/410 (94.9)
R0 resection (%) *	352/406 (86.7)
Prophylactic clipping (%)	49/410 (14.5)
Delayed bleeding (%)	2/339 (0.6)

* four lesions were excluded for no information on margin status

Table. Baseline characteristics and treatment outcomes of low-power pure cut hot snare polypectomy.

Conclusion: Delayed bleeding rate of LPPC HSP for nonpedunculated colorectal neoplasms 10-14 mm was 0.6%, which may be lower than conventional HSP. A large prospective study is warranted to assess the safety of LPPC HSP.

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Disclosure: Nothing to disclose.

PP1252

THE FEASIBILITY OF TRACTION-BAND-ASSISTED ENDOSCOPIC CLOSURE FOR MUCOSAL DEFECTS AFTER COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION: A MULTI-CENTER PROSPECTIVE STUDY

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Introduction: Endoscopic closure of mucosal defects following colorectal endoscopic submucosal dissection (ESD) helps prevent delayed complications. The Sure Clip Traction Band, a recently developed traction device for endoscopic procedures, features a silicone ring attached to the clip's base, allowing for traction between clips.

We have developed a traction-band-assisted endoscopic closure (TBEC) method using the Sure Clip Traction Band [1]. In TBEC, tension between the clips at both ends of the mucosal defect narrows the defect, facilitating the placement of additional clips.

Aims & Methods: We conducted a prospective study to evaluate the feasibility of TBEC in colorectal ESD. Patients with 20-50mm colorectal neoplasms were enrolled. Patients underwent TBEC following the completion of ESD. The primary outcome was the complete closure rate. Secondary outcomes included closure time, number of devices required, and complication rate. The sample size was calculated to be 34 cases based on previous data.

Results: Thirty-four patients were enrolled across three institutions. Data are shown as median (IQR), if applicable. The median age was 75 years (72-80), with a male-to-female ratio of 19:15. Lesion locations were the right colon, left colon, and rectum in a ratio of 22:10:2, respectively. The median lesion diameter was 30 mm (25-35). All ESDs achieved en-bloc resection. The complete closure rate was 100% (34/34). The median closure time was 15 minutes (10-22). The number of devices used was one (1-2) traction band and eight (7-10) clips. Procedure-related complications included intraoperative perforation in 5.8% (2/34), delayed bleeding in 2.9% (1/34), and post-ESD electrocoagulation syndrome in 3.1% (1/32, excluding intraoperative perforation).

Conclusion: A high complete closure rate of mucosal defects following colorectal ESD was achieved using TBEC. Further studies are required to verify the efficacy of TBEC in preventing delayed complications.

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Disclosure: Nothing to disclose.

PP1253

ENDOSCOPIC SUBMUCOSAL DISSECTION OF COLORECTAL NEOPLASMS WITH MUSCLE RETRACTING SIGN – OUTCOMES, SAFETY AND CLINICAL IMPLICATIONS

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Introduction: During endoscopic submucosal dissection (ESD) of colorectal neoplasms, an interesting feature is occasionally detected in which the muscle layer under the tumour seems to be pulled upwards into the lesion in a triangle-shape. This feature is named muscle retracting sign (MR sign) and appears to indicate a potentially difficult ESD with high risk of incomplete and non-curative resection, although data about this subject is still scarce, without current studies in western countries.

The aim of this study was to evaluate whether or not MR sign is associated with worst outcomes.

Aims & Methods: A retrospective analysis, using a prospectively collected database from 2 western centres, including all patients who underwent ESD for colorectal neoplasms with positivity for MR sign from July 2017 to January 2023 was performed. The presence of MR sign was determined by the endoscopist during the procedure. The results were evaluated in terms of complete, en bloc, R0 and curative resection rates, complications and local recurrence.

Results: In a total of 411 lesions treated by ESD, 26 presented MR sign (6.3%, mean size 62,3mm, range 20-180mm): 9 colonic and 17 rectal, corresponding to 26 patients (male 61.5%, mean age 70 years): 9 in colon and 17 in rectum. Morphologically and according to Paris classification, 13 were 0-Is (50%), 10 LST-G-M (38.5%), 1 0-Isp, 1 LST-G-N and 1 LST-NG-F. Technical success was achieved in 24 lesions (24/26, 92.3%) with 2 procedures aborted due to the perception of high perforation risk, both located in the colon (2/9, 22%). In the rectum, there was the need to perform intramuscular dissection in 3 procedures to complete the resection (3/17, 17.6%). Among resected lesions, en bloc and R0 resection rates were 100% and 66.7% (16/24).

According to ESGE 2022 criteria, resection was considered curative in 66.7% (16/24), non-curative with high risk in 8.3% (2/24) and with local-risk recurrence in 25% (6/24). Intraprocedure complications were recorded in 2 resections (8%), both in the rectum and both perforations endoscopically managed. No recurrence was recorded in a mean follow-up time of 7 months (range 1-22 months).

Conclusion: This analysis show that MR sign is mostly present in large bulky protruding lesions and seems associated with a higher incomplete resection procedure rate in colon lesions but in rectum. Also, it seems associated with higher complication rate, namely perforations, and non-curative resection rates among resected lesions.

Therefore, in the colon, an anticipated switch for surgery in clinically fit patients should be considered in the presence of this sign or even before initiating ESD when lesion morphology suggests its presence. To the authors' best knowledge, this is the first study of the impact of the present of MRS in ESD in the West.

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Disclosure: Nothing to disclose.

PP1254

IMPACT OF FOUR-WEEK, DAILY CONSUMPTION OF GREEN KIWIFRUIT ON COLONIC TRANSIT AND FERMENTATION PROFILE IN ADULTS WITH CHRONIC CONSTIPATION

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Introduction: In patients with chronic constipation, slow colonic transit is hypothesised to be associated with altered colonic fermentation profiles. Green kiwifruit is known to have laxative effects. This could be caused by the modulation of colonic microbiota, which has a role in regulating colonic transit[1].

The wireless motility capsule measures gastrointestinal anatomical landmarks through changes in pH and temperature, while a novel gas-sensing capsule measures anatomical landmarks and colonic fermentation[2,3].

In this study, both technologies were used to investigate the effects of green kiwifruit on gastrointestinal transit and colonic fermentation profiles in participants with constipation.

Aims & Methods: Participants with chronic constipation (N = 62) were randomised to consume two green kiwifruit (*Actinidia deliciosa*, ~150g per serving, ~90 kcal) or

calorie-matched maltodextrin (~90 kcal = 25g) daily for four weeks. A subset of the participants (N = 21) consumed a standardised breakfast and ingested the wireless motility capsule or both wireless motility devices (wireless motility capsule and gas-sensing capsule) at baseline and post-intervention. Participants fasted six hours post-ingestion and wore data receivers until device excretion.

Results: Preliminary blinded results show that the wireless motility capsule measured colonic transit time decreased in participants on intervention A (median decrease = 1.4 hours, interquartile range (IQR) (-32.00, 9.12)) and increased on intervention B (median increase = 15.8 hours, IQR (-46.89, 23.48)), the change in colonic transit time was not significant (p = 0.628). There was no significant difference between the median colonic H_2 and CO_2 (% concentration/hour) at baseline and post-intervention (H_2: p = 0.50; CO_2: p =0.138). The difference between interventions was not significant for median colonic H_2 and CO_2 concentrations (H_2: p = 0.200; CO_2: p =0.800).

Conclusion: The wireless motility capsule and the gas-sensing capsule technologies assessed the differences in colonic transit time after dietary intervention. The gas-sensing capsule measured the colonic gas profile accurately and safely. The gas-sensing capsule has the potential to be used as a tool for measuring colonic fermentation profile. Despite encouraging results, this study had several limitations, including a small sample size, unusable data due to data loss, and transit time beyond the battery life of the capsules.

Further analyses will explore the relationship of colonic gas concentration with colonic transit time and faecal microbiota.

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Nicole Roy - Received funding from Zespri™ International Ltd.

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PP1255

IMPACT OF SUBMUCOSAL SALINE INJECTION DURING COLD SNARE POLYPECTOMY FOR COLORECTAL POLYPS SIZED 3-9 MM: A MULTICENTER RANDOMIZED CONTROLLED TRIAL

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Introduction: Cold snare polypectomy (CSP) has been recommended as the preferred option for removing nonpedunculated colorectal polyps smaller than 10 mm owing to its high rate of complete resection and low incidence of adverse events[1-4].As one of the main steps during endoscopic mucosal resection, submucosal injection can elevate the lesion and separate it from the muscularis propria, allowing safe and fast resection of gastrointestinal lesions.

However, current guidelines do not address the application of submucosal injection during CSP for polyps smaller than 10 mm.The role of submucosal injection during cold snare polypectomy (CSP) remains uncertain.

Aims & Methods: In this study, we investigated the impact of submucosal saline injection during CSP for colorectal polyps sized 3-9 mm.

This was a multicenter randomized controlled trial conducted in six Chinese centers between July and September 2020 (ChiCTR2000034423). Patients with nonpedunculated colorectal polyps sized 3-9 mm were randomized in a 1:1 ratio to either CSP with submucosal injection (SI-CSP) or conventional CSP (C-CSP). The primary outcome was the incomplete resection rate (IRR). Secondary outcomes included procedure time, intraprocedural bleeding, delayed bleeding, and perforation.

Results: One hundred fifty patients with 234 polyps in the SI-CSP group and 150 patients with 216 polyps in the C-CSP group were included in the analysis. The IRR was not decreased in the SI-CSP group compared with the C-CSP group (1.7% *vs.* 1.4%, *P*=1.000). The median procedure time in the SI-CSP group was significantly longer than that in the C-CSP group (108 seconds *vs.* 48 seconds, P<0.001). The incidences of intraprocedural bleeding and delayed bleeding were not significantly different between the two groups (*P*= 0.531 and *P*=0.250, respectively). There was no perforation in either group.

Conclusion: Submucosal saline injection during CSP for 3-9 mm colorectal polyps did not decrease the IRR or reduce adverse events but prolonged the procedure time.Therefore, we do not recommend the routine submucosal injection during CSP.

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Disclosure: Nothing to disclose.

PP1256

DEVICE ASSISTED ENDOSCOPIC FULL THICKNESS RESECTION IN COLORECTUM: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Endoscopic full thickness resection (EFTR) is emerging as an effective modality for mucosal and submucosal lesions in colorectum.

Aims & Methods: In this systematic review and meta-analysis, we aimed to analyze the success and safety of device assisted EFTR in colon and rectum. A literature search was performed in Embase, PubMed, Medline databases for studies evaluating device assisted EFTR between inception to October-2022. The primary outcome of the study was clinical success (R0 resection) with EFTR. Secondary outcomes included technical success and adverse events.

Results: 29 studies with 3467 patients [2045(59%) males] with 3492 lesions were included in the analysis. The lesions were located in right colon in 1660 (47.5%), left colon in 990 (28.6%) and rectum 840 (24.3%). EFTR was performed for sub-epithelial lesions in 252 (7.2%) patients. Pooled mean size of the lesions was 16.6 mm (95% CI 14.9 – 18.2, I^2 98%). Technical success was achieved in 87.1% (95% CI 85.1%-88.9%, $I^2$39%) procedures. The pooled rate of en bloc resection was 87.9% (95% CI 85.1%-88.9%, $I^2$50%) and R0 resection was 81.6% (95% CI 78.8% to 84.2%, $I^2$57%). In sub-epithelial lesions, pooled rate of R0 resection was 94.3% (95% CI 89.7% to 96.9%, I^2 0%). Pooled rate of adverse events was 12.1%(95% CI 10.3%-14.1%, $I^2$44%) and major adverse events requiring surgery was 2.5% (95% CI 2.0%-3.1%, $I^2$0%).

Conclusion: Device assisted EFTR is a safe and effective treatment modality in cases with adenomatous and sub-epithelial colorectal lesions. Comparative studies are required with conventional resection techniques including endoscopic mucosal resection and submucosal dissection.

Disclosure: Nothing to disclose.

PP1257

NON-TUNNELLED EXPOSED ENDOSCOPIC FULL-THICKNESS RESECTION IN RECTAL NEOPLASMS: A CASE SERIES

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Introduction: Among the various forms of NOTES (Natural Orifice Translumenal Endoscopic Surgery), Endoscopic Full-Thickness Resection (EFTR) is a minimally invasive endoscopic surgical technique that allows radical resection of epithelial neoplasia with significant fibrosis or suspected deep submucosal invasion.

We describe our initial experience with non-tunnelled exposed EFTR for rectal lesions, with subsequent closure of the defect using an endoscopic suturing device.

Aims & Methods: We performed a retrospective analysis of 11 consecutive patients treated at our centre with non-tunnelled exposed EFTR for removal of 11 lesions located in the distal rectum, below the peritoneal reflection. Indications included 7 recurrences of previous mucosectomy, 1 large circumferential lesion without evidence of submucosal invasion, 2 lesions with suspected submucosal invasion (without imaging evidence of overt muscular invasion) and 1 T3 N0 adenocarcinoma of the pelvic RM treated with neoadjuvant radiotherapy in a patient unfit for surgery. The transmural defect was closed by endoscopic suturing.

Technical success, safety and R0 resection were evaluated.

Results: All lesions were successfully treated by EFTR and no intraoperative or postoperative complications were observed.

EFTR was R0 in 8/11 patients: 1 patient underwent surgery due to high risk of lymph node metastasis.

In 3/11 patients EFTR was R1: in 2 patients the vertical margins were involved by neoplastic tissue and the patients underwent surgery, in 1 patient only the horizontal margins were involved and no endoscopic or histological evidence of recurrence was seen at 12 months.

EFTR proved to be curative in 8 out of 11 patients.

Conclusion: Our initial experience shows that rectal EFTR is a feasible and safe technique, useful for resection of complicated lesions with curative or at least diagnostic intent. Larger randomised trials are needed to better define the clinical benefits and long-term outcomes of rectal EFTR in selected patients.

Disclosure: Nothing to disclose.

PP1258

TRANSCECAL ENDOSCOPIC APPENDECTOMY FOR MANAGEMENT OF COMPLEX APPENDICEAL POLYP: A SINGLE-CENTER CASE SERIES

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Introduction: Endoscopic resection of the appendiceal orifice polyps extending into the appendiceal lumen is challenging given the inability to determine polyp's lateral margins. Endoscopic full thickness resection (EFTR) is an alternative technique for managing these polyps, but it is limited in polyps larger than 2 cm, or polyps extending to the base of the cecum or inside the appendiceal lumen. In addition, EFTR may lead to appendicitis. In this case series, we describe a novel technique for the removal of complex appendiceal orifice polyps via transcecal endoscopic appendectomy (TEA).

Aims & Methods: This case series includes patients who underwent TEA performed by a single endoscopist in the US for polyps larger than 2 cm that extended deeply into the appendiceal lumen or obstructed the appendiceal lumen. All cases were done under general anesthesia in endoscopy unit. The technique entailed performing a circumferential incision around the lateral margin of the polyp in the base of the cecum. Once the polyp was dissected by endoscopic submucosal dissection (ESD) technique from the base of the cecum, the incision was extended into the serosa of the cecal wall with continuous dissection of the appendix from the mesoappendix. Traction was then applied to pull the tip of the appendix intra-luminally within the cecum. The appendix was then dissected from the remining mesoappendix and cecal base. The defect was then closed using hemostatic clips. A 14-gauge catheter was routinely inserted above the umbilicus to prevent tension pneumo-peritoneum. Technical success was defined as achieving complete removal of the appendix and the polyp in an en bloc fashion.

Results: In total, five patients were included (60% female). The mean age of patients was 65.6 ± 7.5 years old. The average polyp size was 3.08 ± 0.6 cm. Technical success was achieved in 100% of the patients. The average procedure length was 98.6 ± 36.22 minutes. Completed closure of the defect was made via clips in all cases (average 5.8 ± 1.7 clips). The en bloc resection rate, R0 resection rate and curative resection rates were 100%. Patients were observed post procedurally for an average of 3 ± 1.3 days (range 1-5 days). Post-procedural mild abdominal discomfort (n=4) and leukocytosis (n=3) were managed conservatively with empiric antibiotics. One patient developed loculated fluid collection nine days post-procedure without development of any clinical symptoms. After treatment with empiric antibiotics, complete resolution of all collection was noted on follow-up outpatient imaging on day 17.

Conclusion: This is the first reported experience of transcecal endoscopic appendectomy for management of complex appendiceal orifice polyps in the West. This novel technique is safe and is associated with minimal risk profile in expert hands. Further prospective studies are needed to standardize the technique.

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Tara Keihanian: Tara Keihanian is a consultant for Lumendi, Neptune Medical and ConMed.

PP1259

ENDOSCOPIC RESECTION OF EARLY-STAGE COLORECTAL CANCER IN NORWAY

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Introduction: Surgery is the standard treatment for colorectal cancer (CRC). Following the introduction of screening programs for CRC, a substantial shift toward the diagnosis of CRC at an earlier stage is observed (1).

In T1 CRC merely 10% of carcinomas have spread to lymph nodes or distant organs (2), suggesting that a vast majority of T1 CRC can be successfully treated with a minimal invasive approach. Endoscopic treatment for early CRC (pT1), rather than surgical resection, is expected to reduce mortality, morbidity and costs (3, 4).

We evaluated oncological outcomes and patient safety of endoscopic resection of suspected pT1 CRC in a Norwegian CRC screening centre.

Aims & Methods: From January 2020 until November 2022, we prospectively registered all endoscopic procedures performed for suspected pT1 CRC. We recorded endoscopic technique, optical evaluation, pathology results, staging using CT and MRI, additional surgery as well as complications and final outcome. All patients were informed about the advantages and potential risks of endoscopic treatment vs. surgical resection, and all gave informed consent before treatment after shared decision-making. All patients were discussed at our multidisplinary team (MDT) meeting.

	Age/ Gender	Polyp size (cm)	Appearance	Paris	Path	Procedure length (minutes)	Knife used	Over-tube	Traction	# of clips	R0 resection	Curative resection	Length of stay (days)	Follow up
# 1	72/F	3.7 x 2.2	Entire AO	Is	SSA	65	Dual knife	Lumendi	Lumedi double balloon	5	R0	Yes	3	Post procedure ileus, managed conservatively
# 2	69/M	2.8 x 2.0	Entire AO, extending inside	Is	TA	90	Orise ProKnife	None	Rubber-band clip	8	R0	Yes	1	None
# 3	67/F	3.9 x 2.8	50% of the AO	IIa	SSA	169	Orise ProKnife	Lumendi	Rubber-band clip	3	R0	Yes	5	Multiple walled-off fluid collections on day 9, management conservatively with complete resolution of collections of day 17
# 4	51/M	2.6 x 2.1	Entire AO, extending inside	Is	SSA	86	Orise ProKnife	Pathfinder	Rubber-band clip	7 (2 DAT and 5 hemostatic clips)	R0	Yes	3	Mild abdominal pain
#5	69/F	2.4 x 0.9	Entire AO, extending inside	IIa	SSA	83	Orise ProKnife	Pathfinder	Rubber-band clip	6	R0	Yes	3	Mild abdominal pain

PP1258 Table 1. Patient, polyp and procedure characteristics, outcome and follow up information.

Results: A total of 42 suspected T1 CRC cases treated endoscopically were included. 95% (38/40) of the lesions were identified as possibly malignant with optical evaluation (JNET 2B/NICE III/SANO IIIa) before treatment. 62% (26/42) of patients were deemed to have completed treatment with endoscopic resection. Sixteen patients underwent surgery following endoscopic treatment after discussions in the MDT meeting. Of these, three had lymph node metastasis, one of these had both lymph node metastasis and residual disease; at the site of the primary tumor. All three patients had one or more histopathological risk factors (one T2 stage + lymphovascular invasion (LVI) + poor differentiation, one T1 with LVI, one T1 with Rx and LVI). The remaining 13 patients (81% of those operated) had no residual disease and were thus overtreated. No severe adverse events were recorded, and no patients needed hospitalization with intensive care treatment.

Conclusion: Our study suggests that endoscopic treatment of suspected early-stage CRC is efficient and safe.

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Svein Oskar Frigstad Takeda, Galapagos, Jansen-Cilag, Abbvie, Pharmacosmos, Norgine and Bristol-Myers-Squibb

PP1260

UNDERWATER TECHNIQUE AND NEOPLASM SIZE ARE ASSOCIATED TO LESS DISCOMFORT DURING COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION

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Introduction: Colorectal endoscopic submucosal dissection (ESD) allows high rate of en bloc resection of colorectal neoplasm. It is still not widely used; however, the factors that limit its diffusion are its technical difficulty, its duration and the risk of complications. Due to the long duration and the high risk of intra-procedural discomfort, colorectal ESD is usually performed under deep sedation or in narcosis.

The aim of the study is to determine the factors associated with intra-procedural discomfort.

Aims & Methods: We retrospectively analyzed colorectal ESD performed in our centre between November 2018 March 2023. Procedures performed in narcosis with anaesthesiologist assistance were excluded. We collected data of sedation, in particularly the presence of pain during the procedure was measured with the Gloucester scale from nursing records. The patients were divided into two groups: the first with no/mild discomfort (Gloucester 1-2), the second group with moderate/severe discomfort (Gloucester 3-4). Univariate and multivariate analyses were performed to examine factors that may have influenced intra-procedural discomfort.

Results: A total of 154 colorectal ESD for superficial neoplasms were considered. 18 colorectal ESD were excluded because performed in narcosis. The remaining 136 colorectal ESD (male 59,6% with a median age of 68.4 ± 10.1) achived en bloc resection and complete resection in 124 (91 %) and 121 (89 %) cases respectively; mean major diameter's neoplasms was 3.8 cm (±1.81cm), in 79 cases the size was < 40 mm (42%). 65 neoplasms were located in the right colon (48%), 30 in the left colon (22%) and 41 in the rectum (30%). 53 colorectal ESD (39%) were performed using underwater technique. 92 patients (67 %) were included in the first group (Goucester 1-2), the other 45 patients (33 %) in the second group (Goucester 3-4). On univariate analysis, underwater-ESD (OR 2.2; 95% CI 1.03 – 4.92) and small size of the neoplasms (< 4 cm) (OR2.3; 95% CI 1.11 – 4.78) were significantly associated with lower intra-procedural discomfort during the procedure. The morphology (non granular, granular or sessile) and the localization were not associated with intra-procedural discomfort. The multivariate analysis confirmed the significantly correlation of underwater-ESD and small neoplasms size with lower discomfort during procedures.

	UNIVARIATE ANALYSIS			MULTIVARIATE ANALYSIS		
VARIABLE	OR	95% CI	p	OR	CI	p
Size lesion < 40 mm	2.30	1.11 - 4.77	0.0237	2.78	1.29 - 5.99	0.0092
Underwater-ESD	2.26	1.03 - 4.92	0.0357	2.76	1.21 - 6.28	0.0154
Rectum	1.81	0.79 - 4.13	0.1501			
Right colon	0.72	0.35 - 1.47	0.3632			
Left colon	0.82	0.35 - 1.90	0.6391			
Non granular	0.74	0.35 - 1.55	0.4214			
Granular	0.93	0.46 - 1.91	0.8531			
Sessile	2.55	0.69 - 9.36	0.1293			

Conclusion: Underwater-ESD and lesion size < 40 mm are associated to less discomfort during colorectal ESD. These findings should be taken into consideration approaching colorectal ESD.

Disclosure: Nothing to disclose.

PP1261 WITHDRAWN

PP1262

NOVEL TRANS-ANAL TECHNIQUE FOR COMPLEX LEFT-SIDED COLORECTAL LESIONS

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Introduction: Organ preservation is increasingly preferable in the management of large and complex colorectal lesions. Innovative platforms are emerging with the advancement in technologies alongside multi-disciplinary practices.

Aims & Methods: The study aims to assess clinical outcomes and organ preservation of a novel trans-anal technique in the management of left colorectal lesions.

Consecutive patients (January 2021/November 2022) were considered for either traditional surgical resection or Speedboat-assisted endoscopic

Submucosal Dissection (SSD-Bibolar Cut and Microwave coagulation) using the innovative ATASER (Aireseal- Trans-anal Speedboat Endoscopic Resection) platform.

The operator accesses the left colorectum by introducing an endoscope via a trans-anal platform (Gelpoint™/Applied Medical/USA). Airseal™(ConMed/USA) maintains a stable intraluminal pressure and a smoke free dissection filed by a constant carbon dioxide exchange. Submucosal dissection is performed with the novel Speedboat™ Inject (Creo-Medical/Wales/UK) incorporating bipolar energy cutting and microwave energy coagulation.

Results: 79 patients (Mean age 69 years/40males) with complex lesions in the left colorectum underwent SSD. 6 abandoned (5 for muscle retraction sign, 2 advanced cancer), 1 for a medical emergency. Complete en-bloc resection was achieved in 93% (n=68) out of 73 endoscopically removed lesions with 5 cases (7%) converted to piecemeal EMR. Early cancer was found in 6 cases (3 patients opted for enhanced surveillance with no local or distant recurrence, 2 had surgery with no residual tumour or lymph node metastases and one required chemotherapy for a neuroendocrine tumour)

The A-TASER platform was used in 36/73 (49.3%) patients. The endo-surgical group had significantly larger lesions when compared with the traditional endoscopic group (Mean length 6.9cm vs. 5.1cm p 0.009, Mean surface 39.8cm^2 vs. 19.7cm^2 p 0.003). Even though the A-TASER approach took significantly longer (144 minutes vs. 100 minutes p 0.03), there was no difference in the speed of the dissection (15.7cm^2/h vs. 14cm^2/h p 0.4). Microwave used to control bleeding in all cases. Delayed bleeding did not occur in any of the groups. One post polypectomy syndrome was recorded. No perforation occurred. Hospital stay was less than 24 hours in most patients (68/73 93%). 3 patients in the A-TASER and 2 in the endoscopy only group remained for longer than 24 hours.

Conclusion: Emerging and innovative technologies allow hybrid approach in the management of gastrointestinal lesions. A-TASER appears to be technically feasible, safe and effective endo-surgical technique that enhances radical removal of large and complex lesions in the left colorectum. Its wider role in organ preservation by avoiding surgery warrants further studies. A propensity analysis of our data will follow to further explore its efficacy.

Disclosure: Dr Mohan Ramchandani has a consultant agreement with Creo Medical

Dr Zacharias Tsiamoulos has a consultant agreement with Creo Medical and CoNmed

PP1263

RETROSPECTIVE MULTICENTER ANALYSIS OF TOPOGRAPHICAL EFFICACY AND SAFETY OF ENDOSCOPIC FULL THICKNESS RESECTION IN THE SEGMENTS OF THE COLON – INSIGHTS FROM CLINICAL PRACTICE

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Introduction: Endoscopic full thickness resection (EFTR) of the colon has been described as an effective practicable method for resection of recurrent /advanced neoplastic lesions, but its performance and success may be difficult or different according to location of the lesion in the corresponding colonic segment.

The aim was to investigate the segment-specific efficacy and safety of EFTR in the colon using a full thickness resection device (FTRD) from real-world data.

Aims & Methods: EFTR was conducted in patients being referred to either of the 4 participating centers after previous colonoscopy leading to a diagnosis suitable for EFTR. The primary efficacy measure of EFTR was histologically complete resection (R0) of the lesion. Safety was investigated considering the frequency of adverse events (AE) to EFTR occurring during the procedure or afterwards.

Results: 105 patients (66m/39f; median 70yrs) were included in the analysis. FTRD was technically successful in 101 patients (96.2%) with a median lesion size of 20 x 19mm (15-24). Histologically R0 resection was obtained in 77.1% of the patients with a segment-specific range from 90% (rectum), 70.6% sigmoid, 78.6% descending colon to 62.5% (transverse colon), while in ascending colon and cecum resection rates of 76.9 and 83.3% could be achieved.

Overall, adverse event rate (AE, any) were documented in 33 patients (31.4%), with only 1 perforation in sigmoid (0.95%), while the others were minor, abdominal postsurgical pain (18.1%), hematochezia (9.5%), and haemoglobin decline (7.6%). Topographical analysis revealed that AE were most attributable to transverse colon (12.5%), while in the other segments AE were each lower or equal than 8.2%; the lowest rate of AE was found in rectum with 1.4%.

Conclusion: EFTR is efficacious for the endoscopic treatment of colorectal lesions with best outcome parameters in rectum (high R0 rate, low AE), followed by cecum. The other segments appeared to be more difficult for complete resection and showed a higher AE rate. Transverse colon was identified with lowest R0 resection rates and highest frequency of AE. While only one major complication occurred, minor complications in all other segments were below 8.2% and short-lived.

Disclosure: Nothing to disclose.

PP1264

SURVEILLANCE OF COLORECTAL ENDOSCOPIC MUCOSAL RESECTIONS (EMR): A SINGLE CENTRE TEN-YEAR EXPERIENCE

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Introduction: Colorectal endoscopic mucosal resection (EMR) is associated with high recurrence rates, which requires a regular surveillance program by colonoscopy. Our aim was to study the 5-year follow-up of a population undergoing EMR and the risk factors associated with recurrence.

Aims & Methods: Prospective cohort study, single centre, including patients who underwent colorectal EMR of lesions ≥20mm with a minimum follow-up of 5 years, between 2009 and 2019. We analysed the lesions' characteristics, as well as the recurrence rate, and logistic regression conducted for risk factors associated with recurrence.

Results: Included 407 EMR and patients were 58% male, with a mean age of 68.5±9.8 years. From our analysis: 65.8% of the lesions were 20-40mm, 21.4% 40-60mm and 12.8% were ≥60mm; 49.4% were sessile and 50,6% flat; 34.1% were localized in the right colon, 21.6% in the transverse colon, 15.5% in the left colon, and 28.7% in the rectum; 85.7% were granular and 14.3% non-granular. The mean SMSA score was 12.5±1.8. The overall recurrence rate was 19,9%, with rates and respective time of follow-up as follows: 15,8%, 7,4%, 3,6% and 0% at 3, 12, 36 and 60 months.

Evaluating the risk factors for recurrence, anal location (32.6% vs. 18.4%; p=0.02) and size of lesion: ≥60mm vs. 40-60mm vs. ≤40mm (34.7% vs. 33.7% vs. 12.8%; p<0.001) were statistically significant, but not with argon

plasma therapy (23.3% vs. 18.1%; p=0.21) and non-granular morphology (19.0% vs. 20.3%; p=0.82). Logistic regression analysis revealed that only an escalation in size in multiples of 20mm had a significant risk of recurrence (OR 1.98; p<0.001). The global complication rate was 6.1%, including early complications (perforations, n=3) and late complications (bleeding, n=17 and post-polypectomy syndrome, n=3).

Conclusion: Despite the high overall recurrence rate, a 5-year surveillance has demonstrated to be an adequate time interval to evaluate the EMR's efficacy and safety.

Disclosure: Nothing to disclose.

PP1265

COLONIC DEFECT CLOSURES AFTER ENDOSCOPIC RESECTION USING ENDOSCOPIC CLIPS COMPARED TO THROUGH-THE-SCOPE HELIX TACK AND SUTURE DEVICE

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Introduction: Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are currently the most used technique for resection procedures for advanced gastrointestinal lesions. Endoscopic resections are associated with bleeding and perforation.

They may be managed with over-the-scope clips and endoscopic suturing, and a new through-the-scope suturing (TTSS) device has recently been introduced.

Aims & Methods: This study aimed to compare the technical success of closure and adverse events using TTSS To TTS clips (TTSC). A retrospective review was performed for consecutive patients who underwent the application of the TTSS or TTSC. Demographic and clinical variables were collected.

The primary outcomes were technical and adverse to the procedure, and the secondary outcome was the cost analysis.

Results: Fifty-six patients (mean age, 63.6 y; 60.7% females) underwent TTSS closure, and 124 patients with TTSC were included in the study. The most common site of application was the colon (n= 37, 69.8%), followed by the ascending colon (35.7% vs. 32.2%), followed by the cecum (26.7% vs. 25%) (Table 1).

Technical success was achieved in 96.4% of patients with TTSS and 100% for TTSC, with a mean defect size of 32.6± 11.9 mm and 33.1± 10.1 mm, respectively. Two patients (3.6%) had failed after initial technical success and required rescue treatment with TTSC for defect closure in the TTSS cohort.

The adverse events were more common in the TTSC, with 4.8% bleeding and one perforation (0.8%). However, the TTSS group had one adverse event as self-reported bleeding that did not require further intervention.

We used a mean number of TTSC of 3.8 clips for defect sizes of 20-30 mm, whereas 4.2 for 30-40 mm defects, 4.2 clips for 41-50, and 5.3 clips for defect sizes more than 50mm, whereas we used only 2 X-tack devises for the defect more than 40mm.

Conclusion: The use of the TTTS helix system is an effective and safe method for the closure of large colonic defects.

In addition, in our experience, the Helix Tack device ($695/device) achieves cost parity with approximately 4 TTSCs (U.S.$150- $250/clip). The helix tack device can reduce the defect size, making it amenable to closure completion by clips when the original defects may be too large or cumbersome for primary clip closure with cost-effectiveness.

Disclosure: Nothing to disclose.

Variables	X-tack (n=56)	Hemoclip (n=124)
Age, y, (mean±SD)	63.6±10.8	64.3±9.5
Sex, n(%)		
Male	22 (39.2)	65 (54.6)
Female	34 (60.7)	53 (45.3)
Lesion site, n(%)		
Cecum	15 (26.7)	31(25)
Ileocecal valve	1(1.7)	6(4.8)
Ascending colon	20(35.7)	40(32.2)
Hepatic flexure	1(1.7)	6(4.8)
Transverse colon	4(7.1)	12(9.6)
Splenic flexure	0	4(3.2)
Descending colon	0	8(6.4)
Sigmoid	6(10.7)	5(4.0)
Rectosigmoid colon	3 (5.3)	3(2.4)
Rectum	7(12.5)	8(6.4)
Anal canal	0	1(0.8)
Procedure, n		
ESD	13(23.2)	1(0.8)
EMR	42(75.0)	123(99.2)
Hybrid ESD[€]	3(5.3)	0(0)
Macroscopic type according to Paris classification, n(%)		
Ip	0(0)	4 (3.1)
Ips	1 (1.7)	12 (9.5)
Is	39 (69.6)	87 (69.04)
IIa	10 (17.85)	14 (11.1)
Mixed/unstated	5 (8.9)	5 (7.1)
Post-operative pathology, n(%) Tubular adenoma		
No dysplasia	25 (44.6)	63 (50.8)
LGD	2 (3.5)	3 (2.4)
HGD	9 (16.6)	22 (17.7)
Tubulovillous Adenoma	6 (10.7)	24(19.3)
Serrated	12 (21.4)	4 (3.22)
Hyperplastic	0(0)	3 (2.41)
Adenocarcinoma	2 (3.5)	5(4.03)
Overall defect size, mm, mean ±SD, (n=42)	32.6 ±11.9	33.1±10.1

Abbreviations: SD, standard deviations; n, number; GI, gastrointestinal; ESD, endoscopic submucosal dissection; EMR, endoscopic mucosal resection; HGD, high grade dysplasia; LGD, low grade dysplasia.

[€]Hybrid ESD is defined as the use of a snare EMR at the final stage of the ESD procedure

Table 1. Baseline characteristics.

Poster presentations
Liver and Biliary

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Liver and Biliary

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PP1266

THE IMPORTANCE OF GUT TRANSITION TIME AND GUT MICROBIOME COMPOSITION IN NON-ALCOHOLIC FATTY LIVER DISEASE DEVELOPMENT

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Introduction: It has been suggested that gut transition time (GTT) and gut microbiome could have a possible role in non-alcoholic fatty liver disease (NAFLD) development.

Aims & Methods: Our study aims to compare the GTT between healthy volunteers and NAFLD patients, regarding their microbiome composition. Method: A total of 34 healthy volunteers and 34 NAFLD patients, without previous history of intestinal resection, inflammatory bowel disease, radiotherapy, or course of antibiotic, probiotic, and immunosuppressive therapy 2 weeks prior, were asked to provide a fresh stool sample. The gut transition time was measured by the timing of the „blue poop" appearance after ingestion of two chocolate muffins with 1.8g of blue dye gel (dr Oetker). The microbiome composition was determined using a 16s rRNA sequencing technique with a focus on V3-V4 hypervariable region.

Results: The two groups had similar age and sex distribution. The group of NAFLD patients had significantly longer GTT when compared to healthy volunteers (36h vs 41h, p=0.0137), with a lower Bristol Stool chart score (2.32 vs 2.76, p=0.037). The main difference between gut microbiome composition in the two groups was a greater abundance of bacterial genera Faecalibacterium (0.0162 vs 0.0245, p=0.043) and bacterial family Lachnospiraceae (0.279 vs 0.331, p=0.036) in the group of healthy volunteers. NAFLD patients showed a higher abundance of Intestinibacter genera (0.00582 vs 0.003421, p=0.041). The correlation substudy showed a positive correlation between gut transition time and abundance of Methanobacteriaceae (Rho=0.231, p=0.03) and Clostridiaceae (Rho=0.197, p=0.01) bacterial families.

Conclusion: Prolonged gut transition time paralleled by gut microbiome composition disturbance might play an important role in NAFLD pathogenesis.

Disclosure: Nothing to disclose.

PP1267

INVESTIGATING THE RELATIONSHIP BETWEEN GUT MICROBIOME AND FIBROSIS MARKERS IN PATIENTS WITH VIRAL HEPATITIS

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Introduction: This study explores potential associations between the gut microbiome and fibrosis in patients with viral hepatitis, using network analysis to reveal correlations between multiple microbes and clinical data. The gut-liver axis plays a crucial role in human health, with weakened tight junctions, increased influx of substances into the liver, and IgA-related immune abnormalities observed in patients with chronic hepatitis and liver cirrhosis.

However, the causative bacteria remain elusive. Network analysis can reveal potential biomarkers and therapeutic targets, with the hope of improving patient outcomes.

Aims & Methods: We aimed to elucidate the relationship between fibrosis markers and gut microbiome by constructing networks, analyzing fecal samples and clinical indicators of 145 HCV antibody-positive (HCV group) and 84 HBs antigen-positive (HBV group) patients with chronic liver disease who visited our hospital between June 2016 and April 2021. We identified microbes at the genus level by analyzing DNA from the 16S rRNA region (V3-V4) obtained from fecal samples using the Miseq platform, QIIME2, and Silva database.

Patients were divided into HBV and HCV groups to establish reproducible relationships. We calculated Spearman rank correlation coefficients between relative microbial abundance and clinical data, including BMI, age, albumin , total cholesterol, estimated glomerular filtration rate , AST, ALT,GTP, total bilirubin, hemoglobin, platelet count, Fib4-index, prognostic nutritional index (PNI), and ALBI score.

We considered p-values below 0.05 and absolute correlation coefficients above 0.3 as significant correlations, which will help in understanding the complex relationships between fibrosis markers and gut microbiome in patients with viral hepatitis.

Results: Patient backgrounds differed between the HBV group (median age 56.5 years, Fib4-index 1.74, PNI 49.5, ALBI -2.8) and the HCV group (68 years, Fib4-index 3.21, PNI 46.5, ALBI -2.6). We identified 263 microbial genus and 34,453 combinations ($_{263}C_2$). Among these, 1,619 combinations in the HBV group and 4,730 in the HCV group showed significant correlations with over 90% showing positive correlations. There were 586 common combinations between both groups, which were highly likely to be a unique bacterial combination maintained across different patient backgrounds.

We found 85 correlations in the HBV group and 20 in the HCV group in the 3,682 combination between 14 types of clinical data and 263 bacterial genus. Specifically, only Veillonella and Streptococcus demonstrated a positive correlation with Fib4-index and a negative correlation with PNI. Lactobacillus showed a positive correlation with age in common between the HBV and HCV groups . They did not have a direct correlation with age, ALT, AST, or platelet count, suggesting a potential relationship with fibrosis. However, the age-correlated Lactobacillus showed a positive correlation with Veillonella and Streptococcus, indicating a possible secondary

relationship. Additionally, Streptococcus, occupying a key position in the network with positive correlations with multiple bacteria, may have a significant influence on these microbes.

Conclusion: We found potential associations between specific gut microbes and fibrosis in viral hepatitis patients. Streptococcus, Veillonella, and Lactobacillus were significant in their relationship with fibrosis markers, with Streptococcus playing a central role in the network. Thhs suggests Streptococcus as a potential biomarker and network analysis as a valuable tool for potential diagnostic and therapeutic applications.

Disclosure: Nothing to disclose.

PP1268

ENVIRONMENTAL BISPHENOL A EXPOSURE INFLUENCES TRAINED IMMUNITY-RELATED PATHWAYS IN NON-ALCOHOLIC FATTY LIVER DISEASE: A PRELIMINARY OBSERVATION

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Introduction: Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver illness in Western countries. Bisphenol A (BPA) is a well-known endocrine disrupter, widely produced worldwide primarily as a monomer for polycarbonate plastics and plenty cumulated in the human body. Its exposure is epidemiologically related to type 2 diabetes mellitus and cardiovascular and liver diseases. Trained Immunity (TI) represents a novel concept of immunological memory that promotes a response of innate immune cells, triggered by a second antigenic stimulus, and determines a long-term reversible pro-inflammatory phenotype.

Although further studies are needed to clarify the role of BPA in the alteration of immune mechanisms, current evidence suggests its implication in the immunometabolic switch and in the remodeling of epigenetic marks which could result in a different immune reactivity.

Aims & Methods: We aimed to explore whether BPA affects TI reactivity in NASH patients due to a possible hyperelicitation of pro-inflammatory pathways.

Serum samples of healthy individuals (n.25) and histologically proven NASH patients (n. 10) were subjected to liquid-liquid extraction of bisphenol A with methanol (1:1, v/v), then to solid-phase extraction cartridge for clean-up and concentration. The analysis of sample extracts was carried out by the HPLC system coupled to a triple quadrupole mass spectrometer. In parallel, for each subject, a peripheral venous blood sample was collected (20 mL).

Consequently, monocytes were isolated through a density gradient centrifugation and then stimulated with BPA for 24 h (1 nM, 10 nM, 20 nM) and lipopolysaccharide (LPS) (10 ng/mL) for 24 h (at day 0 and day 6 respectively). In order to assess the pro-inflammatory (tumor necrosis factor TNF-α, interleukin IL-6) and anti-inflammatory response (IL-10) ELISA assays were performed.

Results: The mean values of BPA quantification in serum samples of healthy individuals were 0.1398 ± 0.0495 ng/mL in comparison to NASH patients 7.79 ± 2.34 ($P < 0.0001$).

The induction of TI mediated by BPA (1 nM, 10, nM, and 20 nM) emerged higher in NASH patients compared to healthy individuals ($p<0.05$). The hyperelicitation of TI mechanisms in monocytes has been expressed by the high levels of pro-inflammatory cytokines (TNF-α and IL-6) in NASH patients compared to the healthy subjects, in each concentration chosen for the stimulation. Additionally, our data also showed an increased concentration of IL-10 in NASH patients, probably due to a compensative phenomenon for the excessive inflammatory process.

Conclusion: Considering the emerging role of BPA as a strong stimulator of innate immune training in healthy subjects and NASH patients, it is conceivable to address a key role of BPA in the induction of TI as a priming antigen and in the establishment of a pro-inflammatory phenotype potentially involved in the pathogenesis of the disease.

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Disclosure: Nothing to disclose.

PP1269

LSECTIN-CRISPR IMMORTALIZED LIVER SINUSOIDAL ENDOTHELIAL CELLS HAVE AND AUGMENTED PROINFLAMMATORY SECRETOME UPON STIMULATION WITH LSECTIN AND TOLL-LIKE RECEPTOR LIGANDS

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Introduction: Liver Sinusoidal Endothelial C-type Lectin (LSECtin) is a type-C lectin expressed mainly by Liver Sinusoidal Endothelial cells (LSECs), involved in pathogen recognition but also capable of interacting with T lymphocytes inducing its inhibition.

It is known to be downregulated during chronic liver disease while the proinflammatory hepatic response increases. Its loss compromises the protolerogenic activity promoted by LSECs antigenic receptors in favour of inflammation.

Aims & Methods: Our aim is to elucidate LSECs cytokine production in an in vitro model of LSECtin downregulation. For that Immortalized mouse LSECs (imLSECs), either wild type (wt) or LSECtin-Crispr (Crispr), were cultured with LSECtin ligands (CD44Fc and LAG3Fc at 1 ug/mL) or in combination with ligands of Toll-like Receptors (TLRs) (LPS, Pam3CSK4 y CpGs at 0.1 ug/mL). After 72 hours supernatants were collected. To study cytokine production multiplexed immunoassay kits based in fluorescent beads were used.

Results were analyzed by flow cytometry. Experiments were done in triplicates. LSECtin downregulation and its downstream signaling was checked by Western Blot.

Results: LSECtin-Crispr LSECs exhibit a downregulation in LSECtin protein expression. Chemoattractant mediators (CCL5 or CXCL10) and proinflammatory cytokines (IL-6 or TNFalpha) secretion increased significantly upon cell stimulation with LSECtin and/or TLRs ligands in Crispr LSECs. On the contrary, IL-10 production was lower in LSECtin-Crispr LSECs than in wt cells upon stimulation.

		Concentration at supernatant (ng/mL	
Stimulus	Cytokine	Wt	Crispr
LPS	IL-6	501,62 ± 42,88	739,47 ± 114,95
	CCL5	527,99 ± 17,74	752,12 ± 70,42
	CXCL10	359,78 ± 24,07	852,42 ± 20,44
	IL-10	2,21 ± 0,09	1,52 ± 0,10
LPS + LAG3	IL-6	463,42 ± 21,52	794,17 ± 65,66
	CCL5	434,83 ± 21,97	785,18 ± 68,58
	CXCL10	414,84 ± 36,85	832,05 ± 58,11
	IL-10	1,80 ± 0,21	1,59 ± 0,13

Conclusion: LSECtin regulates the cytokine production of LSECs reducing the production of proinflammatory mediators and favoring Il-10 secretion. LSECtin loss may therefore contribute to the inflammatory microenvironment in cirrhosis.
Disclosure: Nothing to disclose.

PP1270

SOPHORICOSIDE AMELIORATES AUTOIMMUNE-MEDIATED LIVER INJURY THROUGH THE REGULATION OF OXIDATIVE STRESS AND NF-KB SIGNALING PATHWAY

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Introduction: The prevalence of autoimmune hepatitis (AIH) is increasing, yet specific pharmacotherapies remain to be explored. Sophoricoside (SOP), a bioactive component of Sophora japonica L., has been previously reported anti-inflammatory properties.
Aims & Methods: This study aims to investigate the effects of sophoricoside on AIH and the underlying mechanism. Bioinformatic approaches were used to predict the potential targets and underlying regulatory mechanisms of SOP on AIH. The effects of SOP on AIH were evaluated by inflammatory cytokines expression, histological liver injury, and hepatic fibrosis in an improved chronic cytochrome P450 2D6 (CYP2D6)-AIH mouse model and the concanavalin-A (ConA)-induced acute immune-mediated liver injury model. The antioxidant activity of SOP was detected in vivo and in vitro experiments. The selected signal targeted by SOP in AIH was further confirmed using western blotting and immunofluorescence.
Results: Results of the bioinformatic analysis revealed that targets of SOP on AIH were related to oxidative stress and the NF-κB gene set. In the animal experiments, SOP could alleviate CYP2D6/ConA-induced AIH, evidenced by a significant reduction of hepatic enzymes in serum, inflammatory cytokines expression, and histological lesions in the liver. The oxidative response in AIH was also significantly inhibited by SOP, evidenced by a decrease of hepatic malondialdehyde, and elevations of total antioxidant capacity and glutathione peroxidase.
The results of in vivo and in vitro experiments showed that SOP significantly reduced the enhanced expression and nuclear translocation of phospho-p65 NF-κB in AIH mouse liver and lipopolysaccharide-stimulated AML12 cells.
Conclusion: Our study revealed the protective role of SOP on AIH, which may exert by limiting oxidative response and activation of the NF-κB signaling pathway in hepatocytes.
Disclosure: Nothing to disclose.

PP1271

EVALUATION OF THE RELATIONSHIP BETWEEN LIVER BIOPSY AND FIBROSCAN MEASUREMENTS AND LIVER FIBROSIS, CAP SCORE AND SPLEEN STIFFNESS

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Introduction: As a noninvasive method for evaluating liver fibrosis with the Fibroscan used, it is possible to measure not only liver but also spleen stiffness has become possible. In this study, we aimed to evaluate the correlation of liver fibrosis and Controlled Attenuation Parameter (CAP) scores obtained by Fibroscan measurement with histopathological findings in our patients who underwent liver biopsy for different etiologies, and to evaluate spleen stiffness in this patient group.
Aims & Methods: Stiffness measurements, spleen stiffness and CAP scores are carried out with FibroScan device (Echosens, France) to the patient who have undergone biopsy due to different indications and etiologies. The measurements have done to patients while they are in the supine position, via intercostal spaces, after at least three fasting hours, with using the M/XL probe.
Results were expressed as the median value of kilopascal measurement for stiffness, and the CAP score as dB/m. Only 10 confirmed measurements and measurement results with interquartile range / median value (IQR / Med) < 30% were considered.
Results: 72 patients who underwent liver biopsy were included in our study. The mean age of the patients was 43.26±12.7 years, 52.8% (38) were female. Liver biopsy indications of the patients included elevated liver enzymes in 30.6%, hepatitis B infection in 31.9%, fatty liver in 6.9%, autoimmune hepatitis in 13.9%, and toxic hepatitis in 4.2%. The BMI of the patients was 26.28±4.5 kg/m2. Liver fibrosis mean was 9.19±10.56 kPa, mean spleen stiffness was 29.15±24.01 dB/m, and mean CAP score was 240±55.38. When fibroscan measurements were evaluated according to gender, spleen stiffness was found to be higher in males ($p<0.005$). It is detected that there is an increase in liver fibrosis (kPa) with aging ($p<0.005$). With the fibrosis score indicated in the liver biopsy of the patients. While a positive correlation was found between liver stiffness obtained from fibroscan measurement with the fibrosis score indicated in the liver biopsy of the patients ($p<0.005$), no statistically significant correlation was found with HAI score. Relationship between spleen stiffness and liver biopsy fibrosis score and HAI score not detected. Also no correlation was found between platelet levels and splenic stiffness.
Conclusion: The correlation was found to be significant between Fibroscan which is used as a noninvasive diagnosis in the evaluation of liver fibrosis and spleen stiffness with liver biopsy for detecting fibrosis. Advanced age and male gender was determined to be a risk factor for spleen stiffness. Comprehensive studies are needed to determine splenic stiffness importance in terms of portal hypertension and its relationship with liver fibrosis.
Disclosure: Nothing to disclose.

PP1272

ELIFT AND BARD SCORE COMPARED TO TRANSIENT ELASTOGRAPHY FOR THE ASSESSMENT OF HEPATIC FIBROSIS IN OBESE PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: Liver fibrosis is the main prognostic driver and an independent risk factor for both hepatic and extrahepatic events and global mortality in patients with non-alcoholic fatty liver disease (NAFLD). Thus, many serum markers and scores for the assessment of fibrosis severity have been drawn up.

Recently, researchers developed the easy Liver Fibrosis Test (eLIFT) and the BMI, AST/ALT ratio and Diabetes (BARD) score.

Aims & Methods: This study aimed to compare the eLIFT and the BARD scores with Transient Elastography for the assessment of liver fibrosis in obese patients with NAFLD.

We conducted a transversal study including obese patients recruited from the Department of Nutrition referred to our center for screening for liver steatosis and a non-invasive evaluation of liver fibrosis. We excluded patients who had pre-existing chronic liver disease, chronic alcohol consumers, or those with ongoing medication other than those for metabolic syndrome.

Demographic and clinical features of the participants were recorded. All participants underwent Transient Elastography (TE) and had their AST, ALT, gamma-glutamyl transferase (GGT), platelet count, and prothrombin time measured in a random blood sample, taken the same day of the TE. We calculated for each patient the eLIFT and BARD scores using standard formulas.

Liver stiffness measurements (LSM) used to define the risk for advanced fibrosis as low, indeterminate, and high, based on EASL guidelines 2021, were respectively: <8 kPa, ≥8 and < 12 kPa, and ≥12 kPa.

An eLIFT <8 indicated a low risk of advanced fibrosis, whereas a result ≥8 identified patients at risk of advanced fibrosis. The BARD score ranges from 0 to 4, considered low from 0 to 1 with a high negative predictive value (NPV) for advanced fibrosis, and considered high from 2 to 4 with a high risk of advanced fibrosis.

Results: A total of 213 obese patients with NAFLD were included, with a mean age of 49.04 ± 11.76 years, 88% were female. The mean body mass index (BMI) was 40.67 ± 10.16 kg/m^2 and the mean waist circumference (WC) was 115.07 ± 17.49 cm.

TE results revealed that 191 patients had a low risk of advanced fibrosis (89.7%), 13 had an indeterminate risk of advanced fibrosis (6.1%), and nine patients had a high risk of advanced fibrosis (4.2%). Using eLIFT, 195 patients were classified in the low-risk of advanced fibrosis group of which 187 had also a low risk based on TE and only 8 had a high risk of advanced fibrosis, which corresponds to a rate of sensitivity at 92.6%; specificity at 27.3%; NPV at 95.9%; and positive predictive value (PPV) at 16.7%.

The BARD score was low in 21 patients (9.9%) and high in 192 (90.1%). Among the 21 patients with a low BARD score, 19 had a low risk of advanced fibrosis based on LSM and two had a high risk of advanced fibrosis. In the group of patients with a high score, only nine had advanced fibrosis. Sensitivity was 8.5%; specificity was 90%; NPV was 94.4%; and PPV was 4.7%. Both scores had high NPV for a high risk of advanced fibrosis, but the BARD score had a lower sensibility than eLIFT, with better specificity.

AUROC were 0.515 (95% CI, 0.11-0.92) and 0.743 (95% CI, 0.49-0.99) for eLIFT and BARD scores, respectively.

Conclusion: Both eLIFT and BARD scores were useful for ruling out advanced fibrosis (NPV > 90%) in an obese population with NAFLD. As such, they are adequate for use in clinical practice or as a part of referral and follow-up programs.

Disclosure: Nothing to disclose.

PP1273

MICE WITH A CONDITIONAL INTESTINAL EPITHELIAL ABLATION OF TISSUE-NONSPECIFIC ALKALINE PHOSPHATASE EXHIBIT DISTINCT INTESTINAL AND EXTRAINTESTINAL CHANGES

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Introduction: Tissue non-specific alkaline phosphatase (TNAP) is an enzyme that catalyses the removal of phosphate groups from different physiological substrates. The enzyme is encoded in the mouse by the Alpl gene and gives rise to the liver, bone and kidney TNAP isoforms, which differ in their glycosylation and sensitivity to different inhibitors (1).

TNAP is widely known for its role in bone mineralization, by hydrolyzing the extracellular mineralization inhibitor inorganic pyrophosphate and allowing normal skeletal/dental mineralization (2).

Additionally, TNAP has been related to purinergic signalling pathway, as it can act as an ectonucleotidase and hydrolyse extracellular ATP via ADP and AMP to adenosine (3).

Recently, TNAP has been shown to be crucial in many biologic functions, such as, hepatic metabolism (4, 5), thermogenesis (6) or immune cell homeostasis (7, 8). Phosphocholine is a TNAP substrate that could be a link between TNAP activity and liver metabolism (9).

TNAP is also expressed in the gut, specifically in the lamina propria leukocytes and in intestinal epithelial cells (IECs). However, the function that TNAP exerts in IECs remains unclear.

Aims & Methods: We aimed to characterize the role of TNAP in intestinal epithelial cells in basal conditions. We studied the role of TNAP using epithelial-specific Alpl deficient mice (Alpl$^{flox/flox}$-Villin-CreERT2, referred to as Alpl$^{IEC-/-}$). Colon, intestinal epithelial cells and liver were analysed by qRT-PCR. Colon alkaline phosphatase activity was determined spectrophotometrically, using 5.5 mM disodium nitrophenyl phosphate as substrate. Jejunum organoids were generated, and qRT-PCRs were performed.

Results: The expected decrease in Alpl expression was shown in the colon of Alpl$^{IEC-/-}$ mice; the extent of the decrease suggests that the main Alpl source in the colon in basal conditions is IECs. No differences were detected in the expression of colonic inflammatory markers (Il6, Tnf, S100a8, S100a9).

To assess the effect of TNAP silencing in IECs, colonic enterocytes were obtained from WT and Alpl$^{IEC-/-}$ mice. KO cells were found to exhibit reduced Alpl and increased (p=0.08) Akp6 expression, suggesting that the latter may compensate for the loss of function of Alpl.

Besides, the lack of Alpl in colonic IEC causes the downregulation in one of the ectonucleotidases related to purinergic signalling pathway, Nt5e, which hydrolyses AMP to adenosine. Jejunal organoids derived from Alpl$^{IEC-/-}$ mice exhibit higher expression of both intestinal AP isozymes (Akp3 and Akp6), suggesting a mechanism of compensation.

Interestingly, knocking down Alpl in jejunum organoids increased the expression of the chemokine Cxcl10 and drastically reduced the expression of Cxcl1. Finally, the effect of intestinal Alpl deletion was analysed in the liver. A large increase in Tff3, Tnf and Tgfb1 expression and modulation

of metabolic genes (Fads2 and Sult3a1) were observed in the liver of Alpl$^{IEC-/-}$ mice. Finally, consistent with recently published data (9), there was a decrease in liver choline (with a similar trend in phosphocholine, methionine, betaine and methylglycine) in mice in which Alpl was depleted in intestinal epithelial cells.

Conclusion: Our data show that the deletion of Alpl in IEC affects normal cell physiology. Furthermore, the expression of intestinal Alpl appears to have a critical role in liver metabolism.

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PP1274

APRI , FIB -4 AN ALTERNATIVE TO TRANSIENT ELASTOGRAPHY IN OBESE PATIENTS WITH NAFLD

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Introduction: Obesity is a serious healthcare burden associated with an increased risk of morbidity and mortality. It reprensents a risk and prognostic factor for non alcoholic fatty liver disease (NAFLD) and its complications, mainly hepatic fibrosis. It is therefore essential to identify within the obese population, patients at high risk of developing advanced fibrosis in order to optimize their management.

In our study, we investigated the correlation between two biological scores: Fibrosis-4 (FIB-4) and aspartate aminotransferase (ASAT)/platelet ratio index (APRI) and a physical mean which is transient elastography (FibroScan®) for the assessment of liver fibrosis in obese patients with NAFLD.

Aims & Methods: This is a transversal, descriptive and analytical study, conducted over a seven months period (August 2022- March 2023). We collected obese patients with NAFLD who had a FibroScan, a serum AST, ALT and a platelet count, performed within the same day. Fib-4 and APRI scores were calculated for each patient, accordingly to the standard formulas. We used a cutoff <0.5 for APRI score and a cutoff <= 1.45 for Fib-4 to identify patients with a low probability of advanced fibrosis. For patients with high probability of advanced fibrosis we used a cutoff >4 for Fib-4 and a cutoff >1,5 for APRI. Advanced fibrosis was considered in patients with a Liver Stiffness Measurement (LSM) > 12 kPa. We studied the correlation between transient elastography and biological scores.

Results: We collected 207 obese patients with hepatic steatosis. A female predominance was noted with a sexe ratio of 0,12. The mean age was 48.8 +/- 11.9 years.

The mean liver elasticity was 5 .38 +/- 3.22 kpa and the mean APRI and Fib-4 scores were 0.2 and 0.89, respectively.

Liver elasticity was less than 12 kpa in 95.7% of patients. Patients with a low risk of advanced fibrosis according to APRI and Fib-4 scores were 97.1% and 95.2%, respectively.

We noted a significant correlation between the transient elastography results, APRI score and Fib-4 in the identification of patients with low probability of advanced fibrosis (p=0.037 and p<0.001, respectively). Of the 9 patients with an LSM ≥12kPa , only one patient had a Fib4 score >4 (44,4 %) and no one had an APRI score >1,5.

The statistical analysis showed that the APRI score has a sensitivity of 100% but no specificity (0%).The positive predictive value(PPV) was 0% while the negative predictive value (NPV) was of 95,7% .For the Fib 4 score the sensitivity was 99,5 % and the sensitivity was 0%. The PPV was 0% and the NPV 95,6% .

Conclusion: Fib-4 as well as APRI are two non-invasive scores that can be routinely performed based on simple biological parametres with a good NPV to exclude advanced fibrosis in obese patients with NAFLD. They can be used within this population when other more performing tests are not available.

Disclosure: Nothing to disclose.

PP1275

OPERATOR VARIABILITY IN TRANSIENT ELASTOGRAPHY ANALYSIS OF OVERWEIGHT/OBESE PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE: A REAL CHALLENGE

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Introduction: Transient Elastography (TE) is a well-validated, non-invasive method to assess hepatic fibrosis and steatosis using liver stiffness measurement (LSM) and controlled attenuation parameter (CAP), respectively. However, due to interobserver variability, uncertainties still exist regarding the reliability and reproducibility of the technique especially in obese patients.

Aims & Methods: We aimed to evaluate the interobserver agreement of transient elastography in overweight and obese patients with Nonalcoholic Fatty Liver Disease (NAFLD).

We conducted a cross-sectional study including obese patients with NAFLD. We analyzed the results of TE performed by two different experienced operators, on two different days, within the same month. For each patient, the probe size (M or XL) used in both exams was the same; the weight remained stable and all patients had normal liver function.

LSM was recorded after obtaining at least 10 valid readings, a success rate ≥ 60% and an interquartile range to a median ratio (IQR/M) < 0.3. We classified the risk for advanced fibrosis as low, indeterminate and high, based on EASL guidelines 2021, which were respectively: <8 kPa, ≥8 and < 12 kPa, and ≥12 kPa. Hepatic steatosis was defined by CAP values ≥ 248 dB/m.

Results: Sixty-eight patients were recruited (70.6% female) with a mean age of 53.21±12.9 years. The mean body mass index (BMI) was 42.05±9.57 kg/m2 and the mean waist circumference (WC) was 119.51±22.07 cm. 10.4% of patients were overweight, 18.8% were obese and 70.8% were severely obese.

There was no statistically significant difference in both mean LSM (7.3 vs 6.9 kPa; P=0.475) and mean CAP values (313 vs 309.8 dB/m; P=0.507), assessed by the first and the second operators, respectively. The measurements made by operators of LSM and CAP were correlated [(Spearman's ρ = 0.512; P< 0.001) and (Spearman's ρ = 0.525; P< 0.001), respectively]. The interobserver intraclass correlation coefficient was 0.860 (95% CI 0.772-0.914) for LSM and 0.710 (95% CI 0.526-0.822) for CAP values. A discrepancy of at least 2 kPa between both results was noted in 30 cases (44.1%). There was no statistically significant difference in mean IQR/M values between the two exams (0.14 vs 0.12; P=0.15). The discordance between operators was 16.2% for at least one level of risk of advanced fibrosis and 14.7% for two levels.

In fact, among the patients considered with a high risk of advanced fibrosis by the first operator, 60% had low risk, 20% had indeterminate risk and 20% had high risk, assessed by the second one. For those who had an indeterminate risk of fibrosis, according to the measurements made by the first operator, 60% of them were at low risk of advanced fibrosis, based on those made by the second one.

Among those at low risk of advanced fibrosis assessed by the first operator, 8.7% had a high risk of advanced fibrosis as measured by the second one. Interobserver reliability values were κ = 0.32 for low risk of advanced fibrosis, κ = 0.12 for indeterminate risk, and κ = 0.16 for high risk for advanced fibrosis. The interobserver discrepancy in LSM was significantly associated with LSM (P=0.001), BMI (P<0.001), and WC (P=0.025).

Conclusion: Although TE is a very convenient method to assess liver fibrosis and steatosis in clinical practice, the interobserver discrepancy in results was not negligible, especially in severely obese patients and mainly for indeterminate and high risk of advanced fibrosis, which represents a significant problem with the technique. Thus, the evaluation of liver fibrosis, including TE results, should be carefully analyzed by expert hands.

Disclosure: Nothing to disclose.

PP1276

PROGNOSTIC IMPACT OF NEUTROPHIL-TO-LYMPHOCYTE RATIO IN CIRRHOSIS

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Introduction: The neutrophil-to-lymphocyte (NLR) ratio is a marker of systemic inflammatory response, which has been studied as an interesting prognostic biomarker in various tumor types. This ratio incorporates two immune systems: neutrophils which exemplify the continual inflammation and lymphocytes which exemplify the regulatory pathway.

Aims & Methods: The aim of our study was to establish the correlation between NLR, the severity of cirrhosis and the occurrence of complications. This is a retrospective descriptive study including all patients followed for cirrhosis between January 2015 and January 2021.

Results: 60 patients were collected during the study period. The mean age at the time of diagnosis was 52 ± 14.88 (26-87) years. Fifty-three patients (53.3%) were female. Etiologies found for cirrhosis were: hepatitis B virus infection in 30% of cases, primary biliary cholangitis in 16.7%, non-alcoholic steatohepatitis in 11.7%, hepatitis C virus infection in 8.3 % of cases and alcohol intake in 1.7% of cases. The aetiological assessment was negative in 28.3% of cases. The average MELD score at admission was 42 points (9-80). Cirrhosis was classified as CHILD A in 19 cases, CHILD B in 31 cases and CHILD C in 10 cases. Endoscopic signs of portal hypertension were present in 95% of cases at the time of diagnosis, of which 33% were represented by grade 1 esophageal varices, 35% by grade 2 esophageal varices and 3.3% by grade 3 esophageal varices. 11.7% of the patients had gastric varices and 48% of the patients had hypertensive gastropathy. Ascites was the main complication present in 66.7%.

The other complications of cirrhosis were upper gastrointestinal bleeding by rupture of esophageal varices in 28.3% of cases, hepatic encephalopathy in 16.7% of cases and hepatocellular carcinoma in 11.7% of cases. The average NLR score was 4.4 (0.82-22.7).

The analytical study had shown that the RNL ratio was positively correlated with the MELD score with (p = 0.03); as well as with the occurrence of cirrhosis complications (p=0.05). However, there was no correlation between NLR and CHILD score (p=0.29.)

Conclusion: In our study, the neutrophil-to-lymphocyte (NLR) ratio was significantly correlated with the MELD score and the occurrence of complications and can thus be used to assess the prognosis of cirrhotic patients.

Disclosure: Nothing to disclose.

PP1277

IMMUNOREGULATORY EFFECTS OF RHEIN ON NON-ALCOHOLIC STEATOHEPATITIS IN MICE

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Introduction: Non-alcoholic steatohepatitis (NASH) is a chronic liver disease characterized by liver steatosis and inflammation which abnormal immune responses involved in pathogenesis, and there is no approved therapeutic drug. Rhein, one of the main bioactive components of Rheum palmatum, has exerted anti-inflammatory properties. However, the mechanism by which Rhein exerts beneficial effects against NASH is far from elucidated.

Here, our study aimed to investigate the therapeutic effects of Rhein on liver steatosis and inflammation and elucidate the related mechanisms of immunoregulation.

Aims & Methods: Male C57BL/6 mice were given high-fat diet for 10 weeks to induce NASH, followed by Rhein suspension administration at a dose of 100mg/kg and 200mg/kg for 4 weeks. The therapeutic effect of NASH was estimated by body weight, liver weight, LW/BW, food intake, the liver appearance and the histological analysis of liver section stained with hematoxylin and eosin. The proportion of lymphocyte cells in the mesenteric lymph nodes (MLNs) was detected by flow cytometry.

Results: Our findings demonstrated that high-fat diet treatment resulted in severe liver inflammation and severe steatosis, while Rhein appreciably reverse these phenomenon, as evidenced by the reduction of body weight, liver wet weight, LW/BW, and liver size in mice. Histological analysis of liver section revealed that administration of Rhein exhibited improvement of severe steatosis, elimination of inflammatory cells and resolution of balloon-like changes when compared to mice in the HFD group. Interestingly, there were no significant differences in food intake among groups of mice, suggesting that the protective effect of Rhein is not achieved by inhibiting appetite. Mechanistically, flow cytometry analysis showed that higher Th1 and Th17 polarized response were detected in the MLN compartments in HFD-induced mice, evidenced by the detection of increased numbers of

Th1 cells (CD3+CD4+IFN-ɣ+) and Th17 cells (CD3+CD4+IL-17+), and Rhein intervention showed significant decrease numbers of Th1 and Th17 in MLNs. In contrast, Rhein treatment significantly increased the numbers of Treg cells (CD3+CD4+Foxp3+) with anti-inflammatory effects in the MLN of NASH mice.

Conclusion: Our results provide novel insights into the protective role of Rhein in modulating the liver steatosis and inflammation, with therapeutic potential for immunology-targeted strategy in the treatment of NASH.

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PP1278

ETHANOL-PRODUCING LACTOBACILLACAE CONTRIBUTE TO LIVER DAMAGE IN METABOLIC DISEASE AND COUNTERACT THE EFFECTS OF LIFESTYLE INTERVENTION

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Introduction: The gut Lactobacillaceae have been shown to drive the onset of fatty liver disease[1], through a mechanism by which dietary carbohydrates are fermented into ethanol. Increased levels of Lactobacillaceae provoke high levels of portal blood ethanol and in turn promote the development of metabolic dysfunction-associated fatty liver disease (MAFLD) [1,2,3]. Although the potential importance of ethanol production by the microflora is well recognized, the implications on the clinical course of MAFLD remain obscure at best. A systematic study comparing Lactobacillaceae levels and liver condition has not been performed.

Furthermore, while lifestyle intervention is the mainstay in the clinical management of MAFLD, its effects on the levels of Lactobacillaceae remain unknown, prompting investigations in this respect. Such studies, however, are complicated by the potential consumption of alcoholic beverages by the study subjects involved[1], hampering the interpretation of results.

Aims & Methods: We examine the relationship of the Lactobacillaceae with circulating risk biomarkers for MAFLD in alcohol-free-use individuals (for religious reasons), who underwent time-restricted food intake (Ramadan). Microbiome determinations were performed by bacterial 16S rRNA sequencing.

Results: A total of 271 fecal samples were longitudinally collected from 93 individuals who subjected themselves to 30 days of intermittent fasting for religious reasons (a cohort of healthy volunteers [n = 35]; a cohort of morbidly obese individuals [n = 18]; and a cohort of patients with type 2 diabetes [n = 40]). The mean age of the cohort was 44.3 years (SD = 8.10), consisting of 51.6% males (n = 48).

Firstly, we observed in the participants that intermittent fasting is not effective in influencing the levels of Lactobacillaceae in all three cohorts (one-way ANOVA followed by multiple comparisons using Bonferroni corrections, $P_{adj} > 0.2$ for all intra-comparisons). Strikingly, however, when compared to healthy controls, a significant fraction of patients with type 2 diabetes shows high levels of alcohol-producing Lactobacillacea ($p < 0.0001$) suggesting that such bacteria contribute to the onset of disease. Furthermore, a significant correlation between GGT levels and the Lactobacillaceae component in the microbiome was observed ($R = 0.18$, $P = 0.002$).

Interestingly, significant correlations of this bacterial with both glucose ($R = 0.32$, $P < 0.0001$) and HbA1c ($R = 0.28$, $P < 0.0001$) were also observed, in line with the notion that hepatic insulin resistance induced by the gut microbiome-derived ethanol is an important contributor to liver damage in the context of MAFLD[3,5]. In a multivariable model, glucose levels were shown to have the largest effect size on the variation of the Lacbotacillaceae community ($R^2 = 1.60$ %, $p_{adj} < 0.001$), with age contributing an additional 1.06% to the Lactobacillaceae microbiome variation ($P_{adj} = 0.004$). GGT tends to exert a moderate contribution to the variation of this community ($P_{adj} = 0.099$). However, intermittent fasting as a prominent external lifestyle factor is not identified as a significant contributor in this respect ($P_{adj} = 0.254$).

Conclusion: Overall, while the Lactobacillaceae clearly emerges as a driver of liver damage in alcohol-abstaining individuals, our data suggest that lifestyle intervention is not sufficient to counteract Lactobacillaceae in MALFD calling for alternative approaches in the management of the patients involved.

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PP1279

MICROBIOLOGY OF PYOGENIC LIVER ABSCESSES – A NON-TROPICAL CENTRE'S EXPERIENCE

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Introduction: Pyogenic liver abscesses (PLA) are the most common type of visceral abscesses. Microbiology of PLAs is diverse and microorganisms involved differ mostly due to factors related to the patient, pathogenesis and geographic differences. Treatment includes percutaneous abscess drainage and empiric broad-spectrum antibiotic that covers streptococci, gram-negative bacilli, and anaerobes.

Aims & Methods: We present a retrospective study of 115 patients with pyogenic liver abscesses (PLA) diagnosed and treated in a peripheral portuguese hospital, in Lisbon district, from January 2012 to December 2022. The aim of this study is to analyze microbiology of PLAs and antibiotic treatment in an European Centre. Amebic liver abscesses were excluded.

Results: Of the 115 patients included, the majority were men born in Portugal. The most common risk factors identified were biliary calculi (32%, N=36) and diabetes mellitus (27%, N=31). At the time of PLA diagnosis, 41% of the patients had bile duct obstruction and 32% had undergone biliary tract manipulation in the prior 30 days.

Around 10% of the PLAs were attributed to hematogenous seeding from the systemic circulation. Blood cultures were obtained in 73% of the patients (N=84), and only 33% were positive (N=38). The most frequent iso-

lated microorganisms in blood samples were Escherichia coli (34%, N=23) and Klebsiella Pneumoniae (17%, N=11). Only one extended-spectrum beta-lactamase bacteria (ESBL) was identified in the systemic circulation and no Klebsiella Pneumoniae Carbapenemase (KPC) was identified. 49% underwent CT or ultrasound-guided liver abscess drainage and culture of the collected fluid (N=57).

All abscesses larger than 5cm were drained. Drainage cultures were positive in 70% of patients (N=40). Around 60% of these patients had one microorganism isolated and the others had 2 to 4 microorganisms isolated. The most common isolated microorganisms in the drainage liquid were also Escherichia coli (22%, N=11) and Klebsiella Pneumoniae (16%, N=8). Three ESBL were detected in drained liquid cultures and no KPC was found. Piperacillin-Tazobactam (54%,N=63) was the most used empiric antibiotic followed by Meropenem (14%,N=16) and Ceftriaxone (12%, N=14). Piperacillin-Tazobactam was effective in 84% of patients, Meropenem was effective in 100% and Ceftriaxone was effective in 90%. Metronidazol was added to the previous antibiotics in 21% of cases (N=24); it was mostly added to Ceftriaxone and Piperacillin-Tazobactam, 64% and 17% of cases, respectively. The most frequent anaerobes identified were Fusobacterium Nucleatum and Bacterioides Fragilis.

All patients that had Fusobacterium Nucleatum identified had previous history of dental procedure (N=4). A total of 28 different microorganisms were isolated in blood and abscess drainage culture. The average antibiotic duration and was 24±9 days, which is similar to the average hospital length of stay: 24±15 days. 30-day mortality was 9% (N=10).

Conclusion: The diversity of pathogens associated to PLAs in a single centre reflects the different cause of each PLA. Escherichia coli and K. pneumoniae were the most commonly identified pathogens. Bacteremia was documented in 33% of cases and drainage culture was positive in 70% of cases. More than one microorganism was identified in 40% of drainage cultures. PLA are associated to significant use of broad-spectrum antibiotics, frequently unnecessarily.

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Disclosure: Nothing to disclose.

PP1280

A NEW APPROACH TO LIVER DISEASES THROUGH REGENERATIVE STRATEGY: CLIP-DERIVED HEPATO-BILIARY SHEETS AND EVALUATION OF THEIR STRUCTURE AND FUNCTION IN A RODENT MODEL

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Introduction: Hepatocyte sheet (HS) transplantation is expected to be an effective therapeutic strategy as an alternative to liver transplantation. We have developed a unique HS formation technique and have conducted study on the improvement of liver function (Miyamoto et al., Regen Ther. 2021). However, although HS has shown improvement in liver function for a short period of time, long-term functional improvement has not been achieved.

This may be due to the lack of multidimensional structures in existing hepatocyte sheets, although the liver maintains various functions by possessing unique structures such as sinusoids and biliary ducts. In fact, the lack of biliary structures in the HS may induce liver damage due to bile stasis. (Fujii et al., J Tissue EngRegen Med, 2018). In other words, the formation of bile drainage mechanism is considered an important issue to maintain long-term liver function. In parallel, we have established a biliary drainage system with a luminal structure in vitro using chemically induced hepatic progenitor cells (CLiPs) (Huang et al., Biotechnol Bioeng. 2021).

Aims & Methods: In this study, we attempted to develop a new novel Hepato-Biliary Sheet (HBS) based on our biliary drainage system and evaluated its structure and hepatic function.Mouse embryonic fibroblasts (MEFs) and GFP-positive rat-derived CLiPs were sequentially seeded in temperature-responsive culture dishes and cultured for 2 weeks to induce the biliary drainage system. HBS was formed by seeding and culturing primary mature rat hepatocytes. The HBS was then implanted on the liver surface of a mouse model of liver failure, which was created by administration of Retrorsine and 70% hepatectomy, and its structure and function were evaluated in vivo.

Results: First, immunofluorescence image analysis of the prepared HBS revealed a structure consisting of CLiP-derived bile ducts (GFP-positive) and mature hepatocytes (Alb-positive, Glutamine-positive). To evaluate the incorporation of bile into the HBS, a fluorescent reagent (Cell Tracker Orange) as a marker substance was added to culture medium and bile excretion via hepatocytes bile duct cells was observed 24 hours later. Compared to HS prepared from mature rat hepatocytes alone, drug metabolism (CYP3A4 activity) and albumin production were significantly improved. CYP3A4 activities in HBS and HS were 139.3±59.9 and 75.4±47.1 (LUM/hr) ($p<0.0001$) and albumin productions were 1.5±0.5×104 and 1.1±0.1 x104 (ng /day) ($p=0.005$), respectively. Next, when the HBS was transplanted to the liver surface in non-liver failure mouse, it was confirmed that a bile duct-like structure (CK7-positive) was maintained and that mature hepatocytes (ALB-positive) were adjacent to the bile duct-like structure, and that vascular components (CD34-positive) derived from mice were infiltrated, confirming long-term cell viability, at least 1 month. Finally, to evaluate the effect of transplantation in a mouse model of liver failure, rat albumin concentration in blood was measured, and the HBS transplantation group showed higher albumin concentration than the HS group at 7 days (9.5×10^5±8.2×10^5 ng/mL vs 5.8×10^5±6.1×10^4ng/mL, $P<0.05$) and 28 days (1.1×10^6±9.2×10^5 ng/mL vs 3.2×10^5±3.2×10^5 ng/mL, $P<0.05$),respectively.

Conclusion: We have observed formations of hepatocyte and bile duct structure in HBS which is confirmed to have biliary drainage and drug metabolizing activities. HBS are expected to improve liver function, and to play a valuable role in the treatment of liver diseases through regenerative medicine.

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PP1281 WITHDRAWN

PP1282

HEPATIC STEATOSIS AND FIBROSIS IN CROHN'S DISEASE PATIENTS: PREVALENCE AND RISK FACTORS

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Introduction: Although Crohn's disease (CD) patients are expected to be at high risk for developing NAFLD, because of their altered nutrition state and some CD medication, little is known about prevalence of this condition in this population.

Aims & Methods: The aim of our study was to describe the prevalence of hepatic steatosis and fibrosis in patients with Crohn's disease and to assess their risk factors.

This was a cross-sectional, descriptive study including patients with CD, diagnosed since at least one year. We excluded patients known to have chronic liver disease or a condition that could lead to it (chronic alcoholism, viral infection with hepatotropic viruses, portal thrombosis, etc.). Patients included were at least in clinical remission. Elastometry and Controlled Attenuation Parameter (CAP) measurement were made in all patients, using a fibroScan® with an XL probe. Data were collected and analyzed by SPSS software version 26.

Results: We included 100 patients, 55 men and 45 women with a mean age of 42 ± 12 years. Seven patients had diabetes and 4 had hypertension. Forty-one patients were smokers. The mean duration of CD was 11.09 years. The disease was ileal, colonic or ileocolic in 39%, 24% and 29% of cases respectively. An upper gastrointestinal tract's involvement was observed in 7 patients and ano-perineal lesions was observed in 36 patients. The phenotype was inflammatory, stricturing and fistulizing in 55%, 21% and 24% of the patients respectively. Almost half of our patients (45%) had already received at least one course of corticosteroids. CAP measurement had shown S1, S2 and S3 stage steatosis in 8%, 3% and 7% of patients respectively. Factors associated with the presence of hepatic steatosis were diabetes (p=0.002, OR=15), presence of overweight or obesity (p=0.005, OR=4,71), age over 35 years at the time of study (p=0.038). ALT level greater than 10.75IU/L was also associated with the presence of hepatic steatosis (p=0.04). Several factors related to corticosteroid courses were associated with the presence of hepatic steatosis such as a duration shorter than 18 months since the last corticosteroid course (p=0.038), maximum achieved prednisolone dose of more than 55mg/d (p=0.04) and duration on full dose of corticosteroids exceeding 4.5 weeks (p=0.016). FibroScan® showed a fibrosis stage F1 in 4% and F2 in 7%. Elasticity in the remaining patients was less than 6 Kpa. The factors associated with the presence of F1 and/or F2 fibrosis were: diabetes (p=0.003, OR=16), age at the time of the study of more than 51.5 years (p=0.049) as well as an age of more than 36.5 years at diagnosis (p=0.020).

Conclusion: Apart from the known epidemiological factors associated with steatosis and hepatic fibrosis, our study showed that features related to corticosteroid therapy were associated with hepatic steatosis in patients with CD.

Disclosure: Nothing to disclose.

PP1283

VALIDATION OF FATTY LIVER INDEX AS A PREDICTOR OF HEPATIC STEATOSIS IN ASIAN POPULATIONS: IMPACT OF ALCOHOL CONSUMPTION AND SEX

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Introduction: An international expert panel recently proposed a new name for fatty liver disease, namely metabolic (dysfunction)-associated fatty liver disease (MAFLD), and a new definition regardless of alcohol consumption. In a large cohort study using the National Health and Nutrition Examination Survey III database, the definition of MAFLD was found to be more practical than the criteria for non-alcoholic fatty liver disease (NAFLD) for identifying subjects with fatty liver who are at high risk of advanced hepatic fibrosis.

The prevalence of NAFLD is approximately 25% of the world's adult population, and the global prevalence of MAFLD is estimated to be even higher. Therefore, MAFLD is commonly managed in the primary care setting. In view of the economics of health care, the ability to detect hepatic steatosis in a noninvasive, non-imaging manner is desirable. The fatty liver index (FLI), which is calculated using the body mass index (BMI), waist circumference (WC), and levels of ɣ-glutamyl transferase (GGT) and triglycerides, is a noninvasive and simple surrogate diagnostic marker for hepatic steatosis. The FLI has good capability for discriminating NAFLD. Furthermore, the FLI has been recommended as a biomarker to detect hepatic steatosis in subjects with MAFLD.

Although a few studies have examined the validity of the FLI in the diagnosis of MAFLD none have mentioned the amount of alcohol consumed. The predictive power of the FLI in moderate drinkers has not been determined to date; however, because moderate drinkers are so numerous, we considered that an analysis of this group is essential. In addition, alcohol consumption shows a complex association with hepatic steatosis, with substantial differences by race/ethnicity and sex. In the present study, we investigated the usefulness of the FLI as a noninvasive marker to predict hepatic steatosis according to alcohol consumption and sex in a large number of Asian subjects.

Aims & Methods: This study was performed to investigate the utility of the fatty liver index (FLI) as a noninvasive tool for predicting hepatic steatosis based on alcohol consumption and sex in a large Asian population.

We conducted a single-center observational cohort study at the HITO Medical Center in Japan and enrolled 1,976 Asian subjects. The participants were categorized into non-drinkers and light drinkers (0–19 g/day) and moderate drinkers (20–59 g/day) based on their self-reported alcohol intake.

We used physical examinations, laboratory tests, and a questionnaire to collect information on various factors related to the FLI, including body mass index, waist circumference, and levels of ɣ-glutamyl transferase and triglycerides.

Results: The diagnostic accuracy of the FLI was assessed by calculating the area under the receiver operating characteristic curve (AUROC), and optimal cutoff values were determined using Youden's index. The FLI had an acceptable performance index of >0.7 both overall and in all subgroups, with an overall AUROC of 0.844. The AUROCs were higher in women and moderate drinkers of both sexes. We also compared the cutoff values obtained in the present study with the previously reported values of 30 and

60. Optimal cutoff values for the FLI were calculated for the total population and subgroups and were found to differ from the previously established values in other countries.

Conclusion: Our study suggests that the FLI is a useful noninvasive marker for predicting hepatic steatosis in a large Asian population, irrespective of alcohol consumption and sex.

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PP1284

ASSESSMENT OF URINARY VOLATILE ORGANIC COMPOUNDS: A NON-INVASIVE TOOL FOR DISCRIMINATION OF TYPE 2 DIABETES MELLITUS (T2DM) AND METABOLIC DYSFUNCTION ASSOCIATED FATTY LIVER DISEASE (MAFLD)-FREE T2DM

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Introduction: Volatile organic compounds (VOCs) derived from gut dietary non-starch polysaccharides fermentation become detectability in biological fluids due to the impairment of the gut permeability ("leaky-gut syndrome") occurring in several pathological contexts such as insulin-resistance (IR)-related chronic disorders. The urinary VOCs profile, configuring a specific disease biosignature, has been proposed as a useful non-invasive diagnostic tool. In Metabolic dysfunction Associated Fatty Liver Disease (MAFLD) affected patients, IR and Diabetes Mellitus Type 2 (T2DM) crucially promote the progression, according to the disease's natural history, from simple steatosis (SS) to steatohepatitis (NASH) and advanced fibrosis.

However, despite the crucial role exerted by IR, MAFLD patients may be characterized by IR stigmata without T2DM as well as T2DM subjects may not be affected by hepatic steatosis.

Aims & Methods: In the present study, the differences in the urinary VOCs profile of T2DM, MAFLD, and MAFLD/T2DM patients were investigated and compared to define the MAFLD/T2DM group's characteristics and to find out new features occurring when these two conditions coexist, otherwise not detectable in each pathological state. We consecutively enrolled T2DM, MAFLD, and MAFLD/T2DM patients. For each participant, anthropometrical, biochemical (including insulin levels assessment), and clinical data were recorded. A sample of morning urine after overnight fasting was also collected. The samples were immediately frozen and stored until the analysis. Headspace solid-phase microextraction (HS-SPME), coupled with gas chromatography-mass spectrometry (GC-MS), was used to identify VOCs in urine samples. Subsequently, VOCs previously isolated were profiled via a mass selective detector. VOCs classification was performed by matching mass spectra within the available database libraries and comparing their retention indices (RI) with literature data.

Results: 13 T2DM, 13 MAFLD, and 13 MAFLD/T2DM patients were enrolled. All patients presenting hyperinsulinemia (insulin >24 microU/ml). VOCs profiles obtained by using acid pH extraction did not show statistical differences among the analyzed groups, while VOCs acquired in alkaline conditions revealed differences among the three groups.

The multivariate and univariate data analysis showed 21 metabolites levels statistically significantly different in the urine of MAFLD/T2DM compared to T2DM (p=0.021) and MAFLD (p=0.031) subjects. Among these metabolites, 1-pentanol (A16), Pyridine (N5), Dimethyl sulfone (S3), and 1-piperidine carboxaldehyde (N19) were higher in MAFLD/T2DM subjects compared to T2DM patients; 3-heptanone (K10) and 3-octane (K13) were lower in MAFLD/T2DM subjects than MAFLD patients; 2-hexanone (K6) presented lower levels in MAFLD/T2DM patients in comparison to T2DM subjects.

Conclusion: VOCs'profiling could non-invasively discriminate insulin-resistant T2DM, MAFLD, and MAFLD/T2DM patients. Moreover, the highlighted different VOCs' signatures suggest specific pathogenetic mechanisms in MAFLD and T2DM to explore and remark MAFLD and T2DM coexistence as not the mere sum of two diseases.

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PP1285

PREVALENCE OF SARCOPENIA IN PATIENTS WITH METABOLIC-ASSOCIATED FATTY LIVER DISEASE (MAFLD)

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Introduction: Metabolic-associated fatty liver disease (MAFLD) and sarcopenia are closely associated with insulin resistance and inflammatory cytokines. However, the relationship between MAFLD and sarcopenia remains unclear. The purpose of this study was to investigate the prevalence of sarcopenia in MAFLD, as well as the relationship and association between muscle mass and hepatic steatosis.

Aims & Methods: Bioelectrical impedance analysis (BIA), transient elastography, dynamometer and 5-time chair stand test were measured in 91 patients with MAFLD (37 men and 54 women). Sarcopenia was defined according to the criteria of the AWGS: low ASMI and low hand grip or high on the 5-time chair stand test. The Spearman's correlation coefficient was calculated for muscle mass and hepatic steatosis.

Results: A total of 91 patients with MAFLD were analyzed. The prevalence of sarcopenia in MAFLD was 11% (5 men and 5 women). Sarcopenia patients had significantly lower hepatic steatosis than patients without sarcopenia (263±47.53 vs 299.42 ± 34.44, P=0.004). Body mass index and HOMA-IR were significantly associated with low risk for sarcopenia (OR 0.51; [95%CI 0.34-0.78], P=0.002, OR 0.26; [95%CI 0.08-0.84], P=0.024). There were significant positive correlations with muscle mass, percentage of body fat, and hepatic steatosis (r = 0.34; P 0.001, r = 0.21; P = 0.042, respectively).

Conclusion: In the study, prevalence of sarcopenia in MAFLD was 11%. BMI and HOMA-IR associated with low risk for sarcopenia. Low muscle mass was not correlated with severity of hepatic steatosis. However, the high percentage of body fat has a significant correlation with severity of hepatic steatosis, especially in the obese population.

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PP1286

NONALCOHOLIC FATTY LIVER DISEASE IN LEAN SUBJECTS: CLINICAL , EPIDEMIOLOGICAL AND METABOLIC FEATURES

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Introduction: Non-alcoholic fatty liver disease (NAFLD) has become the most common chronic liver disease. It has been strongly connected to metabolic syndrome, and for many years, fatty liver was considered to be an exclusive feature of obese patients.

However, recent studies have highlighted the presence of NAFLD in non-obese subjects, with or without increased visceral fat or even in lean subjects without increased waist circumference.

"Lean NAFLD" is a relatively new concept and there is significant scientific interest in understanding the differences in pathophysiology, prognosis and management compared with NAFLD in overweight/obese patients.

Aims & Methods: The aim of our study was to compare the epidemio-clinical and metabolic features of lean and obese NAFLD patients. We conducted a comparative observational study of all patients referred to our departement to evaluate their liver elasticity using Fibroscan®.

A simultaneous measurement of steatosis was performed by the Controlled Attenuation Parameter (CAP) of Fibroscan®.

The threshold used to define the presence or not of steatosis was 245 dB.

A measurement of the metabolic parameters (Cholesterol, TG, Glycemia) was performed.

Our study population was then divided into 2 groups:

Group 1 (G1): a lean NAFLD group (BMI < 25 kg/m^2)

Group 2 (G2): an overweight or obese NAFLD group (BMI >= 25 kg/m^2).

A descriptive and comparative study (p significant if <= 0.05) was performed between the two groups.

Results: We included 317 patients with a mean age of 52.31 +/- 13.40 years old. The prevalence of NAFLD in the overall population was 58%. Among the 184 subjects with NAFLD, 19% had a BMI <25 Kg/m^2.

G1 consisted of 35 patients (19%) with a mean age of 50.3 +/-13.06 years old, a sex ratio M/F of 1.05 and a mean BMI of 23.08 +/- 1.2 Kg/m^2. G2 was composed of 149 patients (81%) with a mean age of 53.13 +/- 11.7 years old , a sex ratio M/F of 0.5 and a mean BMI of 32.4 +/- 1.5 Kg/m^2.

When comparing the two groups, we found that lean patients with NAFLD were significantly younger than the obese NAFLD patients (50.3+/-13.06 years old versus 53.13+/- 11.7 years old ; p=0.02). Regarding biological parameters, the mean triglycerides and fasting plasma glucose (FPG) were significantly higher in G1 patients than in G2 patients with mean values of (1.9 mmol/l versus 1.6 mmol/l; p=0.03); (8.3 mmol/l versus 6.4 mmol/l; p=0.01) respectively. Liver function disturbances were greater in G1 patients than in G2 patients with mean levels of AST, ALT, PAL and GGT (56 versus 40 ; p=0.4); (66 versus 45; p=0.3); (458 versus 179; p=0.02); (123 versus 61; p= 0.09) respectively. The prevalence of advanced fibrosis was similar in both groups at 1.8% (p=0.6).

Conclusion: Our study suggests that NAFLD is more severe in lean subjects than in obese subjects and is associated to more hepatic and extrahepatic metabolic disturbances. That is why clinicians must be particularly cautious with these patients who had a healthier metabolic profile but seems to have a worse prognosis.

Disclosure: Nothing to disclose.

PP1287

ASSOCIATION OF CONTROLLED ATTENUATION PARAMETER AND LIVER STIFFNESS WITH CARDIOVASCULAR DISEASE IN PATIENTS WITH DIABETES MELLITUS

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Introduction: Patients with non-alcoholic fatty liver disease (NAFLD) are at a higher risk of developing cardiovascular disease (CVD).

Aims & Methods: This study aimed to determine if there is an association between increased steatosis and fibrosis with a higher risk of CVD in patients with diabetes mellitus (DM). This study enrolled 288 patients with DM who were over 40 years of age, between January and August 2023, after excluding viral hepatitis, cirrhosis, and cancers. Patients provided written informed consent and underwent clinical measurements and answered questions about their past medical history. The following measurements and data were taken: body weight (BW), body mass index (BMI), waist circumference (WC), laboratory data, presence of hypertension, dyslipidemia, alcohol consumption, and smoking.

The degree of steatosis was estimated using the fatty liver index {FLI, $(e^{(0.953\times\ln(\text{triglyceride, TG})+0.139\times\text{BMI}+0.718\times\ln(\text{gamma-glutamyltrasnsferase, GGT})+0.053\times\text{WC}-15.745)})/(1+e^{(0.953\times\ln(\text{TG})+0.139\times\text{BMI}+0.718\times\ln(\text{GGT})+0.053\times\text{WC}-15.745)})\times100$}, hepatic steatosis index {HSI, 8x(alanine aminotransferase (ALT)/aspartate aminotransferase (AST) ratio+BMI (+2, if female; +2, if diabetes mellitus)}, and controlled attenuation parameter (CAP by FibroScan®). The degree of fibrosis was estimated using the fibrosis-4 (FIB-4) index, NAFLD fibrosis score (NFS), and liver stiffness (LS by FibroScan®). CVD was defined as ischemic heart disease or hemorrhagic or ischemic stroke. The past history of CVD was asked and reported by trained nurses and chart review.

Results: The mean age was 60±9 years old, and the proportion of males was 54.9% (n=158). The mean CAP and LS values were 273±48 dB/m and 6.8±3.5 kPa, respectively. The CAP values were correlated with BW (r=0.473, p<0.001), BMI (r=0.618, p<0.001), WC (r=0.565, p<0.001), FLI (r=0.603, p<0.001), and HSI (r=0.622, p<0.001). The LS values were cor-

related with BW (r=0.230, p<0.001), BMI (r=0.446, p<0.001), WC (r=0.371, p<001), and FIB-4 (r=0.419, p<0.001). The LS values were not correlated with NFS. Ninety three (32.3%) patients had CVD and 57 patients were male. The mean age (62±9 vs. 58±9 years, p=0.001), BW (73.2±13.2 vs. 69.1±12.9 kg, p=0.013), BMI (27±4.1 vs. 25.6±3.7 kg/m^2, p=0.004), and WC (91.5±10 vs. 87.7±9.6 cm, p=0.002) were higher in patients with CVD than in those without CVD. The prevalence of HTN (81.7% vs. 41.5%, p<0.001) and dyslipidemia (75.3% vs. 61.5%, p=0.021) were also higher in patients with CVD.

However, the prevalence of alcohol consumption (18.3% vs. 26.7%) and smoking (48.4% vs. 47.7%) were not different between the two groups. The CAP value (275±48 vs. 271±49 dB/m), FLI (51±29 vs. 43±27), and HSI (39±6 vs. 38±6) were not different between the two groups. The LS value (7.4±3.8 vs. 6.5±3.3 kPa, p=0.049) and FIB-4 (1.5±0.9 vs. 1.2±0.7, p=0.006) were higher in patients with CVD than those without CVD.

However, NFS (-0.8±1.2 vs. -1.1±3.1, p=0.335) was not different between the two groups. Multivariate logistic regression analysis revealed that age [odds ratio (OR): 1.059, 95% confidence interval (CI): 1.023-1.095, p=0.001], hypertension (OR: 4.843, 95% CI: 2.611-8.985, p<0.001), and BW (OR: 1.032, 95% CI: 1.008-1.056, p=0.008) were significant risk factors for CVD. However, the LS and FIB-4 were not risk factors for CVD.

Conclusion: In contrast to the steatosis, the fibrosis estimated by LS and FIB-4 were associated with the risk of CVD in patients with DM. However, multivariate analysis did not show the LS and FIB-4 as risk factors for CVD.

Disclosure: Nothing to disclose.

PP1288

ASSOCIATION OF CONTROLLED ATTENUATION PARAMETER AND LIVER STIFFNESS WITH CHRONIC KIDNEY DISEASE IN PATIENTS WITH DIABETES MELLITUS

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Introduction: Patients with nonalcoholic fatty liver disease (NAFLD) have a higher risk of chronic kidney disease (CKD).

Aims & Methods: This study aimed to investigate whether the degree of steatosis and fibrosis is associated with an increased risk of CKD in patients with diabetes mellitus (DM). Between January and August 2023, 324 patients with DM were enrolled in the study, after excluding those with viral hepatitis, cirrhosis, and any cancers. Patients provided written informed consent, underwent several clinical measurements, and provided past medical histories. Body weight (BW), body mass index (BMI), waist circumference (WC), laboratory variables including serum creatinine and estimated glomerular filtration rate {eGFR, 175 × Serum Cr$^{-1.154}$× age$^{-0.203}$ × 1.212 (if patient is black) × 0.742 (if female)}, presence of hypertension, and dyslipidemia were investigated.

The degree of steatosis was estimated using the fatty liver index {FLI, ($e^{(0.953\times\ln(\text{triglyceride, TG})+0.139\times\text{BMI}+0.718\times\ln(\text{gamma-glutamyltrasnsferase, GGT})+0.053\times\text{WC}-15.745)}$)/(1+ $e^{(0.953\times\ln(\text{TG})+0.139\times\text{BMI}+0.718\times\ln(\text{GGT})+0.053\times\text{WC}-15.745)}$)×100}, hepatic steatosis index {HSI, 8x(alanine aminotransferase (ALT)/aspartate aminotransferase (AST) ratio+BMI (+2, if female; +2, if diabetes mellitus)}, and controlled attenuation parameter (CAP by FibroScan®). The degree of fibrosis was estimated using fibrosis-4 (FIB-4) index, NAFLD fibrosis score (NFS), and liver stiffness (LS by FibroScan®). CKD was defined as eGFR less than 60 mL/min/1.73m^2.

Results: The mean age of the patients was 57±12 years, and 54.9% (n=178) were male. The mean CAP and LS values were 276±50 dB/m and 7.0±3.7 kPa, respectively. CAP values were correlated with BW (r=0.524, p<0.001), BMI (r=0.625, p<0.001), WC (r=0.592, p<0.001), FLI (r=0.637, p<0.001), and HSI (r=0.653, p<0.001). LS values were correlated with BW (r=0.364, p<0.001), BMI (r=0.531, p<0.001), WC (r=0.46, p<001), and FIB-4 (r=0.3, p<0.001), but not correlated with NFS. Twenty-nine (8.9%) patients had CKD, of whom 14 were male. Patients with CKD were older (mean age: 63±11 vs. 56±12 years, p=0.005) and had a higher prevalence of hypertension (79.3% vs. 49.8%, p=0.002) compared to those without CKD. AST (29±22 vs. 30±20 IU/L), ALT (36±39 vs. 37±27 IU/L), GGT (40±30 vs. 44±73 IU/L), and HbA_1C (7.3±1.3 vs. 7.3±1.4%) were not different between the two groups.

The prevalence of dyslipidemia (75.9% vs. 63.4%), BW (73±15 vs. 72±15 kg), BMI (28±4 vs. 27±5 kg/m^2), and WC (92±11 vs. 90±11 cm) were also not different between the two groups. CAP value (273±55 vs. 276±50 dB/m), FLI (49±29 vs. 48±29), and HSI (40±7 vs. 39±7) were not different between the two groups. LS value (7.0±2.2 vs. 7.0±3.8 kPa), NFS (-1.0±1.3 vs. -1.2±2.6), and FIB-4 (1.3±0.6 vs. 1.2±0.8) were also not different between the two groups.

Multivariate logistic analysis revealed that age [odds ratio (OR): 1.047, 95% confidence interval (CI): 1.008-1.088, p=0.019] and hypertension (OR: 3.260, 95% CI: 1.274-8.339, p<0.014) were the independent risk factors for CKD.

Conclusion: The steatosis estimated by CAP and the fibrosis estimated by LS were not associated with the risk of CKD in patients with DM.

Disclosure: Nothing to disclose.

PP1289

THE HEART OF THE PROBLEM - HIGH CARDIOVASCULAR RISK IN LEAN NON-ALCOHOLIC FATTY LIVER DISEASE PATIENTS

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Introduction: As the most common form of chronic liver disease, the increasing prevalence of non-alcoholic fatty liver disease (NAFLD) is a global concern. NAFLD and obesity are independently related to an increased risk for atherosclerotic cardiovascular disease (ASCVD), the primary cause of mortality in NAFLD patients. Even though many subjects with NAFLD are normal weight, it still remains uncertain whether their ASCVD risk is of major importance.

Aims & Methods: The aim of this study is to assess and compare the ASCVD risk between lean and obese patients with NAFLD. Normal weight and obese patients were evaluated between January 2020 and February 2023 and their data was analyzed. NAFLD was diagnosed by vibration-controlled transient elastography (VCTE) with controlled attenuation parameter (CAP) and the American College of Cardiology/American Heart Association guidelines was used to evaluate the ASCVD risk. Moreover, medical history and biochemical data were collected.

Results: In total, 221 patients were included in the final analysis. In the obese group, 164 (63.8%) patients were diagnosed with NAFLD, compared to 57 (12.3%) in the lean population. In comparison to those with obese NAFLD, subjects with lean NAFLD had significantly higher ASCVD scores (mean 15.3% vs 22.7%, p<0.001). Moreover, subjects with lean NAFLD and significant liver fibrosis had a higher risk of ASCVD events, compared to their obese counterparts (OR, 2.51 vs 1.95, p=0.034).

On the other hand, in terms of liver stiffness measurements, the prevalence of at least significant liver fibrosis was substantially higher in the obese group. Regarding the presence of the components of the metabol-

ic syndrome, the prevalence of type 2 diabetes mellitus was higher the obese group, while changes in the lipid profile and higher systolic blood pressure were more frequently found in lean subjects.

Conclusion: The ASCVD scores of subjects with lean NAFLD were significantly higher than those with obese NAFLD. The presence of significant liver fibrosis was a notable risk factor associated with an ASCVD event in both study groups, but the effects were more pronounced in individuals with a low body mass index.

Disclosure: Nothing to disclose.

PP1290

DIAGNOSTIC ACCURACY OF NONINVASIVE SERUM MARKERS IN NON-ALCOHOLIC FATTY LIVER FIBROSIS IN OBESE CHILDREN

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Introduction: Non-alcoholic fatty liver disease (NAFLD) is a common liver condition, and liver biopsy is considered the gold standard to diagnose and stage the disease [1].

However, the risks associated with the invasive procedure limit its widespread use, making noninvasive methods for assessing the severity and progression of fibrosis essential in pediatric NAFLD cohorts [2].

Aims & Methods: To investigate the levels of transforming growth factor-beta 1 (TGF-β1) and glycosaminoglycans (GAGs) in obese children with NAFLD and assess their diagnostic accuracy.

94 children aged 9 to 17 years (average age 12.15 ± 2.51 years) were examined. According to the transient elastography data (FibroScan®502touch, Echosence, France) and body mass index, children were divided into four groups:1 group - 27 obese NAFLD children with fibrosis ≥F1, group 2 - 35 obese NAFLD children without fibrosis, group 3 - 18 obese children without NAFLD and fibrosis. Group 4 (control) comprised 14 children with normal weight without NAFLD and liver fibrosis.

Serum transforming growth factor-beta 1 (TGF-β1) levels were evaluated by enzyme-linked immunosorbent assay (ELISA) using the IBL International (Germany) test system, and glycosaminoglycans (GAG) levels were determined spectrophotometrically. ROC analysis was performed for cut-off values calculation.

Results: The highest level of TGF-β1 was found in 1 group children –up to 153.4 (99.7; 189.1) pg/ml, which was significantly higher than in 2 group-72.4 (53.1; 111.3) pg/ml (p<0,05), 3 group - 74.0 (50.6; 99.4) pg/ml (p<0,05) and 4 group - 56.1 (46.0; 77.4) pg/ml (p<0,05).

Moreover, 1 group of children demonstrated increased GAG content up to 4.50 (3.21; 4.60) mmol/L (p<0,05). ROC analysis revealed that cut-off serum TGF-β1 96.8 pg/ml predicted liver fibrosis in NAFLD children.

The area under the curve (AUROC) was 0.787 (p<0.001), the sensitivity of the test was 80.0%, and the specificity was 65.7%. The threshold GAG value for fibrosis was 4.24 mmol/L (sensitivity 70.6%, specificity 69.6%, AUROC 0.743 (p<0.01)).

Conclusion: TGF-β1 and GAG are reliable noninvasive fibrosis markers in children with NAFLD, allowing for their use in liver fibrosis screening.

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Disclosure: Nothing to disclose.

PP1291

IS HIGH AFP ASSOCIATED WITH LIVER DISEASES IN AUTOSOMAL RECESSIVE CEREBELLAR ATAXIAS?

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Introduction: Ataxia-telangiectasia (AT) and ataxia-oculomotor apraxia (AOA), which are both autosomal recessive cerebellar ataxia disorders, are characterized by elevated serum alpha-fetoprotein (AFP) levels. However, the source of this increase, its potential clinical consequences, and its relationship with liver diseases remain unknown.

This study explored the prevalence of liver diseases and how they contributed to increased AFP in patients with AT and AOA.

Aims & Methods: Eighteen adult patients with AT or AOA followed up between January 1992 and March 2023 were included in the study. Demographic data, clinical findings, liver enzymes, AFP levels, and liver and brain imaging were reviewed retrospectively.

Results: Data of 13 (72%) AT and 5 (28%) AOA patients were analyzed. The mean age of 11 (61%) male and 7 (39%) female patients was 27.3±4.8, and the median age at diagnosis was 7.5 (2-23). The most common clinical findings were ataxia (78%) and dysmetria (56%), and cerebellar atrophy was present in 8 patients who underwent brain imaging. During a mean follow-up period of 15.2±9.1 years, 5 (28%) patients died; 4 (22%) patients had malignancy (1 ALL, 1 pancreatic cancer, 1 gastric cancer and 1 glioblastoma mutliforme) and 1 (6%) patient had sepsis.

Liver enzyme elevation was present in half of the patients; ALT/AST in 2 patients, ALP/GGT in 7 patients. Ultrasonography revealed normal findings in the liver in 7 (58%) of 12 patients, hepatomegaly and hepatosteatosis in 4 (33%), and hemangioma in 1 (8%) patient.

One of the 2 patients who underwent liver biopsy had chronic active hepatitis and biliary tract injury, and the other patient had granulomatous hepatitis. Serum AFP level was higher than normal in all patients and the median value was 121 (12-913) ng/ml. The AFP level of AT patients [226 (41-913) ng/ml] was significantly higher than that of AOA patients [19 (12-42) ng/ml] (p=0.006). There was no significant relationship between AFP level and age (p=0.437), gender (p=0.568), elevated liver enzymes (p=0.534), hepatosteatosis (p=0.913), or cancer history (p=0.31).

Conclusion: Half of the patients with cerebellar ataxia have elevated liver enzymes and one-third have hepatosteatosis. Although AFP was high in all patients, none developed primary liver cancer during the 15.2±9.1 years follow-up period. The causes of death in these patients are non-hepatic cancers and sepsis.

Disclosure: Nothing to disclose.

PP1292

SCREENING FOR ADVANCED LIVER DISEASE IN THE DISEASE MANAGEMENT PROGRAM FOR TYPE 2 DIABETES

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Introduction: Type 2 diabetes mellitus (T2DM) is associated with end-organ injury and is a major risk factor for non-alcoholic fatty liver disease (NAFLD) and advanced liver disease. Despite the high relevance of NAFLD in T2DM, it remains unconsidered in the routine screening of T2DM-related comorbidities in the German diabetes disease management program (DMP).

Aims & Methods: The aim of this prospective cohort study was to assess the prevalence of liver disease from NAFLD and associated clinical risk factors in primary care centers participating in the diabetes DMP in Germany. A total of 175 participants with the diagnosis of T2DM were enrolled in two primary care outpatient centers within the diabetes DMP. The prevalence of steatosis, fibrosis, and cirrhosis was assessed non-invasively using vibration-controlled transient elastography (VCTE). Steatosis was defined as a controlled attenuation parameter (CAP) of ≥ 275 dB/m. Liver fibrosis and cirrhosis were defined as a liver stiffness measurement (LSM) of ≥ 8 kPa and ≥ 15 kPa, respectively. Multivariable logistic regression analysis with stepwise selection was performed to identify clinical predictors of liver fibrosis and cirrhosis.

Results: The majority of participants were male (62%, n = 109), and the median age was 66 years (IQR 59; 71). The median BMI was 31.1 kg/m^2 (IQR 27.7; 35.3), with 58.9% (n = 103) of the participants being obese. The median HbA1c was 7.0% (IQR 6.5; 7.8). The prevalence of hepatic steatosis, fibrosis, and cirrhosis was 77.1%, 42.3%, and 12%, respectively. NAFLD was identified in the majority of participants (69.9%; n = 121).

Obese individuals showed the highest median LSM values (11.3 kPa, IQR 9.4; 16.2). In multivariable logistic regression analysis, obesity was associated with increased odds of hepatic fibrosis (OR = 4.818, 95% CI 2.243-10.350) and cirrhosis (OR = 3.873, 95% CI 1.073-13.977). Although higher blood levels of HbA1c correlated with liver fibrosis, it did not remain an independent predictor.

Conclusion: The prevalence of advanced liver disease is high within the diabetes DMP in Germany. People with T2DM and obesity are at an increased risk to exhibit liver fibrosis, and eventually cirrhosis. Building on VCTE for risk stratification within the DMP would allow identifying the subgroup recommended for intensified management.

Disclosure: Nothing to disclose.

PP1293

ASSESSEMENT OF NEW ULTRASOUND-BASED METHODS FOR LIVER STEATOSIS QUANTIFICATION AS COMPARED TO CONTROLLER ATTENUATION PARAMETER

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Introduction: Early detection and staging of liver steatosis is important for establishing prognosis of patients with fatty liver.

The aim of this study was to evaluate two new quantitative ultrasound (QUS) parameters, TSI (tissue scatter-distribution imaging) and TAI (tissue attenuation imaging) for steatosis assessment, as compared to controlled attenuation parameter (CAP).

Aims & Methods: A prospective study was conducted in which liver steatosis was assessed in the same session by QUS (Samsung Medison RS85, CA1-7A probe) and CAP (FibroScan Compact M 530, M/XL probes) in 275 patients [59%(162) males, mean age 55.9±12.2 years]. Reliable measurements were defined for CAP as the median value of 10 measurements with IQR/M<0.3. For QUS, five consecutive measurements of TAI and TSI were acquired by a color-coded map overlaid on B-mode ultrasound. TAI and TSI were automatically calculated and considered reliable when reliability index, R^2>0.6. The CAP cut-off value to identify the presence of at least mild steatosis was 248 dB/m.

Results: Reliable measurements were obtained in 100% of cases both by CAP and TAI/TSI. Moderate correlations were observed between TSI vs. CAP r=0.56, and TSI vs. TAI, r=0.49. The best cut-off values to identify at least mild steatosis were: for TAI>0.73 (AUROC=0.87, p<0.0001, Se=67.6%, Sp=95.1%, PPV=96.9%, NPV=56.1%), for TSI>96.5 (AUROC=0.84, p<0.0001, Se=76.9%, Sp=82.9%, PPV=91.1%, NPV=61.3%).

Conclusion: TAI and TSI are feasible methods for assessing liver steatosis, with good accuracy to diagnose at least mild steatosis

Reference: Karlas T, et al- J Hepatol. 2017 May;66(5):1022-1030.

Disclosure: Nothing to disclose.

PP1294

PREDICTING FIBROSIS PROGRESSION IN NON-ALCOHOLIC FATTY LIVER DISEASE PATIENTS USING FAST SCORE: A PAIRED BIOPSY STUDY

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Introduction: This paired biopsy study aimed to investigate the predictive value of various non-invasive scores for identifying the temporal evolution of hepatic fibrosis in patients with non-alcoholic fatty liver disease (NAFLD).

Aims & Methods: A total of 69 patients with NAFLD who had undergone two paired liver biopsies (mean interval: 21.3 ± 9.7 months) were examined. Fibrosis progression and regression were defined as an increase or decrease of at least one stage in fibrosis between the initial and second biopsy. Fibrosis-4 index (FIB-4), NAFLD Fibrosis Score (NFS), Agile 3+ score, Agile 4 score, and FibroScan-AST (FAST) score were calculated at the time of the initial biopsy.

Results: Upon comparing the results of paired biopsies, 45% of the participants (n = 31) showed no change in fibrosis, 26% (n = 18) experienced fibrosis progression, and 29% (n = 20) had evidence of fibrosis regression. In multivariable logistic regression analysis, the only independent predictive factor for progressive fibrosis was the FAST score. The odds ratio for progressive fibrosis was found to increase by 19% (95% confidence interval: 8–38%, p < 0.05) with every unit increase in FAST score at the time of the initial biopsy. No independent predictors for fibrosis regression were identified.

Conclusion: Patients with higher baseline FAST scores were more likely to experience fibrosis progression independent of potential confounders. Consequently, FAST could serve not only as a diagnostic tool for screening fibrosis in NAFLD, but also as a prognostic indicator.

Disclosure: Nothing to disclose.

PP1295

PREVALENCE AND MEANING OF AN ELEVATED FIB-4 IN PATIENTS REFERRED TO A TERTIARY HOSPITAL

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Introduction: Liver biopsy remains the gold standard for fibrosis diagnosis and liver elastography is an accurate method for non-invasive evaluation, although often unavailable. FIB-4, a fibrosis index based on age, AST, ALT and platelet count, is increasingly used to predict advanced fibrosis, mostly in primary care. There are different cut-offs, however considering Non-Alcoholic Fatty Liver Disease (NAFLD) patients FIB-4 <1.30 was able to exclude advanced fibrosis, while FIB-4 >2.67 presented good positive predictive value. For populations older than 65years old, a cut off of 2.0 was advocated.

Aims & Methods: We aim to evaluate this tool on a tertiary hospital.

Using a tertiary hospital database of blood workup we selected the 3575 blood collections in ambulatory patients between 1st-31st august 2021 with laboratory data for FIB-4 calculation. We excluded patients under 18 years, those followed on Haematology, and those with AST or ALT >100 UI/L. We considered only the first blood collection for each patient in this period. On our study we compared patients according to FIB-4 value respective of their association with chronic renal disease, dyslipidaemia and altered glucidic metabolism. We investigated what percentage of those with FIB-4 >1.3 were followed on Gastroenterology.

Results: During the study period, among 3213 blood collections that fulfilled the criteria, 1290 (40.1%) had a FIB-4 >1.3. Male gender (51.4% vs 37.7%, p<0.001) and older age (70.1 vs 49.4, p>0.001) were significantly associated with FIB-4 >1.3. FIB-4 >1.3 associated with glomerular filtration rate (GFR) <90ml/min/1.73m^2 (p<0.001), chronic renal disease (GFR<60ml/min/1.73m^2) (p<0.001), serum cholesterol >200mg/dL (p=0.22) and serum glucose >130 mg/dL. (p=0.003). There was no difference in ALT values (p=0.513) but on AST (p=0.001). Only 12.9% of patients with FIB-4>1.3 had a Gastroenterology appointment in our institution.

On a subgroup analysis for patients older than 65 years old, 405 (31.4%) patients had a FIB4 >2.0 among 1286. Male gender (48.8% vs 57.1%, p=0.005) and age (73.3 vs 80.0, p=0.005) significantly associated with FIB-4 >2.0. FIB-4>2.0 associated with GFR <90ml/min/1.73m^2 (p<0.001), GFR <60ml/min/1.73 (p=0.003) and cholesterol >200mg/dL (p=0.001) but no difference on glucose >130mg/dL (p=0.192). There was no difference in ALT values (p=0.695) but on AST (p=0.001).

Conclusion: Using the lower cut-off for FIB4, it is frequently elevated in referrals to a tertiary hospital. FIB-4 is associated with declining GFR and disturbances on lipid and glucose metabolism. Awareness of FIB-4 tool, may help recognizing the risk of advanced liver disease in patients and suspect renal disease or diabetes, as part of NAFLD phenotype.

Disclosure: Nothing to disclose.

PP1296

THE IMPACT OF ALPHA-1-ANTITRIPSIN DEFICIENCY AND PI*Z ALLELE IN LIVER FIBROSIS

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Introduction: Alpha-1-antitripsin deficiency (AATD) is a codominant autosomal hereditary condition that predisposes patients to the development of pulmonary and/or hepatic disease, with Pi*Z mutation being the most clinically relevant.

Aims & Methods: Our aim was to evaluate the impact of AATD and Pi*Z allele in hepatic fibrosis.

Prospective, cohort, single-centred study including adult patients with AATD followed in Pneumology or Hepatology consultation. A control group was created with patients without liver disease. Liver fibrosis was assessed through non-invasive methods via serum tests, NAFLD fibrosis score (NFS) and Fibrosis-4 (FIB-4) index, and transient elastography.

Results: A total of 98 patients were included, 69 with AATD (70.4%) and 29 controls (29.6%). In the AATD group, the median value of alpha-1-antitripsin (AAT) at diagnosis was 67 mg/dL and the presence of at least one Pi*Z allele occurred in 55 patients (79.7%).

Patients with AATD regardless of genotype had a significantly higher liver stiffness measurement (LSM) compared to controls, although in both groups without significant liver fibrosis (median 5.0 vs 3.8kPa, p<0.001). Additionally, patients with AATD had significantly higher aspartate-transaminase (AST) (median 25 vs 17 UI/L, p<0.001) and alanine-transaminase (ALT) (median 29 vs 18 UI/L, p<0.001), with the two groups having values within normal range. The same occurred with alkaline phosphatase (ALP) (median 71 vs 59 UI/L, p<0.001) and gamma-glutamyl transferase (GGT) (median 25 vs 20 UI/L, p=0.007).

AAT values at diagnosis showed a negative and weak correlation with NFS (s=-0.327, p=0.007), as well as with FIB-4 index (s=-0.309, p=0.011). AAT value at diagnosis equal or superior to 77 had a sensitivity of 0.944 and specificity of 0.646 in predicting a NFS value that excludes advanced liver fibrosis (AUC 0.681; p=0.025).

In patients with at least one Pi*Z allele, the presence of diabetes mellitus was associated with 8 times higher likelihood of significant liver fibrosis with LSM≥7.1kPa (p=0.035). Furthermore, patients with at least one Pi*Z associated with both metabolic syndrome and alcohol consumption (>25 grams daily) had significantly higher NFS values (-1.18±1.45 vs -2.43±1.30, p=0.006) and FIB-4 index values (median 1.41 vs 1.0, p=0.011), being 6.55 times more likely to have an intermediate to high risk of advanced fibrosis, according to NFS (p=0.008).

Conclusion: Patients with alpha-1-antitripsin deficiency had higher liver stiffness and higher levels of serum transaminases, ALP and GGT. Alpha-1-antitripsin values at diagnosis were associated with NFS and FIB-4 index during follow-up. In patients with Pi*Z mutation, the presence of diabetes mellitus, metabolic syndrome and alcohol consumption was significantly associated with significant liver fibrosis, highlighting the need for controlling these coexisting comorbidities in this subset of patients.

Disclosure: Nothing to disclose.

PP1297

DIETARY SELENIUM INTAKE IN RELATION TO NON-ALCOHOLIC FATTY LIVER DISEASE ASSESSED BY FATTY LIVER INDEX AND HEPATIC STEATOSIS INDEX; A CROSS-SECTIONAL STUDY ON THE BASELINE DATA OF PROSPECTIVE PERSIAN KAVAR COHORT STUDY

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Introduction: There are conflicting epidemiological studies on the association between selenium and metabolic disorders. Higher selenium intake and blood levels have been associated with an elevated risk of diabetes [1], hyperlipidemia [3], hypertension [4], and NAFLD [5].

Nonetheless, some evidence suggested no or a negative association between selenium and the risk of NAFLD or diabetes [6].

Aims & Methods: Due to the limited evidence and conflicting data, we aimed to perform the present cross-sectional study to investigate the association between dietary selenium intake and NAFLD in the general population of Kavar County. A total of 3026 subjects from the PERSIAN (Prospective Epidemiological Research Studies in IrAN) Kavar cohort study were included in the analysis.

The daily selenium intake was evaluated using a semi-quantitative food frequency questionnaire, and energy-adjusted quintiles of selenium intake (μg/day) were calculated. NAFLD was defined as the fatty liver index (FLI) ≥60 or the hepatic steatosis index (HSI) >36. The association between dietary selenium intake and NAFLD was evaluated using logistic regression analysis.

Results: The prevalence rates of NAFLD were 56.4% and 51.9%, based on the FLI and HSI markers, respectively. The odds ratios (ORs) for FLI-defined NAFLD were 1.31 (95% confidence interval (CI): 1.01–1.70) and 1.50 (95% CI: 1.13–1.99) for the fourth and fifth quintiles of selenium intake, respectively, after adjustment for sociodemographic variables, smoking status, alcohol drinking, physical activity, and dietary factors (P trend=0.002). There was also a similar association between selenium intakes and HSI-defined NAFLD (OR=1.34 (95% CI: 1.03–1.75) for the fourth quintile and OR=1.50 (95% CI: 1.12–2.01) for the fifth quintile of selenium intake) (P trend=0.006).

Conclusion: In this large sample study, we observed a weak positive association between dietary selenium intake and NAFLD risk.

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Disclosure: Nothing to disclose.

PP1298

ROLE OF SERUM MICRO RNA-130B AND LIVER STIFFNESS MEASUREMENT BY ACOUSTIC RADIATION FORCE IMPULSE IN THE PREDICTION OF CHRONIC KIDNEY DISEASE IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: Currently, non-alcoholic liver disorder (NAFLD) is the most predominant chronic liver disorder. NAFLD has been linked to hepatic and extra-hepatic morbidities.

The need for non-invasive prediction of hepatic and extra-hepatic consequences of NAFLD is a demand, due to the complexity of the disease, high burden, and the need for early intervention.

Aims & Methods: to investigate the role of serum microRNA-130b and liver stiffness [as measured by acoustic radiation force impulse (ARFI)], to non-invasively predict chronic kidney disease (CKD) in NAFLD patients.

Patients and Methods: In a case-control design, we included 40 NAFLD patients (20 NAFLD with CKD, and 20 NAFLD without CKD), and 20 healthy controls.

After clinical evaluation, laboratory assessments including liver test profile, renal function test, and quantification of microRNA-130b were done. Liver stiffness was evaluated using ARFI.

Results: The median values (interquartile range "IQR") of mRNA-130b in patients with NAFLD+CKD, patients with NAFLD without CKD, and healthy subjects were [32.10 (27.3 -37.3), 27.01 (24.8 – 31.7), and 25.36 (23.5 – 27.1), copies/μl, respectively, P <0.001].

The median (IQR) value of Liver stiffness as measured by ARFI was significantly higher among NAFLD with CKD patients compared to NAFLD without CKD [2.97 (2.87 – 3.3) vs. 2.45 (2.18 – 2.8) m/sec, P = 0.002]. The median (IQR) value of microRNA-130b was significantly higher among NAFLD with CKD patients compared to NAFLD without CKD [P = 0.032].

In the current study, ARFI readings were negatively correlated with platelet count (n = 40, rs = -0.33, P = 0.038). ARFI readings were positively correlated to serum mRNA-130b values in both groups (rs = 0.49, P = 0.02 and rs = 0.64, P = 0.002, respectively).

At a cut-off value > 28.13 copies/μl, microRNA-130b could differentiate between "NAFLD with CKD" and "NAFLD without CKD" patients with a sensitivity and specificity of 75%, and 70 %, respectively (AUC = 71.9 %, P = 0.018, 95% CI: 0.56 – 0.87).

Similarly, At a cut-off value > 2.81 m/sec, ARFI could differentiate between "NAFLD with CKD" and "NAFLD without CKD" patients with a sensitivity and specificity of 80% (AUC = 77.8 %, P = 0.003, 95% CI: 0.62 – 0.93).

Conclusion: MicroRNA-130b and liver stiffness measurements are suggested as potential markers for the prediction of CKD among NAFLD patients. Serum microRNA-130b, and ARFI are valuable non-invasive tools for the assessment of NAFLD severity.
Disclosure: Nothing to disclose.

PP1299

PREDICTORS OF LIVER STIFFNESS CHANGES IN CONSECUTIVE COHORTS OF PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE AND LONGITUDINAL FOLLOW UP

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Introduction: Currently, about 25-30% of the world population is affected by non-alcoholic fatty liver disease (NAFLD); over time, about 20% tends to develop a certain degree of inflammation in the liver tissue, defying the non-alcoholic steatohepatitis (NASH).
Moreover, approximately 20% of NASH patients evolve into a high-grade liver fibrosis condition that leads to severe liver impairment (cirrhosis) (1, 2, 3).
The serial use of non-invasive fibrosis tests can refine prognosis in patients with non-alcoholic fatty liver disease (NAFLD) and evaluate the progression or improvement of liver fibrosis.
Aims & Methods: We evaluated predictors of improvement or worsening of liver stiffness measurements (LSM) in well characterized cohorts of patients with NAFLD from London (UK) and Milan (Italy).
We included two consecutive cohorts of 405 patients with at least two outpatient visits between 2014 and 2022. The minimum time interval between baseline and follow-up LSM was >6 months. LSM worsening was defined as an increase of >20% kPa if the baseline LSM was ≥5 kPa, or a follow-up LSM >6 kPa if the baseline LSM was <5 kPa. An LSM improvement was defined as an LSM decrease of >20% kPa (if the baseline LSM was >6 kPa).
A significant change in weight was defined as a >5% reduction or increase at follow-up, while a significant change in glycated hemoglobin (HbA1c) was defined as a >10% reduction or increase.
The variation between the true and expected FIB-4 index (based on the patient's age at the follow-up visit, but using the blood tests performed at the first visit) was calculated. A significant improvement or worsening in FIB-4 was defined as a >20% variation between the actual and "expected" FIB-4.
Results: Of the 405 patients, 282 (70%) were males; mean age was 54±11 years. The median time from the first visits was 20.3 (13.9 – 28.7) months.
128 and 54 patients had an LSM >8 kPa and LSM>12 KPa at follow-up, respectively.
77 patients (19.3%) had an LSM improvement, while 67 (16.8%) had an LSM worsening; 256 patients (63.9%) maintained a stable value.
In patients with an LSM improvement, 22 had an improvement, 12 had worsening, while 37 had stable FIB-4.
In patients with an LSM worsening, 10 had an improvement, 20 had worsening, while 33 had a stable FIB-4.
In multiple logistic regression analysis, LSM worsening was independently associated with an increase in ALT and in HbA1c levels (OR 1.02 and 1.03 respectively), but also with a reduction in total cholesterol and AST levels (OR 0.98 for both). LSM improvement was independently associated with weight and ALT reduction (OR 0.93 and 0.98 respectively), but also with an increased AST level (OR 1.02).
Conclusion: More than 35% of patients with NAFLD have significant changes in their LSM measurements over a period of 20 months, with worsening or improvement at similar rates. Improvement in weight is independently associated with significant improvement in LSM measurements. On the converse, worsening in metabolic comorbidities, particularly glycemic control, could be associated with significant worsening in LSM, further supporting a multidisciplinary model of care.
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Disclosure: Nothing to disclose.

PP1300

EFFECTS OF GLP1 ANALOGUES ON: WEIGHT LOSS, GLYCEMIC PARAMETERS; HEPATIC PARAMETERS, AND HEPATIC FIBROSIS IN "REAL LIFE SITUATION": RESULTS IN 132 TYPE 2 DIABETIC PATIENTS

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Introduction: Weight loss correlates with improvement in necroinflammatory lesions and fibrosis in patients (pts) with nonalcoholic steatohepatitis (NASH). The diabetic pts are often overweight or obese and the usual treatments (Metformin) have no effect on the weight loss. The analogues of Glucagon-like-peptide (GLP1), which are part of the treatments of type 2 diabetes, lead to frequent weight loss and have been shown to improve NASH lesions and/or fibrosis in several studies fibrosis in several studies [1,2]. This "real life" study aims to evaluate the effects of dulaglutide (Du) or semaglutide (Se) on weight loss, glycemic parameters, liver parameters, and liver injury in diabetic with NAFLD pts
Aims & Methods: Type 2 diabetic pts with NAFLD in two France hospital were included and monitored prospectively at a semi-annual rhythm after initiation of the Du or Se treatment proposed for the treatment of diabetes.
Weight, glycemic parameters, and liver enzymes were recorded at each visit, and liver injury was assessed prospectively at a semi-annual using Fibroscan® (FS), Fibrotest® (FT) or FIB-4.
Results: One hunded thirty two (132) type 2 diabetic with NAFLD pts (66 NASH), with mean age 60 years, and 52% of male were included.). 88.5% were treated with Du at a dose of 1.5 mg to 3 mg and 11.5% with Se at

a dose of 0.25 to 0.50 mg . The mean weight at inclusion was 93.8 kg (SD=19.6) and 44.3% of the pts were obese. Fifty percent (50%) of the pts had anti hypertensive treatment. Liver fibrosis was assessed in 39 patients using FS, 55 pts by FT and 90 pts by FIB-4.The baseline mean scores were 14.7 kPa (SD=11.3), 0.3 (SD=0.2) and 1.3 (SD=0.6) for FS, FT and FIB-4 respectively. Nineteen (19) pts had cirrhosis and 19 had F3 fibrosis stage. The average follow-up was 14 months (12-24) after the start of treatment. Weight decreased on average by 7.3 kg (SD=9.4, p<0.0001) and BMI by 2.6 kg/m2 (SD=3.7, p<0.0001).). Blood glucose and glycated hemoglobin decreased by 0.2 (p=0.35) and 0.2 (p=0.24), respectively.

ALT activity decreased by 12 U/L(SD=22, p<0.0001) and ASAT activity by 7 U/L (SD=13, p=0.0001). Sixty three percent (63%) pts had fibrosis reassessment after 1 year of follow-up. Elastometry score decreased by 2.4 kPa (SD=4.7 kPa, p=0.007); FT decreased by 0.03 (p=0.01) and FIB-4 by 0.06 (p>0.05).

There was a significant correlation between weight loss and elastometry score reduction (r=0.44; p=0.0104).

Conclusion: A significant decrease in weight, BMI, ALT, ASAT, elastometry score and FT were observed during the follow-up of patients treated with Du and Se. This real life study shows that GLP1 analogues could be one of the elements of the therapeutic management of NAFLD in type 2 diabetic pts.

Disclosure: No conflict of interest.

PP1301

DIAGNOSTIC PERFORMANCE OF SHEAR WAVE MEASUREMENT (SWM) AND ATTENUATION (ATT) MEASUREMENT TO ASSESS LIVER DAMAGE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Introduction: Patients with type 2 diabetes (T2D) have a high prevalence of non-alcoholic fatty liver disease (NAFLD) (1).

The most validated non-invasive method to assess liver steatosis and fibrosis is transient elastography (TE), whereas some new ultrasound-based technologies still lack substantial clinical evidence in this setting (2,3).

In this line we aimed to evaluate performance of Shear Wave Measurement (SWM) and Attenuation (ATT) Measurement by Fujifilm to diagnose liver steatosis and fibrosis in the cohort of patients with T2DM, using TE as the reference.

Aims & Methods: Consecutive outpatients with T2D (N=147) were referred for controlled attenuation parameter (CAP) and liver stiffness measurements (LSM) to assess the presence of liver steatosis and fibrosis by using TE. The presence of any grade of liver steatosis was considered in patients with CAP≥297 dB/m, and advanced fibrosis in those with LSM≥10 kPa by TE, which served as the reference method (4,5).

All consented patients also underwent SWM and ATT (by Fujifilm Arietta 65), as the investigated methods, and their results were compared to LSM and CAP as measured by TE.

All measurements were performed in fasting patients, whereas patients with conditions that might have influenced the results of LSM (ALT>5xULN, congestive liver disease, biliary obstruction, infiltrative liver neoplasms) were excluded.

Results: Of 147 included patients with T2D, 76 (51.7%) were females, average age 66, median Body Mass Index 30.5 kg/m^2, 113 (76,9%) had arterial hypertension, 111 (75,5%) dyslipidemia, 27 (18.4%) were smokers, 26 (17.7%) reported risky alcohol consumption. As for TE, M probe was used in 104 (70.7%) patients, median LSM was 5.9 kPa, median CAP 290 dB/m.

Any grade of steatosis (CAP≥297 dB/m) was detected in 62 (42,2%) patients, and advanced fibrosis (LSM≥10 kPa) in 17/145 (11.6%) patients by using TE. Median SWM was 5.5 kPa, and median ATT 0.62 dB/cm/MHz. We observed good correlation between LSM as measured by TE and SWM (Pearson's R=0.68, 95 CI: 0.58-0.76, p<0,001), whereas SWM produced lower (mean -0,7 unit, Bland-Altman) LSM values in comparison to TE.

SWM had AUROC of 0.905 at the LSM cut-off ≥ 8.3 kPa (Youden) to diagnose advanced fibrosis (sen. 76.5%, specif. 93.8%). LSM by SWM optimized for ruling-in and ruling-out advanced fibrosis were respectively ≥10.1 kPa (specif. 97%) and <6.2 kPa (sens. 94.1%). Presence of advanced fibrosis would be missed in 23.5%, 41.2% and 5.8% patients by using reported LSM cut-offs (≥ 8.3, ≥10.1 and <6,2 kPa respectively).

In multivariate analysis only platelet count (OR 0.979; CI 0.96-0.998, p=0.03) and LSM as measured by TE (OR 1.197; CI 1.031-1.391, p=0.02) were significantly associated with LSM measured by SWM.

Correlation between ATT and CAP was poor (Pearson' R=0.31, 95 CI: 0.16-0.45, p<0.001), as was the overall diagnostic performance of ATT to diagnose any grade of liver steatosis (AUROC 0.673 at the cut-off ≥0.66 dB/cm/MHz (Youden); sens. 56.5%, specif. 75.3%). ATT cut-offs optimized for ruling-in and ruling-out any steatosis were ≥0.75 dB/cm/MHz (specif. 89.4%), and <0.50 dB/cm/MHz (sens. 88.7%) respectively. Presence of any steatosis would be missed in 43.5%, 62.9% and 11.2% by using reported ATT cut-offs (≥0.66, ≥0.75 and <0.50 dB/cm/MHz respectively).

Conclusion: SWM reliably recognizes presence of advanced liver fibrosis in patients with T2D. The diagnostic performance of ATT was suboptimal, and this should be further investigated by using more reliable reference methods, such as liver biopsy or magnetic resonance.

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Disclosure: Nothing to disclose.

PP1302

SPLENIC STIFFNESS IN NON-ALCOHOLIC FATTY LIVER DISEASE: CORRELATION TO SERUM BIOMARKERS AND LIVER ULTRASOUND TECHNOLOGY OF FIBROSIS

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Introduction: Non-alcoholic fatty liver disease (NAFLD) can progress to fibrosis and cirrhosis. The evaluation of fibrosis in chronic liver disease using non-invasive methods is a current topic. Standard methods are liver stiffness measurement and serum biomarkers. Splenic elasticity measurement is a recent and interesting non-invasive approach that arouses the interest of the latest studies to evaluate fibrosis severity in NAFLD.

The aim of this study is to identify patients with NAFLD and advanced liver fibrosis, by establishing correlations between splenic and liver elasticity and fibrosis serum biomarkers.

Aims & Methods: This is a prospective study conducted in the hepato-gastroenterology department including all patients followed for hepatic steatosis during the period from July 2022 to January 2023. Patients with a family or personal history of chronic liver disease, and women with acute steatohepatitis in pregnancy or cholestasis in pregnancy were excluded. Measurement of hepatic and splenic stiffness and the degree of hepatic steatosis was done using liver elastrography (Fibroscan®) and Transient elastography with controlled attenuation parameter (CAP), respectively. NAFLD fibrosis (NFS) and Fibrosis-4 scores were calculated. Data were entered and processed using SPSS software version 22.0.

Results: We included 44 patients, divided into 28 women and 16 men (Sex-ratio F/M = 1.75), with a mean age of 61.4 years [32 to 84 years]. Three patients were smokers and four were alcoholics. Hypertension was found in 56.8%, 54.5% were diabetics and 52.3% were dyslipidemics. The mean BMI was 29.6 kg/m^2±4.15 kg/m^2. Obesity was found in 45.5%, 36.4% were overweight and 18.2% of patients were normal weight. Hepatic steatosis was discovered following pain in the right hypochondrium in 79.5% of the cases and in front of a cytolysis in the remaining cases. All patients had diffuse steatosis without portal hypertension or degeneration signs on ultrasound.

Biological results showed cytolysis in seven patients. No patient had cholestasis. All patients had preserved liver function: normal prothrombin level and albumin. Hyperglycemia and lipid disturbance were observed in 43.2% and 36.4% of cases respectively.

Fibrosis was assessed by FIB4 score with a mean value of 1.11± 0.78; NFS score with a mean value of -1.16±1.18 and liver stiffness ranging from 2.4Kpa to 28.4Kpa (mean value 6.67Kpa). The degree of fibrosis judged by Fibroscan results was F0-F1 in 31 cases, F2 in 5 cases, F3 in 5 cases and F4 in 3 cases. Advanced fibrosis was correlated with NFS score (p=0.016), FIB-4 (p=0.001); but not associated with CAP value (p=0.51).

The mean splenic elasticity was 27.57 Kpa (ranging from 8.3 to 75 Kpa). It was significantly associated with liver elasticity (p=0.012) with an AUROC of 0.784. A threshold of 17.4 Kpa was predictive of advanced fibrosis with a specificity of 85.7% and a sensitivity of 73.5% (CI [0.029-0.404]). Similarly, splenic elasticity was correlated with CAP value (p=0.013). No association was identified with NFS and FIB4 scores.

Conclusion: Measurement of splenic elasticity is a simple and reliable non-invasive tool, comparable to liver elasticity, for the prediction of liver fibrosis during NAFLD.

Disclosure: no conflict of interest

PP1303

RELEVANCE OF PNPLA3, TM6SF2, HSD17B13, AND GCKR GENOTYPES TO THE RISK OF NAFLD IN AN EGYPTIAN POPULATION

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Introduction: Non-alcoholic fatty liver disease (NAFLD) is a widespread clinical condition that affects about 1/4th adults globally. It can lead to liver fibrosis, cirrhosis, and hepatocellular carcinoma (HCC). More than one-third of Egyptians are affected by NAFLD. Unfortunately, many patients diagnosed with NAFLD after cirrhosis has already occurred.

Single Nucleotide Polymorphisms (SNPs) associated with NAFLD have been proposed to identify the causal variants of the disease and also as potential pharmacological targets. Heritability of NAFLD estimates range from 20% to 70% based on ethnicity, and environmental factors. The first gene variant found to be a consistent genetic risk factor for NAFLD was Patatin-like phospholipase domain containing 3 (PNPLA3) rs738409. In addition, other studies have shown that, Transmembrane 6 superfamily 2 (TM6SF2) rs58542926 and Hydroxysteroid 17-beta dehydrogenase 13 (HSD17B13) rs9992651 also affect risk of NAFLD developmen. Some studies also show a role for Glucokinase regulatory protein (GCKR) rs1260326.

Aims & Methods: We aimed to investigate genetic risk factors for NAFLD occurrence in Egyptian patients.

Cases of clinically diagnosed NAFLD (n= 205) and controls (n= 187) were recruited. A subgroup of individuals with NAFLD that had progressed to liver fibrosis (n= 131) was compared with the control individuals. TaqMan-based genotyping assays were employed to explore the association of selected SNPs (PNPLA3 rs738409, TM6SF2 rs58542926, HSD17B13 rs9992651 and GCKR rs1260326) with NAFLD in Egyptian patients.

Results: NAFLD cases versus controls genotype data: rs738409 -genotype showed statistical significance. Univariate analysis for TM6SF2 rs58542926, HSD17B13 rs9992651, and GCKR rs1260326 did not show statistical significance.

After adjusting for the other risk factors -age, gender, BMI, and waist circumference, the association of PNPLA3 rs738409 -genotype, and allele models- with the variant G allele more common in NAFLD remained statistically significant with an increased odds ratio. PNPLA3 rs738409 GG carriers have 5.296 times NAFLD risk than CC carriers. For GCKR rs1260326 genotype model, after correction for the other risk factors, the variant T allele acquired statistical significance.

Fibrotic-NAFLD cases versus controls genotype data: Univariate analysis for PNPLA3 rs738409 showed statistical significance. The univariate analysis for TM6SF2 rs58542926, HSD17B13 rs9992651, and GCKR rs1260326 did not show statistical significance.

After adjusting for the other risk factors -age, gender, BMI, and waist circumference, the association of PNPLA3 rs738409 -genotype, and allele models remained statistically significance with an increased odds ratio. Of note, PNPLA3 rs738409 GG carriers have 9.267 times higher risk of Fibrotic-NAFLD than CC carriers.The association of HSD17B13 rs9992651 -genotype model-with the variant A allele protective against fibrosis acquired statistical significance and decreased odds ratio. Notably, HSD17B13 rs9992651

GA carriers have a fibrosis risk 0.487 times less than GG carriers. The association of GCKR rs1260326 -genotype model, after correction for the other risk factors acquired statistical significance and an increased odds ratio.
Conclusion: We discovered that in our study population, PNPLA3 rs738409 and GCKR rs1260326 variants increase the risk of NAFLD generally as well as its progression to fibrosis. On the other hand, the HSD17B13 rs9992651 variant may protect against fibrosis development in NAFLD.
Nehal Elmansoury shares the first authorship with Ahmed Kamal.
Disclosure: Nothing to disclose.

PP1304

ROLE OF INULIN AS PREBIOTIC ON NONALCOHOLIC FATTY LIVER DISEASE

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Introduction: The NAFLD prevalence is estimated to be near 25% of the world population. There is a theory that inulin intake can reduce endotoxemia. This prebiotic could increase the SCFA production by bacteria with further the pro-inflammatory markers decreasing in gut-liver axis. Thus, microbiota regulation by prebiotic treatment could be a key role player in NAFLD prevention.
Aims & Methods: The aim of the study was to compare the microbiome before and after 20 days of inulin intake in patients with NAFLD and to find the correlational relationship between prebiotics treatment and liver biochemical markers.
93 patients (44 men, 49 women), and 46.64±2.52 (average age) with NAFLD (based on liver transient elastography) were examined. All patients followed the recommendations of 5 mg Inulin per os twice a day for 20 days. The study excluded any other pre-, probiotics, and antibacterial drugs during the course of treatment. Before and after the treatment the next biochemical markers were examined: lipid profile, C-reactive protein high sensitivity, ALT, AST, GGTP, bilirubin, TNF-a, and HOMA index. Determination of microbial composition was carried out by identification of total bacterial DNA, and DNA of Bacteroidetes, Firmicutes, and Actinobacteria by quantitative real-time PCR (qRT-PCR), using gene-targeted primers.
Results: The microbiome of patients with NAFLD before Inulin intake (Figure 1): Bacteroidetes - 51%, Firmicutes - 28%, Actinobacteria 6%, F/B index - 1.62. After the treatment - Bacteroidetes 45%, Firmicutes 39%, Actinobacteria 10%, F/B index 1.29.
Biochemical tests before treatment (Figure 2): GGTP 42 U/L, Triglycerides 2.72 mmol/L, HDL 1.12 mmol/L, CRP (high sensitivity) - 9 mg/L, HOMA index 3.51.
After the treatment, GGTP decreased to 29 U/L, Triglycerides to 1.26 mmol/L, and CRP to 5 mg/L.
HOMA index to 3.12. HDL level increased to 1.36.
What was unexpected - in half of the patients (46) Candida was found in the microbiome. After the treatment - in 37 of them Candida was absent. Patients did not receive any antifungal drugs.
The growth of Actinobacteria was in a negative correlational relationship with Candida.
Conclusion: Inulin could be part of therapy, directed for steatohepatitis prevention in patients with NAFLD by influencing a few risk factors:
1. Decreasing the lipids
2. Reducing pro-inflammatory agents
3. Improvement the insulin sensitivity.

Additionally, Inulin could be a good microbiome-targeted drug for pathogenic microbiota regulation and potentially Candida eradication.
Disclosure: Nothing to disclose.

PP1305

THE ROLE AND PREVALENCE OF CANDIDA IN GUT MICROBIOME IN PATIENTS WITH NAFLD

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Introduction: The development of nonalcoholic fatty liver disease (NAFLD) is significantly influenced by genetic and environmental factors. Hepatobiliary diseases are associated with an imbalance of bacterial subpopulations and the associated deleterious effects on the colonized host. Otherwise, more and more evidence points to a close relationship between the composition of the microbiota and the development and progression of NAFLD.
The genus Candida and the species Candida albicans could play a central role in the pathogenesis and progression of fatty liver infiltration with further steatohepatitis progression by the impact on the gut-liver axis. For example, rodents colonized with C. albicans develop liver disease without additional stimuli.
Fungi might hence possibly exacerbate liver disease in a two-hit model, one hit being alcohol, the Western diet, or a toxin, and another hit being the presence and deleterious impact of fungi.
Aims & Methods: The aim of the study was to examine the prevalence of Candida and comporision of the gut microbiome in patients with NAFLD.
93 patients (44 men, 49 women), 46.64±2.52 (average age) with NAFLD (based on liver transient elastography) were examined.
The control group included 85 patients (45 men, 40 women), average age 49.5±2.3 without fatty liver infiltration and anothe liver disease.
Biochemical markers were: lipid profile, C-reactive protein high sensitivity, ALT, AST, GGTP, bilirubin, TNF-a, and HOMA index.
Determination of microbial composition was carried out by identification of total bacterial DNA, and DNA of Bacteroidetes, Firmicutes, Actinobacteria and Candida by quantitative real-time PCR (qRT- PCR), using gene-targeted primers.
Results: The prevalence of Candida in patients with NAFLD was 35% in comparing the control group, where the prevalence was 13%.
The Bacteroidetes level was significantly higher in controls (45,54±5,49 vs.21,10±3,39).
Actinobacteria (22,13±2,47 vs 14,53±2,75), F/B index (4,02±1,00 vs 1,82±0,45) in patients with NAFLD was above than in controls. F/B index growth was leading to the triglycerides (TG) (r=0.53), ALT (r=0.61) and VLDL (r=0.4) increasing.
Microbiota of the control group played a protective role by reducing aggressive factors - the Actinobacteria growth led to the decreasing of GGTP (r=-0.42), direct bilirubin (r=-0.34) and CRP (r=-0.36). F/B index growth caused the decreasing of GGTP (r=-0.36) and TNF-a (r=-0.29).
There was the positive correlational relationship between Candida and F/B index (r=0.63), and Candida and TG (r=0.56) and TNF-a (r=0.8) in patients with NAFLD. Surprisingly, there was no significant correlational relationship in the control group between Candida and biochemical and microbial markers.

Conclusion: The prevalence of Candida in gut microbiota of patients with NAFLD is significantly higher than in patients without fatty liver infiltration (36% vs. 13%).

The Candida growth can impact TNF-a and TG increasing in patients with NAFLD.

Candida could be associated with F/B index growth in patients with NAFLD. Such results are potentially interesting for the search of personalized approaches in treatment and prevention the NAFLD. The role of gut microbiome is one of the important parts of the fatty infiltration development pathogenesis.

Disclosure: Nothing to disclose.

PP1306

SERUM FIBROSIS MARKERS IN OBESE CHILDREN WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: The part of NAFLD children has a progressive sub-phenotype known as nonalcoholic steatohepatitis (NASH), characterized by the ability to develop advanced fibrosis, cirrhosis, and end-stage liver disease [1].

Given the high prevalence of NAFLD and invasiveness of the liver biopsy, there is an essential need to find safe non-invasive modalities to determine liver fibrosis in children [2].

Aims & Methods: To investigate serum fibrosis markers in obese children with non-alcoholic fatty liver disease (NAFLD) depending on the presence of liver fibrosis.

94 children aged 9 to 17 years (average age 12.15 ± 2.51 years) were included in the study. According to the transient elastography data (FibroScan®502touch, Echosence, France) and body mass index, children were divided into four groups: group 1 - 27 obese NAFLD children with fibrosis ≥F1, group 2 - 35 obese NAFLD children without fibrosis, group 3 - 18 obese children without NAFLD and fibrosis. Group 4 (control) consisted of 14 children with normal weight without NAFLD and liver fibrosis.

The serum levels of vascular endothelial growth factor (VEGF) (Wuhan Fine Biotech Co Ltd, China), transforming growth factor-beta 1 (TGF-β1) (IBL International, Germany), cytokeratin-18 (CK-18) (IDL Biotech AB, Sweden) were determined by enzyme-linked immunosorbent assay (ELISA). Serum content of hydroxyproline free (HPf) and hydroxyproline protein-bound (HPp/b) according to Osadchuk and glycosaminoglycans (GAG) according to Rimington were evaluated.

Results: In 1 group children, a significant increase in the median level of CK-18 (in 2.2 times, p<0.05), VEGF (in 2.4 times, p<0.05), and TGF-β1 (in 2.7 times, p<0.05) was found compared to 4 group children. Moreover, CK-18 level was significantly higher in 1 group of patients compared to 2 group (in 1.4 times, p<0.05) and 3 group (in 1.8 times, p<0.05). In all group children, an increase in the serum HPp/b content was found: in 1 group - in 1.2 times (p<0.01), in 2 group - in 1.2 times (p<0.05), in 3 group - in 1.3 times (p<0.05) compared to 4 group. The changes in the content of hydroxyproline led to an increase in the HPp/b/HPf ratio in all groups: 1.4 times (p<0.01) in 1 and 2 groups, in 1.3 times (p<0.01) in 3 group. Also, in 1 group of children median GAG level was increased by 1.3 times (p<0.001).

In children with NAFLD HPf content negatively correlated with CAP (r= -0.408; p<0.01), CK-18 (r=-0.469; p<0.01), the ratio HPp/b/HPf positively correlated with CAP (r=0.307; p<0.05). CK-18 positively correlated with fibrosis degree (according to METAVIR) (r=0.468; p=0.008) and liver steatosis degree (r=0.357; p=0.048). A positive correlation was also found between VEGF levels and the degree of liver fibrosis (r=0.372, p=0.036).

Conclusion: Serum levels of VEGF, TGF-β1, HPp/b, and GAG were significantly elevated in children with non-alcoholic fatty liver fibrosis. Assessment of these parameters may be useful for early diagnosis of liver fibrosis in children with NAFLD.

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Disclosure: Nothing to disclose.

PP1307

THE RELATIONSHIP BETWEEN ALCOHOL CONSUMPTION AND THE PRESENCE OF ADVANCED LIVER FIBROSIS IN THE GENERAL POPULATION

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Introduction: Although chronic alcohol consumption has progressively decreased in recent years, a third of people over 15 years declare at least one episode of excessive use every month, which ranks Romania on second position, with a rate of 35%, far above the average registered in the EU (20%). Therefore, Romania has one of the highest incidence rates of alcohol-related liver cirrhosis, which has become a major public health problem. This study aimed to investigate the prevalence of liver fibrosis in the asymptomatic alcohol-consuming population.

Aims & Methods: The study aimed to evaluate the relationship between advanced liver fibrosis measured by transient elastography, laboratory parameters, and the amount of alcohol consumed depending on non-modifiable risk factors such as age and gender. Between January 2022 and December 2022, we examined patients with day hospitalization in the Institute of Gastroenterology and Hepatology in Iasi, without liver history, who admitted a moderate or high consumption (women <7 versus >7 drinks/week; men <14 versus >14 drinks/week) for at least one year. The classification of the fibrosis stage by transient elastography was adjusted according to transaminase values. The results were analyzed by univariate analysis and logistic regression to establish models of prediction.

Results: The study included 689 patients with an average age of 49.32±14.31 years, a proportion of 63.7% represented by men. Advanced fibrosis (^{3} F3) was detected in 19.30% of the examined patients, predominantly in men (14.1%) and patients over 55 years old (12.5%). Excessive alcohol consumption is associated 2 times more with advanced fibrosis in women (OR=5.08; CI 95%: 3.45-9.50, p<0,001) and the group under 40 years old (OR=6.29; CI 95%: 1.67-9.43, p<0,001) compared to men (OR=2.27; CI 95%: 1.76-3.81, p=0,012) respectively patients over 55 years old (OR=3.21; CI 95% : 2.28-4.45 p<0,001). Using logistic regression, it was demonstrated that there was a strong correlation between advanced fibrosis, excessive alcohol consumption, low serum albumin level and the

reduction of triglycerides in men (R^2 Nagelkerke = 0.854; p<0.001) supplemented with the reduction of cholesterol in the age group 40-55 years (R^2 Nagelkerke = 0.785; p<0.001), respectively of ferritin in those over 55 years old (R^2 Nagelkerke = 0.804; p<0.001). The association of excessive alcohol consumption, age, low levels of albumin, LDL-cholesterol and C-reactive protein generated a significant predictive model (R^2 Nagelkerke = 0.784; p<0.001) for female patients.

Conclusion: Screening using transient elastography represents an approach that could provide early diagnosis of advanced liver fibrosis in an asymptomatic population, with the possibility to prevent the evolution of ALD and the development of complications of cirrhosis.

Disclosure: Nothing to disclose.

PP1308

INVOLVEMENT OF P38 GAMMA/DELTA KINASES IN THE DEVELOPMENT OF ALCOHOLIC STEATOHEPATITIS

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Introduction: Alcoholic steatohepatitis (ASH) is a severe form of alcoholic liver disease (ALD) characterized by the presence of steatosis and inflammation. Kinases p38 ɣ/δ have been found to be involved in liver steatosis and inflammation, and have a significant role in the development of non-alcoholic liver disease caused by high-fat diets.

Aims & Methods: The objective of this study was to investigate the role of p38 ɣ/δ kinases in a murine model of alcoholic steatohepatitis (ASH) and to analyze the reduction of steatosis and inflammation in p38 ɣ/δ knockout (KO) mice treated with ethanol (ETOH).

Wild-type (WT) and p38 ɣ/δ KO male mice were fed a chronic and binge ethanol diet (NIAAA model) to induce liver damage. Histopathological analysis was performed after Oil Red staining. The molecular effects of ethanol in the liver were explored through qPCR and western blot.

Results: Ethanol-treated KO (ETOH KO) mice showed a smaller liver size, decreased liver steatosis after histopathological analysis, and lower expression of inflammatory cytokines compared to ethanol-treated WT mice. The NIAAA diet caused oxidative stress and mTOR pathway activation in the liver in both ETOH WT and ETOH KO. ETOH WT mice had p62 phosphorylated at Thr269 and Ser272, which was reduced in ETOH KO mice.

Conclusion: The knockout of p38 ɣ/δ alleviates ALD in mice by reducing inflammation and steatosis. Alcoholic diet increased oxidative stress and inhibited autophagic pathways and p38 ɣ/δ KO restored, at least in part, this inhibition. (Supported by Instituto de Salud Carlos III and the European Union FEDER funds, "Una manera de hacer Europa" (PI20/00743) and Junta de Castilla y León, Spain (GRS 2648/A/22)).

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Disclosure: Nothing to disclose.

PP1309 WITHDRAWN

PP1310

EFFECT OF CELECOXIB ON SPLENOMEGALY IN CIRRHOTIC RATS BASED ON TRANSCRIPTOMIC ANALYSIS

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Introduction: Splenomegaly can exacerbate liver cirrhosis and portal hypertension. Thus, inhibiting splenomegaly may be a novel treatment for liver cirrhosis. We have previously demonstrated that cyclooxygenase-2 (COX-2) inhibitor can attenuate cirrhotic splenomegaly.

However, the transcriptome profiles and precise pathogenesis of cirrhotic splenomegaly remain unknown, and few effective therapies are available. The role and mechanism of cyclooxygenase-2 (COX-2) in cirrhotic splenomegaly remain unclear.

Aims & Methods: Aims: We attempt to identify the transcriptomic profile of cirrhotic spleen, providing comprehensive valuable information for pathogenesis of splenomegaly. And to further validate the protective role of celecoxib on cirrhotic splenomegaly.

Methods: Thirty male Sprague-Dawley rats were randomized into the control group, TAA and TAA+Celecoxib groups. The control group: received intraperitoneal injection of normal saline (1ml, twice a week); the TAA group: received intraperitoneal injection of thioacetamide (TAA, 200 mg/kg, twice a week for 16 weeks); the TAA+celecoxib group: received TAA intraperitoneally and celecoxib via gastric gavage (20 mg/kg/day). Splenic gene profiling was analyzed by high-throughput RNA sequencing.

Histological analysis of spleen tissue was evaluated by H&E, Sirius red, Prussian blue staining, and transmission electron microscopy. The splenic mRNA levels of collagen III and α-SMA and splenic contents of Ki-67 and VEGF were quantified.

Results: A total of 1461 differentially expressed genes (DEGs) were identified in the spleens of the TAA group compared to the control group. The immune response and immune cell activation might be the major signaling pathways involved in the pathogenesis of cirrhotic splenomegaly. With its immunoregulatory effect, celecoxib can ameliorate cirrhotic splenomegaly and liver cirrhosis.

Furthermore, 304 coexisting DEGs were obtained between TAA vs. control and TAA+celecoxib vs. TAA. According to GO and KEGG analyses, celecoxib may attenuate cirrhotic splenomegaly by suppressing splenic immune cell proliferation, inflammation, immune regulation, and fibrogenesis.

The impacts of celecoxib on splenic immune cell proliferation, inflammation, immune regulation, and extracellular matrix were then validated by the decreased splenic Ki-67-positive cells, macrophages, fibrotic areas, and mRNA levels of collagen III and α-SMA.

Conclusion: Celecoxib attenuates cirrhotic splenomegaly by inhibiting splenic immune cell proliferation, inflammation, and fibrogenesis. The current study further validate that COX-2 inhibitors could serve as a novel medical treatment for cirrhotic splenomegaly based on transcriptomic analysis.

Disclosure: Nothing to disclose.

PP1311

POSSIBLE REGENERATIVE EFFECT OF PURIFIED PLATELET DERIVED GROWTH FACTORS ON AN EXPERIMENTALLY INDUCED MODEL OF LIVER CIRRHOSIS

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Introduction: Chronic liver disease (CLD) is a disease of the liver that involves progressive destruction and regeneration of the liver parenchyma, leading to fibrosis and cirrhosis. Although liver fibrosis and cirrhosis have been considered irreversible, it has recently been suggested that even advanced fibrosis and cirrhosis may be reversible. The use of platelet-rich plasma (PRP) in tissue regeneration is a developing area of research for clinicians and specialists. Platelets contain proteins required for hemostasis as well as numerous growth factors. They have a prominent role in suppressing the progression of liver fibrosis in vitro and in vivo. Elevating growth factors induced by platelet transfusion can enhance liver function in patients with CLD and cirrhosis. However, PRP could increase the risk of rejection or immune response in allogenic transfusion; therefore, searching for effective therapeutic strategies is much needed.

Aims & Methods: This study evaluated the possible regenerative effect of purified platelet-derived growth factors on an experimentally induced model of liver cirrhosis. Purified Platelet Derived Growth Factors were prepared using a patented method (Gooris & Fahmy, 2019). Twenty-eight mice were included and categorized into four groups.

The 1st group acted as a normal control group.

The 2nd group acted as a Purified Platelet Derived Growth Factors control group and was injected subcutaneously with Purified Platelet Derived Growth Factors only twice weekly for eight weeks.

The 3rd group acted as a pathological control group and was injected intraperitoneally with thioacetamide (TAA) three times a week for eight weeks. At the same time, the 4th group was injected with both Purified Platelet Derived Growth Factors and TAA for eight weeks. After eight weeks, animals were euthanized, and liver specimens and blood samples were collected for pathological and biochemical assessment.

Results: Our results showed that Purified Platelet Derived Growth Factors administration could improve the hepatic status of the mice, as cirrhotic livers were regenerated back into normal-appearing parenchyma when compared to the pathological control group.

In addition, the levels of ALT, AST, and total bilirubin decreased significantly ($P<0.001$), and the Relative expression of hepatic Alpha-SMA was significantly down-regulated ($P<0.001$) after Purified Platelet Derived Growth Factors administration.

Conclusion: Purified Platelet Derived Growth Factors can be used as a new therapeutic modality for liver cirrhosis.

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Disclosure: Nothing to disclose.

PP1312

MYELOID-DERIVED SUPPRESSOR CELLS AFTER ERADICATION OF HEPATITIS C VIRUS USING DIRECTLY ACTING ANTIVIRALS

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Introduction: Hepatitis C virus (HCV) infection is one of the leading causes of liver cirrhosis and hepatocellular carcinoma. Myeloid-derived suppressor cells (MDSC) are a heterogeneous population of activated immature myeloid cells that are characterized by different specific surface molecules, they express each of CD11b+CD33+ and lack expression of HLA-DR. MDSC are immunosuppressive cells that decrease immune cell activation and induce immunological tolerance in inflammation and cancer.

Under normal conditions, MDSC remain in the bone marrow until differentiation; however, under pathological conditions these cells arrest at various stages of development, migrate out of the bone marrow in an immature state and, accumulate in circulation and peripheral lymphoid organs, causing negative regulation of immune responses via various mechanisms, primarily T cell suppression. MDSC are known to increase in patients with chronic hepatitis C virus infection. But it is not clear till now if eradication of HCV using directly acting antivirals can restore normal levels of MDSC on long term or not.

Aims & Methods: This study aimed to assess the levels of MDSC in patients with previous chronic hepatitis C after achieving sustained virologic response (SVR) for at least 2 years using sofosbuvir containing regimens.

This study was a case-control one. Fifty five subjects were involved in the study. All patients had completed DAAs therapy 2-3 years before involvement. Estimation of (CD33+ HLA-DR– CD11b+) expressing cells by flow cytometry was done and levels were compared between HCV patients achieved SVR for 2-3 years and healthy control without any current or previous chronic disease.

Results: MDSC were significantly higher among patients with eradicated HCV for 2-3 years than in healthy controls (4.98% (IQR=3.3 – 7.7) vs 3.09% (1.4 – 3.9), $p = 0.001$)

Conclusion: Normal MDSC levels are not restored after eradication of HCV using directly acting antivirals even after passage of 2 years on viral eradication. Clinical implications and consequences of these findings should be further investigated.

Disclosure: Nothing to disclose.

PP1313

CFIM25 OVEREXPRESSION INHIBITS HEPATIC STELLATE CELL ACTIVATION AND LIVER FIBROSIS THROUGH KLF14/PPARΓ SIGNALING PATHWAY

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Introduction: Liver fibrosis is primarily caused by the activation of hepatic stellate cells (HSCs), which results from chronic liver damage. Understanding the pathogenesis of HSC activation could identify new therapeutic targets to treat liver fibrosis.

Aims & Methods: In this study, we examined the protective role of the mammalian cleavage factor I 25 kD subunit (CFIm25, NUDT21) in inhibiting hepatic stellate cell activation. CFIm25 expression was measured in liver cirrhosis patients and a CCl4-induced mouse model. Adeno-associated viruses and adenoviruses were used to alter hepatic CFIm25 expression in vivo and in vitro to investigate how CFIm25 functions in liver fibrosis. The underlying mechanisms were explored using RNA-seq and co-IP assays.

Results: Here, we found that CFIm25 expression was drastically decreased in activated murine HSCs and fibrotic liver tissues. CFIm25 overexpression downregulated the expression of genes involved in liver fibrosis, inhibiting the progression of HSC activation, migration and proliferation. These effects resulted from direct activation of the KLF14/PPARɣ signaling axis. KLF14 inhibition abrogated the CFIm25 overexpression-mediated reduction in antifibrotic effects.

Conclusion: In conclusion, we reported a protective role for CFIm25 in liver fibrosis. Our findings showed that CFIm25 reversed HSC activation and inhibited CCl4-induced liver fibrosis through the KLF14/PPARɣ signaling pathway, which might provide a novel approach for liver fibrosis treatment.

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Disclosure: Nothing to disclose.

PP1314 WITHDRAWN

PP1315

PATIENTS WITH ALCOHOL-RELATED CIRRHOSIS WHO RECOMPENSATE ON FOLLOW-UP PRESENT A DISTINCTIVE METABOLIC PROFILE WITH DIFFERENTIAL CONCENTRATIONS OF LIPID AND AMINO-ACID METABOLITES

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Introduction: Decompensated alcohol-related cirrhosis (ArC) is a major cause of liver-related morbidity and mortality. There is a significant proportion of patients with ArC who achieve recompensation, defined as the absence of ascites or encephalopathy and no active treatment for either. Thus, recompensation is a relevant event in clinical practice. However, the factors and metabolic pathways involved in the resolution of clinical decompensation are poorly understood.

Aims & Methods: We aimed to assess the metabolomic profile associated with recompensated ArC. Patients with ArC were recruited from a prospective cohort followed between 2016 and 2020 in a referral hepatology unit (n=63). According to the evolution event at the end of follow-up, they were classified into 4 groups: group 0 patients compensated at baseline and during follow-up; group 1 patients who achieved recompensation; group 2 patients decompensated throughout the study period; group 3 patients who died in the 3 first months since inclusion. Demographic, clinical, and analytic parameters were retrieved from chart review together with evolution events. Plasma samples were analyzed at baseline to identify a metabolic signature using high-performance liquid chromatography-tandem mass spectroscopy. A principal component analysis of the implicated pathways was done using the Metaboanalyst platform.

Results: 63 patients with ArC were included: 18 in group 0, 15 in group 1, 15 in group 2 and 15 in group 3. All four groups were similar in terms of age and sex. Baseline MELD score was 8, 17, 16 and 27, respectively. In relation to abstinence during follow-up, 61% of patients in group 1, 47% in group 2 and 20% in group 3 achieved alcohol abstinence (p=0.04).

Median follow-up time was similar when comparing group 1 and 2 (3.5 years and 3.3 years), which were the groups of interest (recompensated vs. decompensated). Each group displayed a distinct metabolic signature. By comparing groups 1 and 2, differences among 32 metabolites were detected: 20 lipids were at a higher concentration in recompensated individuals, which included polyunsaturated fatty acids (docosahenoic and docosapanthenoic acid 2 times greater (p<0.05)) and acylchcoline metabolism compounds; 7 amino acids, as phenyl-lactate (three times less in the recompensated group (p=0.04)) and 5 vitamins.

	Group 0 N=18	Group 1 N=15	Group 2 N=15	Group 3 N=15	p
Age (years)	52 (43-58)	55 (38-59)	48 (39-54)	56 (50-63)	0.354
Sex, women (%)	6 (33)	3 (20)	1 (7)	5 (22)	0.309
Baseline MELD score	8 (7-11)	17 (13-23)	26 (19-33)	26 (19-33)	0.000
Final MELD score	6 (6-8)	9 (8-11)	31 (23-38)	31 (23-39)	0.000
Abstinence (%)	13 (72)	10 (71)	2 (29)	2 (29)	0.022
Follow-up (days)	1462 (549-1846)	1273 (442-2142)	45 (13-104)	45 (13-104)	0.000

Table.

Conclusion: Patients who achieved recompensation at the end of follow-up exhibited a distinct metabolomic profile, regarding the metabolism of polyunsaturated fatty acids, acylcarnitines and amino acids. It is likely that these metabolic pathways may play a role in resolution of decompensations in patients with ArC.

Disclosure: Nothing to disclose.

PP1316

A NOVEL, NURSE-LED 'ONE STOP' CLINIC FOR PATIENTS WITH LIVER CIRRHOSIS RESULTS IN FEWER LIVER-RELATED UNPLANNED HOSPITAL ADMISSIONS AND IMPROVED SURVIVAL

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Introduction: Delivering effective secondary preventive and integrated care has the potential to break the revolving-door phenomenon of frequent readmissions in patients with advanced chronic liver disease. To address this, we launched the Care Coordination of Liver Disease (CCoLD) pilot, a novel nurse-led cirrhosis clinic in Western Sydney.

Aims & Methods: Following an index presentation to Blacktown or Mount Druitt hospitals (BMDH), patients (n=89, matched by age, sex, and MELD-NA liver disease severity score) were either followed up by the CCoLD clinical nurse consultant (intervention cohort) or received standard care (control cohort). Controlled evaluation of the impact of the nurse led clinic was carried out for a 3-month period including readmission rates and survival.

Results: The inaugural nurse led clinic led to a remarkable improvement in patient-level outcomes including a reduction in unplanned liver-related readmissions (2.08% for intervention cohort vs 12.2% for control cohort, p<0.01), and mortality at 30 days (0% for intervention cohort vs 7.3% for control cohort, p=0.03).

Similar trends were observed at 90 days from index discharge. No deaths were observed in the intervention cohort as compared to the control cohort at 90 days (0% versus 7.3%, p=0.03), while unplanned liver-related readmissions were 19.5% for the control cohort vs 10.41% for the intervention cohort (p=0.115).

Moreover, a longer time was required for emergency readmissions among the intervention cohort. Our nurse-led cirrhosis clinic was cost-effective with the number needed to treat (NNT) of 10 to prevent 1 readmission within 30 days or 4 over the entire study period to prevent 1 readmission.

Conclusion: These findings highlight the significant impact of optimised care-coordination. Post-discharge follow-up and education through a nurse-led clinic delivers goal-directed, and cost-effective secondary prevention and care. A multicentre randomised trial for wider evaluation of these findings is warranted.

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Disclosure: Nothing to disclose.

PP1317

COMPUTED-TOMOGRAPHY DEFINED SARCOPENIA IN CIRRHOTIC PATIENTS: PREVALENCE AND PROGNOSTIC VALUE

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Introduction: Sarcopenia is an underdiagnosed complication occurring during cirrhosis. Assessing its influence on the morbi-mortality is not enough studied in cirrhotic patients especially in countries where hepatic transplantation is rarely available.

Aims & Methods: Aims: Evaluate the prevalence and prognostic impact of radiological sarcopenia in cirrhotic patients

Methods: Longitudinal retrospective study including cirrhotic patients who had an abdominal computed tomography (CT) scan over 6 years. Sarcopenia was defined ,on a sagittal CT slice at the umbilicus, by a psoas muscle thickness related to height (TPMT/h) of less than 16.8 mm/m. Two groups were defined (G1: presence of sarcopenia/G2: absence of sarcopenia) and compared regarding their survival and the occurrence of subsequent complications.

Results: 70 patients were included with a mean age of 62 year and a sex ratio of 0.8. Their average mean BMI was 27.67 kg/m^2. Viral etiology of cirrhosis was predominant (49%) with a mean MELD score of 12.81. The mean TPMT/h was 13.56 mm/m. Radiological sarcopenia was noted in 44 patients (63%). At the time of inclusion, the baseline characteristics of the 2 groups were comparable except for the predominance of women (p=0.006) and refractory ascites (p=0.032) in G1. At the end of an average 21-month follow-up, sarcopenia was associated with a higher number of complications per patient (p=0.013) and a longer average duration of hospitalization per patient (p=0.001). Overall survival was decreased in G1 with a statically significant difference (p=0.035). Survival rates at 6 months, 1 year and 2 years were respectively 42%, 30% and 24% in G1 versus 67%, 40%, 27% for G2. The survival study concluded that sarcopenia is an independent factor of mortality (OR=2,5 ;95% IC [1,02-6,16] ; p=0,045) in our patients.

Conclusion: Sarcopenia is frequent in patients with cirrhosis. It is an independent poor prognostic factor that needs to be recognized in this population. The TPMT/h offers an easy and often available method for the diagnosis of this complication.

Disclosure: Nothing to disclose.

PP1318

EFFICACY OF SIMVASTATIN PLUS NON-SELECTIVE BETA BLOCKER IN IMPROVING SURVIVAL OF CIRRHOTIC PATIENTS WITH VARICEAL BLEED: A SYSTEMATIC REVIEW AND META ANALYSIS

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Introduction: Around 60% of patients with decompensated liver cirrhosis have esophageal varices with a high propensity to bleed which is the major cause of death in these patients. Pharmacological treatment in addition to endoscopic intervention has been documented to prevent variceal bleeding. Simvastatin, a lipid-lowering therapy, can also be used in liver generation of nitric oxide and hepatic endothelial dysfunction. We therefore assessed the efficacy of simvastatin with a non-selective beta blocker in improving survival for cirrhotic patients with variceal bleed.

Aims & Methods: A comprehensive systematic search through Pubmed, Cochrane and Google scholar was performed to include clinical studies that examined the use of statin with a beta blocker in improving survival in cirrhotic patients. Two reviewers independently screened and reviewed all abstracts and full text papers available. An inclusion and exclusion criteria was made which was a basis for selection of included studies. The Cochrane Risk of Bias tool was used to assess possible bias in each article. Data was analyzed using RevMan 5.4 and GRADEPro. The dichotomous outcomes were analyzed using relative risk with a confidence interval of 95% and the primary outcome pertained to improvement in survival, with a secondary outcome of rebleeding also noted.

Results: The study included 3 randomized control trials with 361 patients with variceal bleeding. There was significant survival benefit among patients given simvastatin therapy with a risk ratio of 0.43 (95% CI 0.26 - 0.73; p = 0.002). A secondary outcome of rebleeding was also studied and showed a trend towards benefit with a risk ratio of 0.72. However, the results were not statistically significant (95% CI; 0.47-1.09; p = 0.12).

Conclusion: Among cirrhotic patients with variceal bleeding, the addition of simvastatin, a readily available and accessible medication with an excellent safety profile, provides a significant benefit in survival, but not in rebleeding. However, there remains a need for larger studies with more participants to strengthen this evidence, and a deeper look into its safety profile in cirrhotic patients specifically.

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Disclosure: Nothing to disclose.

PP1319

SUPPRESSION OF THE PITUITARY-ADRENAL AXIS AND PROGNOSTIC VALUE OF SERUM CORTISOL IN PATIENTS WITH ADVANCED CHRONIC LIVER DISEASE

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Introduction: Adrenal dysfunction is known to occur in patients with liver cirrhosis during infection or acute decompensation and is associated with adverse outcomes, especially acute-on-chronic liver failure (ACLF) in these patients (1).

However, little is known about pituitary-adrenal signaling in stable patients with ACLD.

Aims & Methods: We aimed to evaluate (i) the pituitary-adrenal axis and (ii) the prognostic value of total serum cortisol (t-Cort) in a cohort of outpatients with advanced chronic liver disease (ACLD).

Consecutive outpatients with ACLD and hepatic venous pressure gradient (HVPG) ≥6 mmHg within the prospective VICIS (NCT03267615) study were included.

Exclusion criteria were intake of corticosteroids, a history of liver transplantation (LT), hepatocellular carcinoma, vascular liver disease, occlusive portal vein thrombosis and evidence of infection.

According to d'Amico et al. (2) patients were stratified into 6 subgroups for their clinical stage of ACLD (S0: subclinical portal hypertension [PH], S1: clinically significant PH (CSPH) without varices, S2: CSPH with varices; S3: history of variceal bleeding, S4: non-bleeding decompensation S5: ACLD with further decompensation). Competing risk regression was conducted considering LT and death - or non-liver-related death, as appropriate - as competing.

Results: In total, 137 patients (compensated: S0: n=13, S1: n=12, S2: n=26; decompensated: S3: n=7, S4: n=46, S5: n=33) with male predominance (67.9%; median age: 58.1 years) were included. Median ACTH (from S0: 44.0pg/mL to S5: 20.0pg/mL; p=0.006), cortisol binding globulin (from S0: 49.3µg/mL to S5: 38.9µg/mL; p<0.001) and serum total cortisol (t-Cort; from S0: 13.9µg/dL to S5: 9.2µg/dL; p=0.091) levels decreased throughout the substages of ACLD, while serum free cortisol (f-Cort; from S0: 6.5ng/mL to S5: 5.7ng/mL; p=0.474) stayed unchanged.

Importantly, t-Cort showed a strong correlation with f-Cort and (Spearman's ρ: 0.889). Lower levels of t-Cort were independently predictive of bacterial infections (adjusted subdistribution hazard ratio [asHR] per µg/dL: 1.11, 95% confidence interval [95%CI]: 1.04-1.19; p=0.002), (further)

decompensation (asHR: 1.08; 95%CI: 1.02-1.12; p=0.008), ACLF (asHR: 1.11; 95%CI: 1.04-1.19; p=0.002), as well as liver-related death (asHR: 1.09; 95%CI: 1.01-1.18; p=0.045).

Youden's index determined t-Cort level <12 µg/dL as ideal cutoff for the prediction of ACLF. Overall, n=87/137 (63.5%) patients exhibited t-Cort <12 µg/dL. The cumulative incidence of ACLF was more than 3 times higher in patients with t-Cort <12 µg/dL at 1 year (15.6% vs. 4.4%), 2 years (28.4% vs. 6.9%) and 3 years (34.4% vs. 11.0%) of follow-up (p=0.005).

Conclusion: Pituitary-adrenal signaling is impaired in cirrhosis. Lower levels of both t-Cort are independently linked to bacterial infections, (further) decompensation, ACLF and liver-related death, possibly due to impaired stress response. Moreover, t-Cort <12 µg/dL identifies stable patients with ACLD with a particularly high risk of ACLF.

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PP1320

UTILITY OF GUT BARRIER DISRUPTION ASSOCIATED SEROLOGIC MARKERS IN LIVER CIRRHOSIS DURING ACUTE DECOMPENSATION

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Introduction: The gut-liver axis is substantially involved in the pathogenesis of chronic inflammation of the liver. Disruption of both the mucosal immunity and the structural integrity of the gut barrier results in sustained leakage of bacterial antigens from the gut lumen (i.e., bacterial translocation, BT) to the portal circulation. Enhanced BT triggers the activation of the proinflammatory signaling cascade and consequently increases tissue damage of the liver. This latter hence accelerates the progression of the liver disease. Markers of gut barrier integrity and function were hypothesized to be associated with severity an outcome of acute decompensation (AD) episodes in patients with cirrhosis.

Aims & Methods: In various chronic gastrointestinal diseases a bundle of serologic markers were identified as a hallmark of the intestinal barrier disruption and tissue damage in general. These serologic markers were tested in a prospective cirrhotic patient cohort suffering in AD to determine their prognostic potential for worse outcome. Serum samples of 131 patients with cirrhosis and AD have been assayed for gelsolin, intestinal fatty acid binding protein (I-FABP), zonulin, secretory immunoglobulin A (sIgA), free Ig kappa and lambda light chains, immunoglobulin (Ig) A and/or IgG antibodies against to EndoCab gliadin, F-actin, Saccharomyces cerevisiae (ASCA), glycoprotein 2 (GP2), as well as total IgA, IgG and IgM levels. Disease severity was assessed by different liver related scores (CLIF-C AD, MELD and Child-Pugh).

Presence of acute-on-chronic liver failure (ACLF) was defined by CLIF-OF score. Hospital readmission, ACLF development and liver-related death were assessed in a 3-month follow-up observational study.

Results: Presence of anti-microbial and other target specific IgA type antibodies was associated with diseases severity. The more types of IgA antibodies present the higher the total IgA level was. High CLIF-C AD score (≥ 50) was associated with increased gelsolin and decreased total IgG levels at baseline, while presence of ACLF at hospitalisation with increased free Ig kappa light chain (p=0.043) and decreased total IgG levels (p=0.046). Hospital readmission due to a further AD episode within 3-month was associated with increased gelsolin level at baseline episode (p=0.042), while ACLF development was associated with increased free Ig kappa light chain level (p=0.018).

Short-term mortality was associated with increased gelsolin level (AUROC: 0.814 and 0.664, p<0.001 and =0.012 for 1 and 3-month mortality, respectively). The addition of high (> 68 µg/ml) serum gelsolin level significantly increased 3-month mortality prediction in all 3 severity category (CLIF-C AD <50: 0% vs. 24.3%; CLIF-C AD ≥50: 15.9% vs. 36%; ACLF: 22.2% vs. 54.5%, respectively, cumulative LogRank p<0.001).

Conclusion: Presence of specific IgA type antibodies signifying enhanced BT contributes to the increased total IgA level in advanced liver cirrhosis. Serologic hallmark of overwhelming damage-associated molecular patterns (DAMPs) in AD episode is able to predict more presicely the accelerated progression of liver disease adding to CLIF-AD score that comprises extent of certain organ dysfunctions and systemic inflammatory response.

Disclosure: Nothing to disclose.

PP1321 WITHDRAWN

PP1322

PIVKA-II AS A MARKER OF CHRONIC LIVER DISEASE SEVERITY

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Introduction: Protein Induced by Vitamin K Absence or Antagonist-II (PIVKA-II) is regarded as a diagnostic marker for hepatocellular carcinoma (HCC).

However, the optimal cut-off level for HCC diagnosis is not precisely defined, and it depends on the assay used as well as on the etiology and the stage of the underlying liver disease.[1,2]

Aims & Methods: The aim of this study was to assess PIVKA-II levels in patients with different stages of chronic liver disease without signs of malignancy. Laboratory data of 69 patients were analyzed (69.5% male, median age 58 years). The serum PIVKA-II concentrations were determined using the Elecsys PIVKA-II immunoassay (Roche Diagnostics, Mannheim, Germany). The cut-off level set by the manufacturer was <31.2 µg /L. Patients were divided into three groups: decompensated cirrhosis (N=24), compensated cirrhosis (N=20), no signs of liver fibrosis (N=25). Kruskal-Wallis test with post-hoc analysis was used to compare the groups. Correlations between PIVKA-II levels, bilirubin, INR and MELD-Na score were described by Spearman`s rank correlation coefficients (ρ). The values P ≤ 0.05 were considered statistically significant.

Results: Concentrations of PIVKA-II were significantly higher in patients with decompensated cirrhosis (median 245 µg/L, IQR 102.5-485.5) when compared to patients with compensated cirrhosis (median 35.1 µg /L, IQR 17.4-342) and patients without signs of liver fibrosis (median 25.6 µg /L, 17.2-110) (P=0.0008). A statistically significant correlation was found between the concentrations of PIVKA-II and total bilirubin (ρ = 0.576

(95% CI: 0.326-0.750), P=0.0001), INR (ρ = 0.471 (95% CI:0.191-0.680), P=0.0019) and calculated MELD-Na score (ρ = 0.483 (95% CI:0.205-0.688), P=0.0155).

Conclusion: Elevated PIVKA-II concentrations, well beyond the cut-off levels proposed by the manufacturer, may be seen in benign liver disease. Correlations with bilirubin, INR and MELD-Na suggest that higher PIVKA-II concentrations can be expected in more severe forms of chronic liver disease.

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Disclosure: Nothing to disclose.

PP1323

HOW DO HOSPITALIZED PATIENTS WITH CHRONIC LIVER DISEASE DIE? - END-OF-LIFE QUALITY ANALYSIS

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Introduction: Chronic liver disease (CLD) is a major cause of morbidity and mortality. However, there are poorly established metrics to assess the quality of end-of-life (EOL) care in this context. Offering better care to who is dying is an important mission of health professionals, but EOL interventions can be futile, prolong suffering and consume resources better allocated to other needs.

Aims & Methods: Our goal was to characterize and compare the EOL of patients with CLD and compare them. We did a retrospective cohort study including all patients who died with CLD between 2012-2021 in charge of Gastroenterology, in a tertiary hospital.

Results: We included 72 patients, 89% male, with a mean age of 64±11 years. 68% of patients were Child-Pugh C and 50% had HCC. In the last 6 months of life, patients had a median of 2 (IQR 1-6) hospitalizations, and they were hospitalized a median of 21.5 (IQR 13.25-38.5) days, 15 (IQR 9.25-24.5) in the last month. Only 38% were referred to palliative care (PC), with a median of 5 (IQR 2-15) days between referral and death. 86% of patients had prescribed do-not-resuscitate order, with a median of 3 (IQR 1-9) days between this and death. In 42% of patients, endoscopic procedures were performed in the last hospitalization. In 58% and 17% of patients, it was documented in the clinical process discussion of the prognosis with the family and the patient, respectively. There was a significant difference between patients with and without HCC in their referral to PC (78% vs 47%, p=0.007) and sharing the prognosis with the patient (31% vs 19%, p=0.002).

Conclusion: In this cohort, there was a low and late referral to PC in general, being lower in the group of patients without HCC. It is imperative to select and apply quality of death metrics in patients with CLD, with and without HCC, aiming to improve care, manage expectations and resources.

Disclosure: Nothing to disclose.

PP1324

CLINICO-MICROBIOLOGICAL PROFILE AND OUTCOMES OF PROVEN URINARY TRACT INFECTIONS IN CHRONIC LIVER DISEASE IN A TERTIARY CARE HOSPITAL IN INDIA: AN AMBI-SPECTIVE STUDY

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Introduction: Urinary tract infections (UTIs) are common and important cause of deterioration and mortality in cirrhosis. Infection caused by MDR bacteria are more likely to result in treatment failure, septic shock, and high mortality. UTI is a common bacterial infection and is the second most frequent infection and it accounts for 12-29% of infections in decompensated cirrhosis.

Previous studies have shown that Escherichia.coli was the most common organism isolated and presence of infection were double the risk of death. Limited literature is available from India regarding the clinico-microbiological profile and its impact on survival in cirrhosis patients.

Aims & Methods: The main aims of this study was to determine the spectrum of UTI in cirrhosis and to estimate its effect on 90-day outcomes in hospitalized cirrhosis patients. This is an ambi-spective observational study conducted from October- December 22 2022. All cirrhosis patients with culture proven urinary tract infections (UTI) who were admitted under the department of Gastroenterology & Hepatology were included. Socio-demographic, clinico-microbiological profile and 90 day outcomes of UTI were studied in those patients. The study was approved by the institutional ethical committee (IEC-AIMS-2022-PHARM-263).

Results: A total of 202 patients with mean age of 57 ± 11 years with male : female ratio of 5:1 with culture proven UTI were included. The most common etiology of cirrhosis were alcohol (38.6%) followed by NASH (20.3%). Of all, 122 patients (60%) had infection by MDROs. The common MDROs isolated from the patients are ESBL: Extended spectrum beta lactamase (n=40, 32.85%).

CRE: Carbepenam resistant Enterobacterales (n=18, 14.8%), MDR-enterococcus (27.8%) and MDR-pseudomonas (n=6, 6.9%). There was a significant correlation (p<0.05) with the admission CRP and presence of MDRO. The significant predictors of poor 90-day survival were higher total leucocyte count, neutrophil count, bilirubin, CRP, prothrombin time, INR, admission MELD-Na. There was a trend toward poorer 90-day survival among patients with Foley's catheterization (p=0.06). There was no difference in 90-day survival between patients with and without MDRO infection. However, re-admission were higher among MDROs (p<0.05) and there was a significant association between blood stream infection and survival rate [OR =4.23] in multi-variable analysis.

Conclusion: About 3 in 5 Urinary Tract Infections in cirrhosis are due to MDROs. Enterobacterales and Enterococci are the two major organisms causing UTI in cirrhosis. The short-term mortality is not affected by the resistance pattern.

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Disclosure: Nothing to disclose.

PP1325

MELD 3.0 SCORE IN CIRRHOTIC PATIENTS: PREDICTIVE VALUE OF OVERALL AND COMPLICATION-FREE SURVIVAL

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Introduction: In cirrhosis, several prognostic scores have been developed to predict overall and complication-free survival. The MELD (Model for End-Stage Liver Disease), MELD-Na and MELD3.0 scores have been proposed as a criteria for allocating organs.
Aims & Methods: The aim of our study was to assess the performance of these 3 scores for the prediction of overall and complication-free survival in decompensated Tunisian cirrhotic patients.
Methods: We conducted an observational, retrospective study involving all patients with decompensated cirrhosis managed in Gastroenterology department of Taher Maamouri hospital during the period from January 2010 to December 2021. Mortality was assessed using the Kaplan Meier model. The performance of the scores was assessed using the AUROC (Area under the Receiver Operating Characteristic curve).
Results: One hundred and fifty-two patients were included with an average age of 61 years. Viral liver cirrhosis was the most common (65.13%). The mean value of the MELD-Na and MELD3.0 scores was 17.74 and 19.4, respectively. The mean follow-up time was 17.1 months. The rate of complications and short-term mortality was 33.6% and 18.4% respectively.
The AUROC of the MELD3.0 score in predicting of the occurrence of further decompensation was the highest (0.775) compared to those of the MELD and MELD-Na score (0.743 and 0.756 respectively). The cut-off value of the MELD3.0 score in predicting further decompensation was 20 (sensitivity 60.7%, specificity 73.3%).
In the prediction of 3-month mortality, the AUROCs of the MELD, MELD-Na and MELD3.0 scores were 0.786; 0.841 and 0.850 respectively. The cut-off value of the MELD3.0 score was 24 (sensitivity 68%, specificity 88%). A statistically significant correlation was noted between the MELD3.0 score ≥24 and 3-month mortality (p=0.04).
Conclusion: The MELD3.0 score had the best predictive value for the occurrence of further decompensation and short-term mortality in decompensated cirrhotic patients. Those with a MELD 3.0 score ≥24 should be prioritized on waiting lists.
Disclosure: Nothing to disclose.

PP1326

PREDICTION IN ACUTE VARICEAL BLEEDING – CLINICAL UTILITY OF PALBI AND CLIF-C AD SCORES

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Introduction: Acute variceal bleeding (AVB) is a medical emergency that requires urgent evaluation. It is a complication of portal hypertension and, despite the improvements in the management of these patients, mortality is still high. According to the best available data, all patients should be risk stratified according to the validated clinical scores MELD and Child-Pugh.
Aims & Methods: To access the predictive capacity of PALBI and CLIF-C AD scores and to compare them with the currently recommended MELD and Child-Pugh scores for the following outcomes: in-hospital mortality, mortality at 6 weeks and rebleeding.
Retrospective review of all cirrhotic patients admitted for AVB between January 2016 and December 2022 in a Gastroenterology department in Portugal. The area under the receiver operating characteristics curve (AUROC) was calculated for all scores and compared with DeLong test.
Results: 100 patients included, average age 61.87±14.68years, 77% male. Alcohol was the most frequent aetiology (n=56).
All patients were hemodynamically resuscitated and more than 90% underwent endoscopic evalutation within 12hours from admission. 30% of patients had active bleeding at the time of upper GI endoscopy. 90% of patients had esophageal varices (GOV-1) bleeding treated with endoscopic band ligation. 10% of patients had acute gastric (cardiofundal) variceal (GOV2, IGV1) bleeding treated with cyanoacrylate injection. 5% of patients had persistent bleeding and thus a Sengstaken-Blakemore tube was placed. Rebleeding occurred in 11% of patients.
Median time of admission was 6 days (1-30 days). In-hospital mortality was 28% and mortality at 6 weeks was 19%.
The average scores were MELD: 15.98 ± 6.89 points; Child-Pugh 8.65 ± 2.10 points; PALBI -1.71 ± 0.47 points; CLIF-C AD 58.48 ± 11.42 points.
The AUROC of PALBI for in-hospital mortality (AUROC=0.742) and for mortality at 6 weeks (AUROC=0.616) was similar to the traditional scores MELD (AUROC=0.747 and AUROC=0.698) and Child-Pugh (AUROC=0.794 and AUROC=0.673). PALBI was also a good predictor for rebleeding (AUROC=0.795), superior to MELD (AUROC=0.726) and inferior to Child-Pugh (AUROC=0.801). Comparison of the AUROCs of the three scores showed no statistically significant differences.
Regarding CLIF-C AD, it was a good predictor for in-hospital mortality (AUROC=0.708) and mortality at 6 weeks (AUROC=0.706), with no statistically significant differences compared to MELD and Child-Pugh scores. The predictive capacity for CLIF-C AD for rebleeding was not satisfactory (AUROC=0.552).
Conclusion: In addition to liver-specific scores, the predictive performance and clinical utility of PALBI and CLIF-AD C scores for identifying patients with AVB at higher risk for in-hospital mortality, mortality at 6 weeks and rebleeding is very good.
PALBI score deserves recognition, not only because of it is very good predictive capacity for all outcomes, but also because it does not take into account variables whose evaluation has some degree of subjectivity, like hepatic encephalopathy and ascites.
Disclosure: Nothing to disclose.

PP1327

IMPROVEMENT OF CLINICAL OUTCOMES IN PATIENTS WITH DECOMPENSATED CIRRHOSIS UNDERWENT TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT BY SELECTIVE COX-2 INHIBITORS: A RETROSPECTIVE STUDY

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Introduction: Liver cirrhosis, the end stage of chronic liver diseases, is associated with high morbidity, mortality, and medical costs worldwide(1). The progression of liver cirrhosis from compensated to decompensated cirrhosis, portal hypertension (PHT) with complications is developed(2). Transjugular intrahepatic portosystemic shunt (TIPS) is an effective procedure for treating PHT. Whereas complications of post-TIPS, especially hepatic encephalopathy and stent dysfunction, limit the application of TIPS as a first-line treatment for liver cirrhosis.

Osteoarthritis (OA) and rheumatoid arthritis (RA) are characterized by chronic polyarticular inflammation which may cause irreversible joint damage. The conventional agent of modifying antirheumatic drugs and corticosteroids are associated with hepatotoxicity and are contraindicated in chronic hepatitis (3,4). Treatment of liver cirrhosis combined OA/RA should be carefully considered.

Systemic inflammation is tightly associated with the progression of liver cirrhosis and RA/OA. Selective COX-2 inhibitor is one of the most well-investigated anti-inflammation drugs with antifibrotic effects (5,6,7). However, there are no relevant studies about the anti-inflammatory concept of cirrhotic patients with RA or OA after TIPS.

Aims & Methods: Aim：To assess the effects and safety of anti-inflammatory therapy of selective cyclooxygenase-2 (COX-2) inhibitors in patients with decompensated liver cirrhosis undergone transjugular intrahepatic portosystemic shunt (TIPS) accompanied with rheumatoid arthritis (RA) or osteoarthritis (OA).

Methods：Clinic data from patients with liver cirrhosis underwent TIPS were collected from January 2017 to October 2022 for a retrospective analysis. According to whether receiving selective COX-2 inhibitors orally for arthritis, patients were divided into the TIPS and TIPS+COX-2-I group. Occurrences of clinic adverse events were examined.

Results: Eligible patients in the TIPS (n=95) and TIPS+COX-2-I group (n=51) were analyzed. Clinic events containing variceal rebleeding, hepatic encephalopathy, ascites (>grade 2), hepatocellular carcinoma (HCC) and stent dysfunction in the TIPS+COX-2-I group was less than the TIPS group (5.88% vs. 27.37%, p=0.002). Among those patients in the TIPS+COX-2-I group, 1.96% (1/51) patient experienced esophageal and gastric variceal bleeding (EGVB) again. No patients occurred HE with only 1 patient experienced ascites relapse, and 1 patient finally progressed to HCC. However, in the TIPS group, the rates of clinic adverse events including EGVB, HE, ascites, HCC and stents dysfunction were all higher, which were 10.53%, 4.21%, 4.21%, 2.11%, 6.32% respectively. No concerned side effects related to selective COX-2 inhibitors mainly including cardiovascular events and gastrointestinal hemorrhage occurred during follow-up periods.

	TIPS (n=95)	TIPS+COX-2-I (n=51)	p
Decompensated events, n (%)	20 (21.05%)	3 (5.88%)	0.016
Variceal rebleeding, n (%)	10 (10.53%)	1 (1.96%)	0.097
Hepatic encephalopathy, n (%)	4 (4.21%)	0 (0.00)	0.298
Ascites > 2 grade, n (%)	4 (4.21%)	1 (1.96%)	0.658
Hepatocellular carcinoma, n (%)	2 (2.11%)	1 (1.96%)	1.000
Stent dysfunction, n (%)	6 (6.32%)	0 (0.00)	0.092

Table 1. Clinic advers events between two groups.

Conclusion: Anti-inflammatory therapy of selective COX-2 inhibitors for post-TIPS patients with RA or OA, not only can reduce the occurrence of adverse clinic events, but also safe in those patients, which is a completely effective and safe therapy.

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Disclosure: Nothing to disclose.

PP1328

ENCEPHALAPP STROOP TEST AS SCREENING TOOL FOR DETECTION OF MINIMAL HEPATIC ENCEPHALOPATHY IN PATIENTS WITH LIVER CIRRHOSIS – PILOT STUDY

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Introduction: Minimal hepatic encephalopathy (MHE) is the mildest form of hepatic encephalopathy (HE), and is defined as presence of signs of brain dysfunction (only detectable by specific psychometric tests) in absence of disorientation and asterixis.

One of the neuropsychological test which is being frequently used in order to evaluate patients psychomotor speed and cognitive flexibility, and therefore detect MHE, is Stroop test (via EncephalApp).

Aims & Methods: The aim of this study was to evaluate the Stroop test for the screening and diagnosis of MHE. This prospective case-control study was performed at Clinic for Gatroenterology and Hepatology, University Clinical Center of Serbia (February 2020-August 2022), and included patients with cirrhosis and MHE and healthy controlos. Patients with uncontrolled overt HE (defined as mini mental status examination score <25), and those who consumed alcohol or psychoactive substances at least one month prior to testing were excluded. In all patients the presence of MHE was confirmed using animal naming test. In each participant the Stroop test was performed, and the results were compared between the two groups.

The test itself has two components, the “OFF” and “ON” state. The specific outcomes recorded after the Stroop test are:

1. OFFTIME (total time for five correct runs in the “OFF” state),

2. number of runs needed to complete the five correct "OFF" runs,
3. ONTIME (total time for five correct runs in the "ON" state), and;
4. number of runs needed to complete the five correct "ON" runs.

Results: A total of 111 participants were included (59 cases and 52 healthy controls). The majority of patients were classified as Child-Pugh class B (n=37, 62.7%), while the etiology of liver disease was most commonly alcohol-related (n=22, 37.3%). Median OFFTIME did not differ between the two groups (106.3 (84.5-126.3) and 91.4 (79.8-124.6), p>0.05). However, in patients with MHE median values of ONTIME and total time (OFF+ON) were significantly higher (122.3 (97.8-150.2) and 105.3 (84.5-136.3); 228.0 (180.7-274.9) and 195.6 (166.0-262.6); respectively, p<0.05). Participants were further divided into subgroups based on age and education level. Statistical significance between patients and controls in examined parameters was detected in younger participants, as well as in the group with higher educational level (Table 1).

	Patients (n=37)	Healthy (n=38)	p	Patients (n=22)	Healthy (n=14)	p
≤ 12 years				≥13 years		
OFFTIME	99.9 (81.5-134)	95.6 (80.9-139.1)	0.63	111.1 (92.3-121.9)	85.5 (78.8-90.5)	0.004
ONTIME	121 (96.3-147.2)	106.6 (84-149.8)	0.21	127 (108.6-150.2)	91.2 (86.8-109.6)	0.003
Total time	224.3 (175.5-274.9)	199.5 (166-297.9)	0.28	236.9 (199.3-271.1)	178.6 (166-197)	0.003
<45 years				≥45 years		
OFFTIME	84 (75.3-103.1)	78.8 (65.9-84.5)	0.01	118.8 (98.3-164)	113.5 (92.5-156.9)	0.522
ONTIME	98 (90.6-119.4)	82.8 (75.1-91)	0.001	137.7 (121-188.1)	127 (107.5-173.7)	0.266
Total time	178 (165.7-227.5)	161.2 (139.1-181)	0.002	258.5 (222-359.2)	243 (199.4-338.1)	0.335

Table 1. The difference in Stroop test parameters in respect with educational level.

Conclusion: Stroop test could be a valuable tool in detecting MHE in patients with cirrhosis, especially younger population and those with higher educational level.

Disclosure: Nothing to disclose.

PP1329

SMALL INTESTINAL BACTERIAL OVERGROWTH IN CHRONIC LIVER DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS OF CASE-CONTROL STUDIES

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Introduction: Several studies have investigated the prevalence of small intestinal bacterial overgrowth (SIBO) in patients with chronic liver disease (CLD) and the relationship to severity and progression of disease. However, the reported rates of SIBO vary.

Aims & Methods: Against this background we conducted a systematic review and meta-analysis of case-control studies, to assess and compare the prevalence of SIBO in patients with CLD and controls and identify risk factors for SIBO in CLD. Electronic databases were searched from inception up to April 2023 for case-control studies reporting SIBO prevalence in CLD patients. Prevalence rates, odds ratios (ORs), and 95% confidence intervals (CIs) of SIBO in patients with CLD and controls were calculated utilizing a random-effects model. This study was registered with PROSPERO (CRD42022379578).

Results: We included 34 case-control studies with 2136 patients with CLD and 1240 controls. Overall, odds for SIBO prevalence in CLD patients (37.8%, 95%CI 35.7-39.8) as compared to controls (13.9%, 95%CI 12.1-16.0) was 6.1 (95%CI 4.5-8.3, p=0.0001) with moderate heterogeneity seen (I^2=46.8, p=0.002).Stratified by mode of SIBO diagnosis, SIBO prevalence in CLD patients as compared to controls was highest in studies utilizing small bowel aspirate and culture (OR=11.6, 95%CI 3.6-36.6, p=0.0001), followed by glucose breath test (OR=8.1, 95%CI 3.9-16.5, p=0.0001) and lowest in those utilizing lactulose breath test (OR=5.3, 95%CI 3.6-7.7, p=0.0001).

There was no difference in the prevalence of SIBO in patients with cirrhosis (41.2% 95%CI 31.2-46.8) as compared to those without cirrhosis (39.7%, 95%CI 29.7-50.7). The odds for SIBO in patients with decompensated cirrhosis was significantly higher as compared to those with compensated cirrhosis, (OR=2.7, 95%CI 1.7-4.4, p=0.0001). Furthermore, SIBO prevalence was increased in CLD patients with portal hypertension (PHT) (49.9%, 95%CI 34.5-65.3) and in CLD patients with complications of PHT, highest in those with spontaneous bacterial peritonitis (SBP), (57.7%, 95%CI 38.8-74.5) followed by hepatic encephalopathy (41.0%, 95% CI 15.7-72.3) and variceal bleed (39.5%, 95% CI 12.1-75.6).

According to etiology of liver disease, SIBO prevalence was highest in patients with CLD due to non-alcoholic fatty liver disease (NAFLD) 41.5% (95%CI 30.9-53.0), followed by viral hepatitis 38.4% (95%CI 28.3-49.5), alcoholic liver disease 37.3% (95%CI 25.7-50.5), cryptogenic liver disease 31.9% (95%CI 13.9-57.6) and lowest in those with autoimmune liver disease 25.5% (95%CI 12.4-45.2). SIBO prevalence in CLD patients on proton pump inhibitors (PPI) (41.3%, 95%CI 30.3-52.8) was numerically higher as compared to those not on a PPI (26.5%,95%CI 19.9-34.2), but this failed significance.

Conclusion: Overall, there is a 6-fold increase in the prevalence of SIBO in patients with CLD as compared to controls. Although SIBO prevalence was similar in CLD patients with cirrhosis as compared to those without cirrhosis, patients with decompensated cirrhosis had approximately 3-fold increased SIBO prevalence as compared to those with compensated cirrhosis.

Furthermore, SIBO was increased in CLD patients with PHT, particularly those with SBP. No significant difference was seen in SIBO prevalence in CLD patients according to aetiology of liver disease, with highest SIBO prevalence in patients with NAFLD. Moreover, as compared to breath tests, small bowel aspirate and culture for SIBO diagnosis yielded substantially higher SIBO prevalence rates in CLD patients and controls.

Disclosure: Nothing to disclose.

PP1330 WITHDRAWN

PP1331

STUDY OF PLATELET PARAMETERS DURING PORTAL VEIN THROMBOSIS IN CIRRHOTIC PATIENTS

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Introduction: Cirrhosis is a condition of hypercoagulability that increases the risk of portal vein thrombosis (PVT) contrasting with thrombocytopenia related to hypersplenism. In this context, we propose to determine the profile of platelet parameters at the diagnosis of cirrhosis and to study their relevance in predicting PVT in this population.

Aims & Methods: This is a retrospective case-control study involving cirrhotic patients diagnosed between 2000 and 2015, at the Gastroenterology department of La Rabta Hospital. Epidemiological, clinical, and biological data were collected from medical records. Platelet parameters, including platelet count (PC), mean platelet volume (MPV), and platelet distribution width (PDW) were recorded at diagnosis. The MPV/PC, PC/lymphocytes, and PC/splenic index ratios were calculated. The occurrence of portal vein thrombosis, documented by abdominal Doppler ultrasound, was recorded. Statistical analysis was performed using SPSS 23.0 software.

Results: A total of 103 patients were included in our study. The gender ratio was 0.5, and the median age at diagnosis of cirrhosis was 59 years [14-80]. The etiological distribution of cirrhosis was as follows: post-hepatitis C cirrhosis (n=47), post-hepatitis B cirrhosis (n=35), cirrhosis due to other etiologies (n=10), and undetermined for 11 patients.

The median platelet count (PC) for the entire population was 85 G/L [16-480], with thrombocytopenia in 82% of cases. Portal vein thrombosis (PVT) was diagnosed in more than 1/5 of cases (n=23). The splenic index was significantly higher in the “cirrhosis with PVT” group (15.865 cm vs. 14.646 cm in the “cirrhosis without PVT” group; p=0.04).

However, no statistically significant differences were found between the two groups regarding platelet parameters such as PC, mean platelet volume (MPV), platelet distribution width (PDW), and MPV/PC ratio (respectively: 92 G/L vs. 83 G/L, p=0.9; 10.9 fl vs. 11.35 fl, p=0.2; 15.5% vs. 15.1%, p=0.2, and 0.12 fl/G/L vs. 0.11 fl/G/L, p=0.9). Nevertheless, the PC/lymphocytes ratio showed a modest discriminating power between the two groups, with an area under the curve (AUC) of 0.6; 95% CI: [0.475-0.748].

In addition, 19% of patients developed hepatocellular carcinoma (HCC) during the course of their disease. Analysis showed that the presence of HCC increases the risk of PVT occurrence (odds ratio 3, 95% CI: [1.052-8.679], p=0.03).

Conclusion: Platelets are key players in the inflammatory response found in several pathologies. In our study, the predictive power of platelet parameters for portal vein thrombosis could not be demonstrated due to the presence of other likely confounding factors (infection at diagnosis, used automated methods...). A larger prospective study would be desirable.

Disclosure: Nothing to disclose.

PP1332

UTILITY OF NEUTROPHILIC CD64 IN DIAGNOSIS OF BACTERIAL INFECTION IN CHILDREN WITH DECOMPENSATED CHRONIC LIVER DISEASE

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Introduction: Bacterial infections are common and difficult to diagnose in decompensated chronic liver disease (DCLD) patients (1). Early diagnosis and treatment of infection in DCLD can improve the outcome. Studies show that neutrophilic cluster of differentiation 64 (nCD64) is more accurate than procalcitonin (PCT) and C-reactive protein for identifying bacterial infections (2,3). nCD64 is rapidly upregulated to >10-fold higher in an immune response to infection. Pediatric studies on the role of nCD64 in liver disease are lacking.

Aims & Methods: We prospectively studied the role of nCD64 as a biomarker of bacterial infection in children with DCLD. We also compared the accuracy of nCD64 with PCT and total leucocyte count (TLC) for diagnosis, severity, and post-treatment persistence or resolution of infection.

Consecutive children admitted with DCLD were enrolled. Neutrophils were gated according to CD64 activity by flow-cytometry and expressed as percentage of neutrophil expressing CD64 positivity. nCD64, PCT and hemogram were measured at admission and 7-14 days after treatment in those with infection.

Appropriate tests like urine microscopy, ascitic fluid analysis, chest x-ray and cultures (blood, urine, ascitic fluid) were done. Presence of infection, site and severity were classified as per standard guidelines (4,5).

Results: 107 children [64 boys, median age 97 (18-168) months] were studied. Autoimmune hepatitis was the commonest etiology.72.9% (78/107) cases had infection, 24.2% had severe sepsis and 56% had SIRS at admission. Ascitic fluid (n-37) was the commonest site of infection, followed by pneumonia (n-24), urinary tract (n-15), bacteremia (n-10), cholangitis (n-8) and cellulitis (n-3). For nCD64 we derived a cut-off of 51% to diagnose infection and for PCT the best cut-off was > 0.58 ng/mL.

Table 1 shows the sensitivity, specificity, positive and negative likelihood ratio (LR+ and LR-) and diagnostic accuracy of the biomarkers. nCD64 performed better than PCT alone. Elevated nCD64, PCT and TLC had a specificity of 100%, suggesting that infection is always present if all tests are elevated.

nCD64 and PCT correlated well with infection severity. The levels of nCD64 and PCT were highest in severe sepsis [88 (70.73-96.5) % and 1.98 (0.83-10.36) ng/mL], than infection alone [71.8 (45.07-84.37) % and 1.09 (0.45-2.07) ng/mL], and no-infection [36 (20.2-47.7) % and 0.42 (0.19-1.08) ng/mL] respectively.

There was no difference in PCT or nCD64 with regards to site of infection, both were elevated almost equally in systemic infections except cellulitis (local infection). Subjects with resolved infection (n-64), showed a significant decline in proportion of cases with elevated nCD64 and PCT in follow-up.

However, the biomarkers continued to be positive in those with persistent infection (n-14). Only, 10% of children with clinically resolved infection had elevated nCD64, as compared to 43% with elevated PCT, suggesting that nCD64 shows a faster decline with resolving infection than PCT.

Biomarker	AUC	Sensitivity %	Specificity %	Accuracy %	LR-positive	LR-negative
nCD64 (>51%)	0.82	79.5 (0.68-0.87)	82.8 (0.63-0.93)	80.4 (71.58-87.42)	4.61 (2.06-10.31)	0.24 (0.15-0.38)
PCT (>0.58 ng/mL)	0.74	76.9 (0.65-0.85)	62.1 (0.42-0.78)	72.9 (63.45- 81.04	2.02 (1.25-3.28)	0.37 (0.23-0.58)
TLC (age-appropriate cut-off)	0.62	29.4 (19.7-40.89)	79.3 (60.28-92.01)	42.99 (33.46- 52.92)	1.42 (0.64-3.14)	0.88 (0.75-1.04)
nCD64 +PCT		62.8 (51-73.2)	93.1 (75.7-98.7)	70.1 (60.48- 78.56)	9.1 (2.36-35.07)	0.4 (0.29-0.54)
nCD64 +PCT+TLC		23.1 (14.29-34)	100 (88.06-100)	43.93 (34.34-53.85)	Infinity	0.77 (0.68-0.87)

Table 1: Comparison of biomarkers of infection in children with chronic liver disease.

Conclusion: nCD64 can identify infection better than PCT and correlates well with infection severity in children with DCLD. Combination of nCD64, PCT and TLC can identify infection with 100% specificity.

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PP1333

SERUM 25-HYDROXY VITAMIN D LEVEL IN PATIENTS WITH LIVER CIRRHOSIS WITH ASCITES AND ITS RELATION TO DISEASE SEVERITY, AND OUTCOMES

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Introduction: The early detection, prediction, and risk stratification of liver cirrhosis and its sequelae eventually facilitate proper management of advanced liver cirrhosis with substantial improvement in patient outcomes.

The synthesis of active Vitamin D3 involve the hepatic 25 hydroxylase enzyme, and the final step of activation occurs in the kidney. Vitamin D3 plays an essential role in calcium homeostasis and has been involved in the mechanisms of cellular proliferation, differentiation, and immunomodulation. 60-90% of chronic liver disease patients are vitamin D deficient. Whether this is a result or a cause, remains unclear. Vitamin D deficiency in liver disease has been linked to hepatocellular carcinoma, severity of alcoholic and non-alcoholic liver disease, and hepatitis B treatment outcomes.

Aims & Methods: *Was to assess the relation between vitamin D3 level, spontaneous bacterial peritonitis (SBP), and severity of liver dysfunction in patients with liver cirrhosis.

*In a case-control design, 50 patients with cirrhotic ascites who were categorized into two age- and sex-matched groups: 25 patients having liver cirrhosis, ascites with SBP; and 25 patients having liver cirrhosis, ascites without SBP. After clinical evaluation, laboratory investigations were conducted, including, liver test profile, hemogram, ascetic fluid analysis and culture. Serum level of vitamin D3 was measured using chemiluminescence immunoassay. Abdominal ultrasound for liver evaluation, as well as upper gastrointestinal endoscopy for varices screening/grading were done. The severity of liver disease was assessed by Child-Pugh and MELD-Na scores. Patient clinical outcome of SBP (inpatient mortality) was assessed.

Results: Low vitamin D3 level (i.e. < 30ng/ml) was present in 100% of patients with SBP, compared to 40% in patients without SBP. Patients with ascites and SBP had lower Vitamin D3 level compared to patients without SBP (13.3±4.5 ng/ml vs. 30.5±5.5 ng/ml, p<0.001). Low vitamin D3 (n = 35) were associated with low platelet count, lower serum albumen, higher serum bilirubin and INR (P < 0.001).

In addition, low vitamin D3 was associated with more severe ascites (57% vs. 0.0% for normal vitamin D3 levels), high median MELD-Na (30 points vs. 11 points for normal vit D3), and higher Child-Pugh scores (p< 0.05). In addition, vitamin D level was highest in F1 varices, 24.6 (18.7- 31.9) ng/ml and lowest in F3, 12 (8-12) ng/ml. Patients without esophageal varices had sufficient serum vitamin D levels with a median of 36 (36- 39) ng/ml. Differences were statistically significant (where χ^2 of Kruskal-Wallis = 20.467, p= <0.001). Of patients with SBP, 16% died from septic shock and multiple organ failure, all of them had low vitamin D3 level < 30 ng/ml.

Vitamin D3 levels were also correlated to liver functions as well as severity scores (Table).

Parameter	Correlation coefficient (r)	P
MELD score	-0.836	<0.001
Child–Pugh score	-0.818	<0.001
Serum Albumin	0.765	<0.001
INR	- 0.732	<0.001
Serum Bilirubin	-0.550	<0.001
Platelets count	0.685	<0.001

Table.

Conclusion: Vitamin D3 level is suggested as a potential non-invasive prognostic biomarker for severity of liver disease where its associated with worse clinical outcomes. Its advised that vitamin D3 to be maintained at sufficient serum levels in cirrhotic patients because its deficiency is associated with worse liver functions and higher incidence of SBP morbidity and mortality.

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Disclosure: Nothing to disclose.

PP1334

BACTERIAL INFECTIONS IN CIRRHOTIC PATIENTS: PROGNOSTIC IMPACT OF ACUTE KIDNEY INJURY

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Introduction: Bacterial infections are a frequent and common complication of cirrhosis and are responsible for a significant morbidity and mortality.
The presence of acute kidney injury (AKI) is often considered a poor prognostic factor.
Aims & Methods: The aim of our study is to evaluate the prevalence of AKI during bacterial infections in cirrhotic patients and to determine its prognostic value.
We conducted a retrospective and analytical study over a period of 3 years, including all patients followed for cirrhosis who were hospitalized for management of a bacterial infection. The different clinical, biological, and therapeutic data were collected.
Results: We included 80 patients (38 men and 42 women). The mean age was 62 years [26 - 93].
The main comorbidities noted were type 2 diabetes mellitus in 38% of cases and arterial hypertension in 10% of cases.
The etiologies of cirrhosis were dominated by viral (38.8%), autoimmune (18%) and metabolic (11.3%) causes.
Cirrhosis was Child-Pugh A, B and C in 25%, 68.8% and 6.3% of cases respectively.
The clinical signs were mainly represented by oedemato-ascitic decompensation in 56.3% of cases, hepatic encephalopathy in 22.5% of cases and only 30 % of patients had fever.
The identified infections were mainly urinary infection (35.3%), Spontaneous bacterial peritonitis (35.3%) and pulmonary infection (23.3%).
The prevalence of AKI was 35% (n = 28), classified as Stage I, II and III in 42%, 22% and 36% of cases respectively.
The presence of AKI was statistically associated with an initial Child-Pugh's score ≥ B7 (3% vs 21%, p = 0.001) , refractory ascites (40% vs 22% , p = 0.001) and the presence of a documented spontaneous bacterial peritonitis (58 vs 9% , p = 0.001) .
The analytical study found a statistically significant correlation between AKI and 15 days mortality (24.2% vs 4.3%, p=0.01).
When analyzing the receiver operating characteristic (ROC) curve, AUC of serum creatinine in predicting 15 days mortality was 0.781 (p=0.03).
Conclusion: In our study AKI is associated with a poor prognosis and higher mortality rates. Therefore serum creatinine is a valuable marker allowing better initial stratification.
Disclosure: Nothing to disclose.

PP1335

FUROSEMIDE TREATMENT AS A RISK FACTOR FOR HIP FRACTURES IN PATIENTS WITH ALCOHOL-RELATED CIRRHOSIS – A POPULATION-BASED COHORT STUDY

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Introduction: Patients with alcohol-related cirrhosis are at an increased risk for hip fractures (1). Furosemide may impair bone quality and affect the rate of hip fractures (2).
Aims & Methods: We aimed to estimate the hazard ratio for hip fractures during furosemide treatment compared with time-periods without.
We identified all patients with a first-time diagnosis for alcohol-related cirrhosis and no history of hip fractures in 2000–2018 in Danish nationwide healthcare register (3-5). We included furosemide use as a time-varying binary variable in a Cox regression analysis. We estimated the hazard ratio for hip fractures adjusted for age, sex, diagnosis for ascites, variceal bleeding, hepatocellular carcinoma, diabetes, alcohol disorders, comorbidity, and prescriptions for other drugs (spironolactone, non-selective beta-blockers, proton pump inhibitors, selective serotonin re-uptake inhibitors, opioids, benzodiazepines, glucocorticoids, and sedatives).
Results: We included 24,377 patients, and 5,738 patients received furosemide treatment at the diagnosis for alcoholic cirrhosis. Furosemide users and non-users had almost similar distribution of age (60.6 vs. 57.2 years), males (70.3% vs. 69.0%), diabetes (9.8% vs. 7.8%), ascites (14.1% vs. 17.3%), and HCC (1.1% vs. 1.5%), but users had more comorbidity (25.0% vs. 14.8%), and less frequent variceal bleeding (10.6% vs. 16.4%) and alcohol diagnoses (17.2% vs. 32.4%). We observed 1,318 hip fractures during 87,861 person-years. During furosemide treatment, the incidence rate of hip fractures per 1,000 person years was 19.2 (17.6–20.9) compared with 13.5 (12.6–14.4) without. The adjusted hazard ratio for hip fractures during furosemide treatment was 1.29 (95% CI: 1.15–1.44). This estimate was unchanged in sub-groups defined by age at diagnosis and sex.

Subgroup	N	N hip fractures	Hazard ratio
Overall	24,377	1,367	1.30 (95% CI: 1.16–1.45)
Sex			
Men	16,888	827	1.26 (95% CI: 1.09–1.46)
Women	7,489	540	1.37 (95% CI: 1.15–1.64)
Age group (years)			
< 50	5,382	247	1.27 (95% CI: 0.95–1.69)
50–70	16,034	947	1.31 (95% CI: 1.14–1.50)
> 70	2,961	173	1.26 (95% CI: 0.92–1.72)

Table 1: Adjusted hazard ratio for hip fracture, overall and in subgroups defined by sex and age.

Conclusion: Furosemide was associated with an increased rate of hip fractures in patients with alcohol-related cirrhosis independent of age and sex.
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Disclosure: Nothing to disclose.

PP1336

IMPACT OF HEPATIC AND SYSTEMIC INFLAMMATION ON THE DYNAMIC COMPONENT OF PORTAL HYPERTENSION DURING DISEASE REGRESSION IN ALCOHOL-RELATED CIRRHOSIS

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Introduction: Portal hypertension (PH), a key driver of liver-related morbidity, arises as a consequence of static and dynamic changes in the liver parenchyma. While the static PH component is determined by the degree of fibrosis, the analysis of dynamic PH components remains challenging.
Aims & Methods: We aimed to investigate the influence of inflammation on the dynamic component of PH in the setting of liver disease regression in (i) well-standardised mouse models and (ii) abstinent patients with alcohol-related liver cirrhosis (ALD).
In male C57BL/6JRj mice, disease regression was modelled by administering carbon tetrachloride or thioacetamide for 12 weeks to induce cirrhosis before discontinuing the toxic stimulus and thus enabling regression for either one (R1; n=15) or two (R2; n=15) weeks. In our patient cohort, we included 128 ALD patients with prolonged abstinence (>1 month) undergoing same-day hepatic venous pressure gradient (HVPG) and liver stiffness measurement (LSM). The static component of PH during regression (histological collagen proportionate area [CPA; %] in mice; LSM in patients) was used to predict portal pressure (PP) based on a linear model.
Subsequently, we explored parameters affecting the dynamic PH component (i.e., difference between the predicted PP based on LSM/CPA and the true/measured PP) by analysing the linear model's residuals.
Results: When compared to mice at peak disease severity, withdrawing the toxic stimulus led to a significant decrease in PP, CPA and intrahepatic expression of inflammatory genes (see Table). Despite improvements in hepatic inflammation during regression, the linear model demonstrated a significant association between an increased expression of inflammatory genes and higher-than-expected PP levels in R1 and R2 mice, as shown by the positive correlation between Tnfα (Spearman's r:0.46; p=0.012), Il6 (r:0.48; p=0.008), Il1β (r:0.39; p=0.036), Cxcl1 (r:0.33; p=0.075) and Mcp1 (r:0.26; p=0.159) with the model's residuals. Similarly, a longer duration of abstinence in ALD patients was associated with a significantly lower HVPG (r:-0.21; p=0.017), LSM (r:-0.37; p<0.001), IL-6 (r:-0.24; p=0.006) and CRP (r:-0.28; p=0.001). Nevertheless, patients with higher levels of systemic inflammation also demonstrated a higher HVPG than predicted by LSM in the linear model. Specifically, IL-6 (r:0.18; p=0.043) and CRP (r:0.21; p=0.016) were positively correlated with the model's residuals. Furthermore, levels of complement factor C3c (r:-0.22, p=0.049) and C4 (r:-0.15, p=0.203) were markedly decreased in patients with higher-than-expected HVPG.
Interestingly, while the impact of systemic inflammation was primarily found in long-term abstinence (>6 months), the negative correlation with C3c was only present in short-term abstinence (≤6 months).

	Healthy animals n=13	Diseased animals n=14	R1 n=15	R2 n=15	p-value
PP (mmHg)	5.4 (5.2-5.7)	8.3 (7.7-9.9)	7.7 (7.2-8.2)	6.4 (6.0-8.1)	<0.001
CPA (%)	0.77 (0.73-0.97)	4.35 (3.79-16.20)	4.33 (3.58-9.74)	3.29 (2.94-5.09)	<0.001
Tnfa (log_2 fold change)	0.00±0.50	2.96±0.71	1.92±0.57	1.98±0.92	<0.001
Il6 (log_2 fold change)	0.00±0.91	1.39±1.34	-0.69±1.27	0.04±1.26	<0.001
Cxcl1 (log_2 fold change)	0.00±0.72	1.52±0.74	-0.16±0.71	-0.16±0.78	<0.001
Il1b (log_2 fold change)	0.00±0.44	0.33±0.43	0.10±0.55	0.77±1.09	0.021
Mcp1 (log_2 fold change)	0.00±0.57	3.77±1.23	1.50±0.63	0.87±1.02	<0.001

Conclusion: Despite significant improvements during disease regression, intrahepatic inflammation in mice and systemic inflammation in ALD patients remain critical determinants of the dynamic component of PH.
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PP1337

IMPACT OF CHOLESTASIS IN PATIENTS WITH CHRONIC LIVER DISEASE AND SARS-COV-2 INFECTION

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Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has been associated with a variety of complications, including liver damage. However, its impact on chronic liver disease (CLD) and its association with cholestasis remains unclear. This retrospective cohort study aimed to investigate the incidence of cholestasis and its impact in patients with CLD after SARS-CoV-2 infection.

Aims & Methods: We retrospectively analyzed medical records of 428 patients followed in a tertiary center Liver Unit who were diagnosed with SARS-CoV-2 infection between March 2020 and September 2022. Patients were stratified as having no CLD, non-advanced CLD (NACLD) or advanced CLD (ACLD). Liver chemistries before and several times after SARS-CoV-2 infection were registered. The incidence of cholestasis and its associated risk factors were analyzed using multivariate logistic regression.

Results: A total of 428 patients were included, 357 (66.1% males) with CLD (NACLD in 198 and ACLD in 159 patients). Alcohol-associated liver disease (ALD) was the main etiology (30.8%), closely followed by metabolic-associated fatty liver disease (MAFLD) (24.6%). SARS-CoV-2 infection-related cholestasis was higher in patients with ACLD than in patients with NACLD (39.6% vs. 5.6%, p<0.001). No patient without CLD developed cholestasis. The incidence of decompensation episodes, such as ascites, hepatic encephalopathy and variceal bleeding was significantly higher in patients with cholestasis (32.4%, 32.4% and 17.6% vs. 0.3%, 0.3% and 0%, respectively; p<0.001).

Additionally, patients with cholestasis had a longer hospital stay (median/IQR 17/12 vs. 10.5/9 days, p=0.483) and a significantly higher mortality rate (23.0% vs. 0.6%, p<0.001) than those without cholestasis. Patients with ACLD (vs. NACLD) presented higher global mortality (10.7% vs. 0%, p<0.001) and liver-related mortality (10.1% vs. 0%, p<0.001). Multivariate logistic regression analysis showed that ACLD and decompensated disease were independent risk factors for cholestasis in patients with SARS-CoV-2 infection (p=0.031 and p<0.001, respectively).

Follow-up and clinical outcomes	No cholestasis (n=354)	Cholestasis (n=74)	p value
Sex, male/female (% male)	207/147 (58%)	53/21 (71.6%)	0.035
Age, years (IQR)	58 (23)	63 (20)	0.023
Median hospital stay, days (IQR)	10.5 (9)	17.0 (12)	0.483
ICU admission, n (%)	2 (0.6%)	7 (9.5%)	<0.001
Decompensated ACLD, n (%)	3 (0.8%)	51 (68.9%)	<0.001
Decompensation/further decompensation			
Ascites	1 (0.3%)	24 (32.4%)	<0.001
Hepatic encephalopathy	1 (0.3%)	24 (32.4%)	<0.001
Variceal hemorrhage	0 (-)	13 (17.6%)	<0.001
Death, n (%)	2 (0.6%)	17 (23.0%)	<0.001
COVID-19-related death, n (%)	2 (0.6%)	3 (4.1%)	0.038
Liver-related death, n (%)	0 (-)	16 (21.6%)	<0.001

Conclusion: Our study suggests that SARS-CoV-2 infection is a risk factor for cholestasis in patients with CLD, especially in those with ACLD or decompensated disease. Clinicians should be aware of the potential for cholestasis in these patients with underlying liver disease and closely monitor liver function tests. Further studies are needed to investigate the underlying mechanisms of SARS-CoV-2-induced cholestasis and develop appropriate management strategies for these patients.

Disclosure: Nothing to disclose.

PP1338

FREE LIGHT CHAINS: NEW POTENTIAL BIOMARKERS FOR DISEASE STRATIFICATION IN NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: Nonalcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease worldwide, with a prevalence of 25% in the adult population. NAFLD encompasses a wide spectrum of histological conditions, from simple steatosis to nonalcoholic steatohepatitis (NASH), fibrosis and cirrhosis. Inflammation is one of the principal hallmarks of NAFLD. Polyclonal free light chains (FLCs) λ and κ reflect B-cell activation and high serum levels of FLCs are observed in a variety of inflammatory conditions.

Aims & Methods: The aim of this study is to evaluate the potential role of FLCs as biomarkers of inflammation and fibrosis in NAFLD/NASH patients. 254 patients with metabolic liver disease were consecutively enrolled in the study. 89 patients had simple steatosis, 88 had NASH, 77 had liver cirrhosis (45 with clinically significant portal hypertension [CSPH]). Diagnosis of NASH was histologically assessed. 101 patients had compensated advanced chronic liver disease (cACLD) based on histology (F>3) or elastography (liver stiffness measurement>15 kPa). Medical and pharmacological anamnesis, anthropometric measurements and laboratory tests (included λ and κ FLCs) were obtained for all patients.

Results: The concentration of total FLCs levels in patients with cirrhosis were higher compared with patients with NAFLD/NASH (p<0.01), while no significant difference in λ and κ FLCs levels were observed between NASH and NAFLD patients. Among patients who underwent biopsy, λFLCs tended to increase gradually with lobular inflammation severity, and patients with advanced fibrosis (F3-4) had a significantly higher FLCs compared with patients with mild-to-moderate fibrosis (F<3; p<0.05). Patients with clinically significant portal hypertension (CSPH) showed higher levels of FLCs compared to patients without CSPH (p<0.01).

At multivariate logistic analysis both kFLCs and λFLCs are significantly associated with diagnosis of CSPH and cACLD, independently from age, sex, diabetes, dyslipidemia and obesity. Diagnostic performance of cACLD and CSPH were high for both kFLCs (AUC 0.79 and 0.87 respectively) and λFLCs (AUC 0.81 and 0.89 respectively).

Conclusion: This study highlights the role of adaptive immune system in the pathogenesis of NAFLD. FLCs may be considered useful biomarkers of advanced liver disease (cACLD and CSPH) in patients with NAFLD.

Disclosure: Nothing to disclose.

PP1339

NUTRITIONAL STATUS, MUSCLE QUALITY, SARCOPENIA AND QUALITY OF LIFE IN LIVER CIRRHOSIS

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Introduction: Sarcopenia defined as having low muscle mass, muscle strength and if combined with low performance indicate severe sarcopenia[1]. It is associated with adverse outcomes in cirrhosis, including hepatic encephalopathy, ascites, infection, and increased hospitalisation. Prevalence of sarcopenia has been reported between 40 to 70% and are more common with alcoholic liver disease[2].

Aims & Methods: We aim to assess relationship between nutritional status/assessment, muscle quality and sarcopenia. Cirrhotic patients were recruited from a tertiary-hepatology-clinic for this prospective cross-sectional study. BIA was performed as the standard (SECA mBCA-525) for nutritional status and sarcopenia assessment. Appendicular skeletal muscle mass (ASM) calculated through sum of limb muscle masses in kg. sarcopenia was diagnosed with ASM/height^2<7.0 kg/m^2 and <5.5 kg/m^2 for male and female respectively. Muscle quality was measured by mean handgrip strength in kg divided by ASM (HGS/ASM). Validated functional muscle metrics (handgrip and sit-to-stand), liver-frailty-index (LFI)[3], Chronic Liver Disease Questionnaire (CLD-Q)[4] and food-frequency-questionnaire (FFQ) were also analysed.

Results: 49 patients, 57% (28) alcohol-liver-disease, 18% (9) non-alcoholic steatohepatitis, 5% (4) viral, 4% (3) autoimmune and 7% (5) mixed aetiologies, were included. 44 healthy controls (HC) were recruited as well. Most patients were male (n=28, 57%), with mean age 56yrs (SD=9), mean Child-Pugh score 6 (IQR= 5-7) and MELD 10 (IQR= 7-12). 35% (n=17) were actively drinking alcohol. 9 (18%) of patients were frail and 34 (69%) were pre-frail. 25 (89%) cirrhotic male and 14 (66%) cirrhotic female had sarcopenia diagnosed via BIA. 24/42 (57%) had lower total daily energy intake than is recommended by EASL guidelines[5]. Of those, 11 (44%) male and 6 (42%) had diagnosis of sarcopenia.

There was positive correlation between nutritional status measured with BIA as Phase angle analysis (PhA) with total skeletal muscle mass adjusted for height, SMM/H^2, (r=0.51, p<0.0001) and ASM/H^2 (r=0.04,p=0.7). There was strong correlation between PhA and HGS (r=0.71, p=<0.001). Higher PhA score predicts lower MELD score therefore longer survivals (β = -0.092, p=0.004).

Healthy control has significantly better muscle quality (HGS/ASM) compared to cirrhotic patient (mean 2.52 vs 1.85 kg, SD 0.6 and 0.4 respectively, p<0.001).

Using functional testing, sit-to-stand time was lower in HCs (13.35 vs 8.94 secs, p=0.0001) and hand-grip strength higher in HC (p< 0.001). QoL was negatively correlate with sarcopenia (r=-0.06,p=0.6), LFI (r=-0.2,p=0.1), MELD (r=-0.15,p=0.3) and Child-Pugh score (r= -0.08, p=0.6) although they were not statically significant.

Conclusion: Cirrhotic patients had lower muscle quality and functional status compared to HC. FFQ and PhA are good assessment tool to establish nutritional status. PhA correlated much better with SMM/H2 than ASM/H2 and is a good predictor for disease severity. QoL is multifactorial and couldn't be explained with frailty scores or clinical severity scores.

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Disclosure: Nothing to disclose.

PP1340

POST BANDING ULCER BLEEDING IN CIRRHOTIC PATIENTS: WHAT ARE THE RISK FACTORS?

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Introduction: Endoscopic variceal ligation (EVL) is an effective treatment, whether in primary or secondary prevention of digestive bleeding due to esophageal varices (EV) rupture. However, this technique is not without risks, mainly post-banding ulcer bleeding (PBUB).

Aims & Methods: The aim of this study is to identify the risk factors contributing to PBUB.

This is a retrospective descriptive study including cirrhotic patients treated with EVL between January 2008 and December 2020.

Results: A total of 254 patients with a mean age of 57 years (35-81) and a sex ratio M/F 1.11 were included. The etiology of cirrhosis was viral in 95 patients (37.4%), post NASH in 53 (20.3%), dysimmune in 36 (14.2%), ethylic in 33 (13%) and in 37 cases (14.6%) it remained undetermined.

Post-banding ulcer bleeding was observed, on average, 6.04 days (3-10) after treatment in 28 patients (11%), of whom 7 (25%) presented with a state of shock and 3 (10.7%) died.

In univariate analysis, factors associated with a high risk of post-banding ulcer bleeding were a platelet count less than 60,000 (p=0.000), emergency treatment or treatment in the presence of ascites, hepatic encephalopathy or Child >/= B9 (p=0.000, p=0.000, p=0.043 and p=0.05), presence of red signs or hypertensive gastropathy (p=0.01 and 0.017), 6 or more treatment sessions, and the placement of 5 or more elastic rings (p=0.000, p=0.000).

In multivariate analysis, only two factors were associated with a higher risk of post-banding ulcer bleeding: a platelet count < 60,000 (p=0.009) and the presence of ascites (p=0.038).

Age, sex, duration of cirrhosis, and etiology were not associated with an increased risk of post-banding ulcer bleeding.

The occurrence of hemodynamic instability was associated with the presence of hepatic encephalopathy during the EVL procedure (p=0.004).

Conclusion: Post-banding ulcer bleeding is a dreaded complication of EVL, responsible for a high mortality rate. Knowledge of its risk factors, namely severe thrombocytopenia or the presence of massive ascites, is crucial in its prevention strategy.

Disclosure: Nothing to disclose.

PP1341

THE EFFECT OF RIFAXIMIN-A ON THE DEVELOPMENT OF COMPLICATIONS IN PATIENTS WITH MINIMAL HEPATIC ENCEPHALOPATHY AND LIVER CIRRHOSIS, DURING 3 MONTHS OF OBSERVATION

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Introduction: Minimal hepatic encephalopathy (MHE) represents the earliest and mildest form of hepatic encephalopathy. MHE does not represent clinically significant neurological and psychiatric abnormalities, and cognitive dysfunction is detected only with neuropsychological testing. Early diagnosis of HE is a prerequisite for maintaining the quality of life of patients and preventing overt HE.

Aims & Methods: Purpose of the study.To compare the dynamics of clinical and laboratory data and evaluate the incidence of complications during 3 months of follow-up with or without rifaximin-α therapy in patients with MHE associated with liver cirrhosis (LC).

Materials and research methods. Patients were selected according to the inclusion criteria: age from 18 to 75 years, the presence of cirrhosis (regardless of severity on the Child-Pugh scale), the presence of MHE, and signed voluntary informed consent.

In total, the study included 40 patients with MHE against the background of cirrhosis of various etiology and severity according to the Child-Pugh scale (A-C). Depending on the MHE treatment regimen, patients were randomly divided into groups: group 1 (n=14; 35%) - permanent therapy with rifaximin-α at a dose of 1200 mg/day, group 2 (n=12; 30%) - course rifaximin-α therapy at a dose of 1200 mg/day in courses (7 days of each month), group 3 (n=14; 35%) - without rifaximin-α therapy. Patients underwent an analysis of clinical (assessment of the severity of hepatic encephalopathy according to the results of psychometric tests: a number connection test, an animal name test-ANT, a short scale for assessing mental status-MMSE) and laboratory data (clinical and biochemical analysis, blood, coagulogram, capillary blood ammonia level), and also assessment of the quality of life (questionnaire-SF36) at the beginning of the study and after 3 months of observation.

Results: According to the results of the study, in group 1, against the background of constant therapy with rifaximin-α, 85.7% (n=12) showed a decrease in the level of ammonia in capillary blood, 28.5% (n=4) showed regression of MHE according to the results of psychometric tests, 71.4% (n=10) improved their quality of life. At the same time, 21.4% (n=3) had progression of MHE to overt HE, 21.4% (n=3) had an increase in the level of ammonia in capillary blood, 14,2% (n=2) had infectious complications (sinusitis, otitis media, ARI). In group 2, with the course use of rifaximin-α, 100% (n=12) showed a decrease in the level of ammonia in capillary blood, 16,6% (n=2) showed regression of MHE in the form of an improvement in psychometric tests, and 58,3% (n=7) showed an improvement in the quality of life. It should be noted that 8,3% (n=1) were diagnosed with the addition of a new coronavirus infection, as well as 8,3% (n=1) had bleeding from the esophageal varices. In group 3, 42.8% (n=6) showed a deterioration in the course of MHE, in the form of its progression to overt HE, 50% (n=7) showed an increase in ammonia levels, 64.2% (n=9) deteriorating quality of life indicators. In addition, 14,2% (n=2) were diagnosed with bleeding from the esophageal varices with a fatal outcome.

Conclusion: The study found that rifaximin-α reduces the progression of MHE to overt HE, the progression of portal hypertension, and also improves the quality of life in patients of this category. When comparing the effectiveness of continuous and course therapy with rifaximin-α, the results did not show significant differences, so further studies are needed in patients with cirrhosis and MHE to improve diagnostic and treatment approaches in patients of this category.

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PP1342

THE UTILITY OF THE MEAN PLATELET VOLUME/PLATELET RATIO IN THE ASSESSMENT OF FIBROSIS DURING METABOLIC DYSFUNCTION-ASSOCIATED FATTY LIVER DISEASE (MAFLD)

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Introduction: The mean platelet volume (MPV) is an index that evaluates the size and the function of platelets. Many studies have shown that an increase in MPV is correlated with the severity of certain liver diseases.

Aims & Methods: The aim of this work is to identify the performance of the MPV/platelet ratio as a predicting factor of fibrosis among patients with MAFLD).

This is a retrospective study of 70 patients treated in our department for MAFLD over a one-year period (October 2021 - October 2022). A pulse elastometry (E) by Fibroscan was practiced on our patients as well as a blood count. A threshold E > 9.6 Kpa was deemed to be advanced fibrosis and E < 7.9 Kpa was deemed to be the absence of significant fibrosis. The fib-4 score was computed by online calculators. The specificity and sensitivity of the MPV/platelet ratio were studied by the ROC curve.

Results: Seventy patients were enrolled with a mean age of 57 years (+10 years), predominantly female with a sex ratio of 0.27. The median Body Mass (BMI) was 30.3 kg/m2 with a standard deviation of 5.5kg/m2. Fifty-five benefited from a Fibroscan and all of them had steatosis. The median elasticity was 5.8 kpa with a standard deviation of 6.3 Kpa and the median Controlled Attenuation Parameter (CAP) was 291 dB/m with a standard deviation of 38 dB/m. In this sample, 78.4% had no significant fibrosis, whereas 11.8% had significant fibrosis. The median Fib-4 scores and the MPV/platelet ratio were 1.37 and 0.051 with a standard deviation of 1.29 and 0.037, respectively. The MPV/platelet index was significantly correlated with the Fib-4 score (r=0.797 p < 0.001).

ROC curve analysis revealed that the MPV/platelet score predicted significant fibrosis with 100% sensitivity and 85% specificity (area under the curve=0.94 and p=0.04) and the absence of significant fibrosis with 87% sensitivity and 63% specificity (area under the curve=0.73 and p=0.047).

Conclusion: Our study shows that the MPV/platelet ratio highly predicts the severity of fibrosis among patients with MAFLD. Nevertheless, these results should be confirmed by other studies on a larger scale.

Disclosure: Nothing to disclose.

PP1343

DIFFERENCES IN CLINICAL HISTORY AND PRESENTATION IN PATIENTS WITH CHRONIC LIVER DISEASE UNDERGOING INPATIENT VERSUS OUTPATIENT LIVER TRANSPLANT EVALUATION

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Introduction: Liver transplant is the only definitive treatment for chronic liver disease (CLD). Referral to a hepatologist for consideration for liver transplant should be made when a patient with CLD experiences a hepatic decompensation or has a MELD score ≥ 15.

Failure to refer in a timely manner can result needing a liver transplant evaluation (LTE) in the inpatient setting while a patient is experiencing acute decompensation.

Aims & Methods: We aimed to compare the clinical presentation of patients undergoing LTE in the inpatient setting versus the outpatient setting to identify potential risk factors for requiring urgent evaluation. A list of all LTEs performed at our institution between 10/2017-8/2021 was obtained. Medical records were preliminarily reviewed for evaluation setting (Inpatient vs. Outpatients); evaluations for re-transplantation and acute liver failure were excluded. After all Inpatients (n=159) were identified, Outpatients (n=159) were selected at random to create a sample matched for age, gender, race, and ethnicity (n=318). Data were collected using our institutions electronic medical record and outside health records as obtained during LTE process. "Prior decompensations" refers to the number of the following clinical decompensations experienced *prior* to the time of LTE: ascites, hepatic encephalopathy (HE), variceal/acute UGIB, SBP and HRS. Categorical variables and continuous were compared between using Fisher's Exact test, and student's T test, respectively.

Results: Alcohol was the most common CLD etiology (42.1% Inpatient, 48.4% Outpatient). Inpatients tended to live further from our center than Outpatients (p=0.079). Inpatients had significantly higher MELD-Na scores (27.1 ± 8 vs. 13.3 ± 6; p<0.0001). Malnutrition was more common in 5.6 times more common in inpatients than outpatients (OR 5.6, 95% CI 2.9-10.8, p<0.001).

A similar proportion of patients had 1 hospitalization. But inpatients were 3 times as likely to have had ≥ 1 liver-related hospital admission prior to LTE (p<0.0001). Inpatients had significantly more prior decompensations than Outpatients prior to inpatient LTE (3.2 ± 1.4 vs. 1.8 ± 1.1, p<0.001), with the greatest differences in SBP and HRS.

Variable		Outpatient	Inpatient	p
Nutritional status (%)	Malnutrition	8.2	33.5	<0.0001
Previous hospital admissions (%)	0 admissions	23.9	11.4	<0.0001
	1 admissions	36.5	22.8	
	>1 admissions	39.6	65.8	
History of Decompensation (%)	Ascites	71.1	91.8	<0.0001
	HE	50.3	71.1	0.0002
	UGIB	23.3	32.1	0.1029
	SBP	3.8	22.0	<0.0001
	HRS	3.8	32.7	<0.0001

Conclusion: Multiple liver-related hospitalizations and malnutrition may be considered a risk factor for ultimately needing inpatient LTE and should be taken seriously by health care providers caring for patients with CLD. Episodes of SBP and HRS should prompt providers to consider immediate or urgent LTE referral regardless of other factors.

References: Multiple liver-related hospitalizations may be considered a risk factor for ultimately needing inpatient LTE and should be taken seriously by health care providers caring for patients with CLD. Episodes of SBP and HRS should prompt providers to consider immediate or urgent LTE referral regardless of other factors.

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PP1344

HEPATITIS C MICRO-ELIMINATION PROGRAMS, A GOOD SOLUTION FOR ACHIEVING THE ERADICATION

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Introduction: Hepatitis C virus infection remains an important global burden despite the efficient DAA treatment available at this moment. A major goal was proposed by WHO in 2019 – elimination of HCV infection until 2030. One of the most important problems is the identification of infected persons in this relatively short time. Due to time and cost impact, a global and even a national screening program for all individuals is a method hard to be achieved. A solution is micro-elimination programs, that are focused on a limited area and a target population.

These programs can be implemented much easier, and faster and can be ruled at the same time, with experienced teams that already know all the necessary information and fully optimize resources.

Aims & Methods: This study aims to identify and eliminate HCV infection with micro-elimination programs in targeted areas with a population that has a clear indication for screening, due to the socioeconomic and habitual features. The micro-elimination program started with awareness campaigns.

After signing an informed consent form, persons over 40 years old completed a screening questionnaire and were given rapid Anti-HCV Test. Statistical analysis was performed based on the regional register created for these programs. All the positive patients were investigated and treated if they were eligible.

Results: Five micro-elimination programs were conducted from September 2020 to July 2022, and 42,976 persons from 6 counties were included in the screening. The prevalence ranged from 0.52 to 1.58 in the screened population, with predominance among the female sex. We also found statistically significant differences in HCV prevalence between urban and rural areas, industrial and residential settings (p<0.05), but none between age and HCV prevalence. The risk questionnaire revealed an increase risk of HCV infection in persons who required blood transfusions, shared use of personal hygene products, had dental interventions or surgery.

Conclusion: Micro-elimination programs represent important steps in HCV chronic hepatitis elimination and can be implemented with success in disadvantaged populations with limited access to medical care and can be a sustainable complementary action when national screening programs are overwhelmed or delayed in the aim of HCV elimination.

Disclosure: This study was supported by AbbVie SRL, Bucharest, Romania.

PP1345

ELIMINATING HEPATITIS C IN PEOPLE WHO USE DRUGS (PWUD) BY IMPLEMENTING HEPATITIS CARE WITH ADDICTION CARE, A MIXED-METHOD STUDY

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Introduction: People who use drugs (PWUD) are an important target population for hepatitis C virus (HCV) elimination in the World Health Organization (WHO) goals, because the PWUD population contains one of the largest clusters of residual HCV infections. Case-finding and treatment of these patients in hospitals is considered a challenge, while low threshold on-site screening and therapy in addiction care might facilitate viral elimination. We studied implementation of a decentralized PWUD-HCV care model, by exploring 1) viral elimination rates, and 2) facilitators and barriers for implementation.

Aims & Methods: In a multicenter mixed-method study in addiction care centers in the Netherlands we examined HCV-related outcomes in PWUD receiving HCV treatment within addiction care. The primary outcome was viral elimination, defined as percentage of identified HCV positive patients achieving sustained virologic response (SVR). Using semi-structured interviews barriers and facilitators for implementation were identified among health professionals and policy makers of addiction care and hospitals.

Theme	Facilitators	Barriers
Care chain agreements	Positive hospital attitudes and willingness Low-threshold communication channel	Lack of support in some hospitals Halt of previous infectious disease collaboration
Expertise	Most felt comfortable enough with their knowledge Not much expertise needed in most cases	*None*
Nurse as the mediator	Schooled in motivational interviewing Most intensive relationship with patients	*None*
Perceived problem scope	Establishing a network is also relevant to detect other infectious diseases	HCV is perceived as a closed chapter Challenging to gain experience in managing the disease
Treatment outcomes	Elimination is beneficial even if not all consequences are treated HCV treatment can motivate patients to change life Treatment can also enhance addiction treatment	*None*
Patient profile	*None*	Difficult to plan and keep appointments More psychological comorbidity in patients with addiction. Intellectual disabilities are more common
Stigma	Addiction care more accepting and understanding	Low-threshold treatment may lead to an underestimation of the severity Patients feel ashamed about having infectious disease
Hierarchical decision making	Variation in expertise and opinions among managements where HCV care should be centered	Variation in expertise and opinions among managements where HCV care should be centered Communication from management is poor Bureaucracy and slow decision-making

Table.

Results: We found 33 PWUD HCV RNA positive. Four patients were referred to the hospital for treatment due to hepatitis B virus or HIV co-infection or other reasons. Two patients currently receive treatment, three patients were not yet fit for treatment and two were lost to follow-up before treatment could be started. On-site treatment was initiated in 22 patients. Of these patients 91% was male, mean age was 50 years (SD=13) and 36% was born in the Netherlands. All patients completed treatment with glecaprevir/pibrentasvir (n=9) or sofosbuvir/velpatasvir (n=13). All on-site and hospital treated patients reached SVR and there were no reinfections. The viral elimination rate was 79% (26/33). Themes on facilitators and barriers for implementation collected in the interviews are shown in the table.

Conclusion: This study shows the high viral elimination (79%) of decentralized care of HCV infections within addiction care and provides insight in facilitators and barriers for on-site HCV treatment.

Based on these findings we recommend implementation and maintenance of decentralized HCV-addiction care models worldwide. This will lead to HCV elimination scaling-up in the Netherlands and abroad, furthering WHO goals.

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PP1346

ANTI-HDV REFLEX TESTING IN HBSAG-POSITIVE SUBJECTS: THE BEST STRATEGY TO IDENTIFY HDV INFECTION

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Introduction: In Italy, the prevalence of HDV infection in HBsAg carriers is about 9.9% (6.4% in Italian natives and 26.4% in immigrants). However, the actual prevalence is underestimated because the anti-HDV test is not performed routinely in all HBsAg carriers.

Aims & Methods: The aim of this study was to compare the prevalence and the absolute number of HDV infection identified in HBsAg-positive subjects tested at University Hospital Federico II before and after the introduction of anti-HDV reflex testing.

From January to December 2022, reflex test for the detection of total HDV antibodies was performed in all HBsAg positive subjects observed at AOU Federico II. We used as control group the HBsAg-positive subjects tested at the same laboratory between January and December 2019, before the implementation of anti-HDV reflex testing. Sera were evaluated with AD-VIA Centaur HBsAgII Qualitative, Liaison Murex HBsAg Quantitative and Liaison Murex Total Anti-HDV Qualitative.

Results: Before reflex testing, anti-HDV had been tested in 16.4% (84/512) of HBsAg positive subjects, while after its implementation, 100% (484/484) of HBsAg positive patients was tested for anti-HDV. The anti-HDV positive prevalence was lower than before the introduction of reflex test (10.7% vs 16.6%), but the absolute number of anti-HDV positive patients increased (14 vs 52 subjects). HDV-RNA was detectable in 26 (53%) of 49 subjects tested.

Conclusion: Our data showed that the implementation of anti-HDV reflex testing increased the number of diagnosis of HDV infection. In this setting, due to the forthcoming approval of specific anti-HDV drugs, a reflex test for anti-HDV should be implemented, in clinical practice, to early identify patients with HBV/HDV infection.

Disclosure: Nothing to disclose.

PP1347

HEPATITIS C ELIMINATION. A CHALLENGING TASK FOR RESOURCE SCARCE AND LOW HDI COUNTRIES EXPERIENCE FROM TERTIARY CARE HOSPITAL IN RURAL PAKISTAN

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Introduction: Hepatitis C is a major global health problem caused by the hepatitis C virus, which can result in mild to severe symptoms, including liver cirrhosis and cancer. Unsafe medical practices, lack of awareness, poverty, intravenous drug abuse and limited access to healthcare facilities contribute to the high prevalence of this disease. An estimated 58 million people are effected with hepatitis c worldwide and every year 1.5 million are adding to burden (1).

Pakistan is one of the countries with the highest burden of hepatitis C, affecting around 12 million people having 4.2 % prevalence (2).

While the Pakistani government and international organizations have taken steps to eliminate hepatitis C, challenges remain, such as the stigma attached to the disease, limited access to screening and treatment in remote areas, and inadequate funding for hepatitis control program (3).

Aims & Methods: To address the issue of hepatitis C elimination in rural Pakistan, a cross-sectional observational study was conducted from January 2021 to December 2022 at the MTI Gajju khan Medical College Swabi. All patients above 18 years of age who visited the gastroenterology OPD were screened for Hepatitis C. Patients who were positive for Anti HCV antibody and had detectable HCV RNA were enrolled in the study.

Patients were divided into four groups: Chronic hepatitis C non cirrhotic treatment naïve and treatment experienced, Compensated Cirrhosis naïve and experienced. Sofosbuvir and Daclatasvir for 12 or 24 weeks were given, and Ribavirin was given to treatment-experienced and cirrhotic patients. Prevalence , efficacy of available free DAAs , recommendation to achieve elimination goal were discussed at end of study.

Results: Out of 10,240 patients screened for hepatitis C during their first visit to the gastroenterology OPD, 420 patients with a mean age of 36+16 having positive HCVRNA were enrolled. Almost 90% of the patients were non-affordable. After initial evaluations, the patients were separated into four groups. Chronic hepatitis C without cirrhosis was present in 287 patients, while cirrhotic were 137. Treatment-naïve patients were 307, and 113 patients were treatment-experienced. ETR was achieved in 403 (96%) patients, and SVR was achieved in 413 (91.5%) patients.

Conclusion: To achieve the hepatitis elimination goal 2030 in countries with low human development indexes, chronic hepatitis C screening, diagnosis, and management must be sponsored by national and international organizations. One-time screening should be offered for every patient above 18 years on first contact with healthcare workers. Unsafe medical practices should be strongly discouraged. The freely available drugs Sofosbuvir and Daclatasvir, with or without RBV, are highly effective treatment options for chronic HCV and the most adaptable strategy to eliminate hepatitis C. This regimen has produced excellent results in our country, influenced mainly by the presence or absence of cirrhosis and the easy and free availability of drugs.

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PP1348

"SURESTE SIN C" PROJECT: RESULTS OF HEPATITIS C SCREENING IMPLEMENTATION IN AN INTEGRAL FORM IN A HOSPITAL CENTER

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Introduction: Opportunistic hepatitis C virus (HCV) screening, taking advantage of laboratory analysis requested to patients for another clinical reasons, has shown to increase HCV detection. Here, we present the results for HCV detection from "Sureste sin C" microelimination program, which is run within Hospital Universitario del Sureste sanitary area in Madrid (Spain). This program includes HCV training at hospital level at different services and in primary care, advertisement on informative panels, automation of preoperative protocol and search of lost to follow-up patients.

Aims & Methods: In July 2021, this HCV micro-elimination program began in our sanitary area. This program was supported by Gilead (within Hospitals without C program). A key point was to favor HCV opportunistic screening at different hospital services, both medical surgical (preoperatory) and Emergency departments. Moreover, systematic HCV serology screening (automatization) was included in the surgical preoperative service. The effectiveness of the program was measured in terms of number

of HCV-screening requests made between January-October 2019 (prior to the pandemic, first period) and January-October 2022 (second period).
Results: There were 3,709 requests for HCV serology (3,313 individual patients) in the first period, compared with 7,743 (6,902 individual patients) in the second period (109% increase). Divided by services, this increase was mainly due to the surgical services (251% increase), as a result of the automatic inclusion of HCV serology in the preoperative protocols, and in psychiatry (558% increase). In the medical area, the increase in the second period was 42%, being Gastroenterology, Internal Medicine, Pneumology and Oncology the services with greatest increase in requests.
Regarding Emergency department, an increase in requests of 101% was observed. In total, 145 Anti-HCV positive patients were detected in the first period (prevalence 4.37%), 48 being viremic (1.44%), compared to 130 patients in the second period (prevalence 1.88%), 29 viremics (0.42%).
Regarding only surgical services, there was a very significant increase in the number of positive serology in the second period (8 vs 45, 462% increase, prevalence 1.14%), as well as in the number of viremics (0 vs 5 patients, prevalence 0.12 %).
Conclusion: HCV serology automatization in the surgical preoperative protocol and the awareness and collaboration with other services to support opportunistic HCV screening, is an effective mechanism to achieve the objective of detecting infected patients within a hepatitis C microelimination program. Automatization in surgical preoperatory service has demonstrated to increase the detection of occult HCV infected patients.
Disclosure: This program was supported by Gilead (within Hospitals without C program).

PP1349

LITHUANIAN PROGRAM FOR HEPATITIS C SCREENING: RESULTS OF THE FIRST 9 MONTHS OF THE PROGRAM AND POSSIBLE SCENARIOS FOR ELIMINATION

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Introduction: Lithuanian program for hepatitis C screening started on May, 2022. Based on results of our pilot study conducted in Klaipeda city (1) Lithuanian health authorities decided to pay general practitioners (GPs) a special fee for a service of promoting and performing serological tests for hepatitis C virus (HCV) antibodies:
1. For the population born in 1945-1994 (once per life) and
2. For people who inject drugs (PWID) or are HIV-infected (annual HCV testing).
Such an initiative is the first in Central and Eastern Europe.
This study aimed to evaluate the first results of the HCV screening program and develop different scenarios to achieve WHO targets to eliminate viral hepatitis C by 2030.
Aims & Methods: Patients were invited to participate in the HCV screening by GPs during the visits. Screening included a serum blood test for the presence of HCV antibodies. Patients who tested positive were referred to a gastroenterologist or infectious disease doctor. HCV RNA testing was used to identify the current infection. If the test result was positive, the doctor prescribed direct-acting antiviral (DAA) therapy. Information about screened and treated patients was obtained from the database of the National Health Insurance Fund. The Markov disease progression model elaborated by the CDA Foundation was used to assess HCV elimination progress in Lithuania. The data from the 2022 screening and previously published data were used as inputs. Three scenarios were developed: the 'Base' scenario - return to pre-screening program level in 2023 and 2 scenarios with different extents of treatment.
Results: Results: At the beginning of 2022, about 1.8 million people born in 1945-1994 lived in Lithuania. Between May 5, 2022 and January 31, 2023, population of 547627 people (58.9% women) were tested for HCV antibodies. Positive test results were found in 1.3% people. Seroprevalence of HCV antibodies was higher among men than women, 1.6% and 1.1%, respectively. In the risk group, 5345 PWID and HIV-infected people were screened, of whom 31,7% were seropositive. All seropositive patients were referred to specialists. Viremia was detected in 58 % of patients. In 2022, 1586 patients were treated with DAA. Treatment delay was related to organizational problems (specialist consultation waiting line, formal treatment restrictions, delay in drugs supply), but the number of treated patients during last two months of the program (December 2022- January 31, 2023) increased by 330 % in comparison to the same period of previous year before starting of program. If the number of tested patients remains the same as in the last three months in 2022, HCV antibody testing will be completed in 2023/2024. The Markov disease progression model to assess HCV elimination progress in Lithuania showed the following scenarios:
Scenario 1: if the same number of patients are treated as before the screening, the WHO targets will not be reached.
Scenario 2: treating 70% of infected patients (13000 in 2023/2024) will meet most but not all WHO targets. Scenario 3: by treating all infected patients by 2030, the WHO target will be met by saving 150 lives and preventing 90 new cases of decompensated cirrhosis and 120 cases of hepatocellular carcinoma.
Conclusion: In the Lithuanian screening program, HCV antibody testing by GPs is active; however, the number of patients treated needs to be increased to reach the WHO targets.
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Disclosure: Nothing to disclose.

PP1350

ISOLATED VIRAL LOAD INCREASE IN PATIENTS WITH HBEAG-NEGATIVE CHRONIC HEPATITIS B VIRUS INFECTION: CLOSE MONITORING OR ANTIVIRAL THERAPY?

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Introduction: HBeAg-negative chronic hepatitis B virus (HBV) infection (inactive carriers) is defined by: Normal ALT levels, minimal Fibrosis and/or low necrotic-inflammatory activity assessed by Fibroscan/Liver Biopsy and a Viral load (VL) <2000 ui/ml. An increase in VL in inactive carriers remains common.
Aims & Methods: The objective of our study is to determine the importance of regular VL monitoring in untreated inactive carriers with VL fluctuations between 2000 and 20000 ui/ml, and to evaluate the effectiveness of antiviral treatment.

This is a prospective, descriptive study conducted from 2018 to 2023, covering a 5-year period. The study involved all patients who were monitored in our gastroenterology department for chronic hepatitis B virus infection with negative Hbe Ag, and whose viral load (VL) fluctuated between 2000 and 20000ui/ml without cytolysis or worsening of fibrosis, and without any underlying cause identified.

Patients who had hepatitis D virus superinfection, those who were scheduled for immunosuppressive treatment, and pregnant patients were excluded from the study.

Results: A total of 64 patients with HBeAg-negative chronic HBV infection were followed up, median age was 47 years with extremes of 20 - 75 years and a sex ratio M /F of 1.

Initially, all patients were provided with a monitoring control. During the follow-up period, 21 patients showed an increase in VL, ranging from 2000 to 20000 ui /ml. These patients were divided into 2 groups: The 1st group representing 28.5% of the patients (n = 6) were treated with nucleotide analogues (Tenofovir 300mg/day), while the 2nd group represents 71.4% of the patients (n =15) remained under monitoring alone.

During 2 year follow-up, 83% of patients in the first group (n=5) achieved a negative VL, while only one patient had a decrease in VL after antiviral treatment. None of these patients showed seroconversion.

In the 2nd group, the VL remained fluctuating without exceeding 20000ui/ml and there was no evidence of clinical worsening or abnormal liver function tests during the follow up period.

Conclusion: Increased VL in inactive carriers is far from rare; there is no clear consensus on the required monitoring. However, the results of our study suggest that antiviral treatment may be effective in suppressing viral replication. These results also highlight the importance of close monitoring of VL in untreated patients. Despite the promising results of our study, it is essential to conduct a larger and more comprehensive study to further validate and confirm our findings.

Disclosure: Nothing to disclose.

PP1351

PATHOLOGIES DISCOVERED INCIDENTALLY IN PATIENTS WITH CHRONIC VIRAL INFECTION B / D AND C DIAGNOSED IN THE SCREENING PROGRAM LIVE (RO)2 – EAST

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Introduction: The overall burden of B / D and C viral hepatitis remains substantial, despite the major advances in the prevention and treatment of patients in recent years, due to comorbidities and complications associated with liver disease. In this context, the national screening program LIVE (RO) 2 aims to further assess all patients identified as positive for one of the hepatitis B / D / C viruses.

Aims & Methods: The study aimed to identify fortuitous pathologies discovered in patients with chronic viral B / D / C infection diagnosed in the LIVE (RO) screening program 2. We conducted a prospective study that included people from vulnerable groups (poor, uninsured, rural people, people in foster care, homeless, Roma population, people with disabilities, and suffering from alcohol or drug addiction) in different areas of North-Eastern Romania, between July 2021 - April 2023, during the national screening program LIVE (RO) 2-EAST.

We also investigated the presence of newly discovered conditions in patients who tested positive and directed to the Institute of Gastroenterology and Hepatology in Iasi for the staging of liver disease and the establishment of antiviral treatment.

Results: The study group included 1176 patients, of which 422 men (35.8%) and 754 women (64.1%), aged between 35 and 83 years, with a mean age of 56.32 years. The predominant source of origin was rural (73.1%). Of the patients with positive RDTs, 635 (53.9%) patients were detected with HBsAg, 521 (44.3%) patients with anti-HCV antibodies, and 20 (1.7%) patients with anti-HVD antibodies. Of these, 215 patients (18.2%) were diagnosed with a new pathology associated with B / D / C viral infection.

The most common pathologies discovered incidentally were liver cirrhosis (94, 43.7%), liver cysts (35, 16.2%), liver hemangiomas (29, 13.4%), gallstones (24, 11.1%), type II diabetes mellitus (T2DM) (15, 6.9%), uterine fibroids (9, 4.1%), hepatocellular carcinoma (7, 3.2%), choledochal lithiasis (2, 0.9%). In addition, the presence of fortuitous pathologies was higher among patients with HBV infection than in those with HCV infection (65.3% vs. 42.1%, p = 0.012).

Among the risk factors associated with hepatocellular carcinoma (HCC) are chronic alcohol consumption (43%, compared to 19% in the group of patients without HCC), and the association of T2DM in 3 patients (31%, compared to 10% in the group of patients with HCC).

Conclusion: Patients with chronic B / D / C viral infection had a high prevalence of incidentally detected comorbidities, which necessitates the need for public health policies in vulnerable groups to promote access to existing health services to reduce the future burden of chronic diseases but also secondary complications of chronic liver disease.

Disclosure: Nothing to disclose.

PP1352

EPIDEMIOLOGY OF CHRONIC VIRAL HEPATITIS B/D AND C IN THE VULNERABLE POPULATION IN THE NORTH-EAST AND SOUTH-EAST REGIONS OF ROMANIA – INTERMEDIATE STAGE RESULTS IN THE LIVE(RO)2 - EAST SCREENING

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Introduction: In order to meet the requirements of the WHO, namely - the eradication of viral hepatitis by 2030, UMF "Grigore T. Popa" from Iasi together with ARAS and the Hospital "St. Spiridon" from Iasi, carries out since 2020 the project "LIVE(RO) 2 - Integrated regional program for prevention, early detection (screening), diagnosis and targeting treatment of patients with chronic liver disease secondary to viral infections with liver viruses B/D and C in the North-East and South-East regions".

Aims & Methods: This study aimed to assess the epidemiological characteristics of the vulnerable population in the eastern part of the country diagnosed with chronic B/D and C viral infection. Between July 2021 and April 2023, we performed a prospective screening of chronic viral hepatitis B/D and C in vulnerable people in the counties of North-East and South-East of Romania, within the national program LIVE(RO) 2 - EST. Rapid diagnostic tests were used to detect HBs antigen (HBsAg) and anti-HCV antibodies (HCVA): HBV (Wama Immuno-Rapid HBV®) and HCV (Wama Immuno-Rapid HCV®). Rapid test-positive patients were tested for HBV DNA and HCV RNA and those eligible under the national protocol were treated with antivirals.

Results: The study included 55593 individuals tested rapidly, of which 2160 (3.8%) patients were tested positive (1120 women, 1040 men, mean age 55.86 ± 6.023 years, predominantly rural background - 76.19%). Of these, 1077 (49.8%) were HBsAg positive, 918 (42.5%) with HCV positive needle, 37 (1.7%) HBV/HCV coinfection and 128 (5.9%) HBV/VHD coinfection. HBV-DNA was performed in 724 (67.3%) individuals, of which 452 (62.5%) subjects > 2,000 children/ml. Also, 518 (54.3%) patients with HCV-positive Ac had detectable HCV RNA, of which 375 (72.3%) received antiviral treatment. Depending on the ethnicity, the prevalence of viral infection was 4.29% in Roma people and 3.23% in Romanian people. Among the vulnerable groups determined by work, inactive people (27.7%), uninsured people (11.2%), unskilled people (1.87%), unemployed people (0.6%) and people working in agriculture (0.59%) were predominantly tested. Among the special vulnerable groups, people with disabilities (3.99%), people addicted to alcohol (2.43%) and people with a minimum income (1.21%) were predominantly tested.

Conclusion: The high prevalence of B/D and C viral infection in the vulnerable population tested in the North-East and South-East Region of Romania compared to the rest of the population, indicates the significant viral spread of the infection in these people, a condition that requires further testing and the need for policies public health in vulnerable groups to promote access to existing health services and early initiation of optimal antiviral treatment.

Disclosure: Nothing to disclose.

PP1353

NONTUMORAL PORTAL VEIN THROMBOSIS IN PATIENTS WITH HEPATITIS C VIRUS AND SUSTAINED VIROLOGICAL RESPONSE - A FURTHER CHALLENGING CONSEQUENCE OF LIVER CIRRHOSIS

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Introduction: The advent of direct-acting antivirals (DAAs) is a major breakthrough in hepatology representing the therapeutical standard of care in patients with chronic hepatitis C virus infection. Despite high rates of sustained virological response (SVR), DAAs therapy doesn't eliminate the risk of thrombotic events.

Aims & Methods: We aimed to assess the prevalence of nontumoral portal vein thrombosis (PVT) after SVR.We prospectively analyzed a cohort of patients with HCV-related liver cirrhosis treated with paritaprevir/ritonavir, ombitasvir and dasabuvir (PrOD) ± ribavirin and ledipasvir/sofosbuvir (LED/SOF) ± ribavirin for 12/24 weeks, in a gastroenterology center from Romania, between January 1st 2016 and July 1st 2021. All patients with presumption of thrombosis were evaluated by vascular Doppler, abdominal ultrasound and confirmed by CT scan.

Results: The study included 730 patients treated with DAAs, of which 35 were diagnosed with non-malignant PVT after-SVR (15 men and 20 women, mean age 57.86 ± 7,068 years), corresponding to a prevalence of 4.8%. The mean time from SVR to complication was 290.00 ± 116.639 days. Most patients with nontumoral PVT received LED/SOF (71.4%), while the rest received PrOD (28.6%).

During the study, an improvement in the Child-Pugh and MELD score was observed at the SVR. The evolution changes slightly at the 48-week assessment, with a slight increase in the proportion of patients in the Child B class and MELD ≥ 15. The pro- and anticoagulant factors evaluated reflect the classic hemostatic profile of patients with liver cirrhosis and PVT, characterized by increased FII, FVIII and FvW and decreased anticoagulant factors (PC, PS, ATIII).

Conclusion: The study included 730 patients treated with DAAs, of which 35 were diagnosed with non-malignant PVT after-SVR (15 men and 20 women, mean age 57.86 ± 7,068 years), corresponding to a prevalence of 4.8%. The mean time from SVR to complication was 290.00 ± 116.639 days. Most patients with nontumoral PVT received LED/SOF (71.4%), while the rest received PrOD (28.6%). During the study, an improvement in the Child-Pugh and MELD score was observed at the SVR. The evolution changes slightly at the 48-week assessment, with a slight increase in the proportion of patients in the Child B class and MELD ≥ 15. The pro- and anticoagulant factors evaluated reflect the classic hemostatic profile of patients with liver cirrhosis and PVT, characterized by increased FII, FVIII and FvW and decreased anticoagulant factors (PC, PS, ATIII).

Disclosure: Nothing to disclose.

PP1354

HEPATITIS C VIRUS PREVALENCE AND RISK FACTORS IN A VILLAGE FROM NORTHEASTERN ROMANIA - THE FIRST STEP TO VIRAL MICRO-ELIMINATION

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Introduction: Hepatitis C has an important global impact in terms of morbidity, mortality and economic costs, being a real public health problem worldwide. The efficacy of the new direct-acting antivirals treatment determined the World Health Organization (WHO) to adopt the ambitious strategy for Global Health Sector on Viral Hepatitis in 2016, having as main objective to eliminate hepatitis C virus (HCV) by 2030. In response to this challenge, several countries have already initiated the micro-elimination strategy as part of the global C virus eradication program.

Aims & Methods: We aimed to evaluate the prevalence of HCV infection and risk factors in a Romanian village population-based screening and link these data to the antiviral treatment.We conducted a prospective study from 1 March 2022 to 28 February 2023, based on a strategy as part of a project designed to educate, screen, treat and eliminate HCV infection in all adults, in a village located in Northeastern Romania. All demographic data and risk factors for HCV infection were collected through a questionnaire.

Results: In total, 3507 subjects were invited to be screened by rapid diagnostic orientation tests. Overall, 2945 (84%) subjects were tested, out of whom 78 (2.64%) were found with positive HCV antibodies and were scheduled for further evaluation in tertiary center of gastroenterology/hepatology, in order to be linked to care. A number of 66 (85%) subjects presented for evaluation and 55 (83%) had HCV RNA detectable. Of these, 54 (98%) completed antiviral treatment and 53 (99%) obtained sustained virological response. The main risk factors associated with chronic HCV infection were family history of HCV (OR=2.23, 95%CI=1.37–3.5, p<0.0001), professional exposure to blood products (OR=0.25, 95%CI=0.11-0.53, p<0.0001), blood transfusions performed before 1992 (OR=3.21, 95%CI=2.25-4.52, p<0.0001), abortions undergone before 1990 (OR=1.35, 95%CI=1.02-1.9, p<0.023), multiple surgical interventions (OR=1.32, 95%CI=1.05-1.72, p<0.038) and sharing personal hygiene objects (OR=1.45, 95%CI=1.12-1.73, p<0.002).

Conclusion: The elimination of hepatitis C worldwide has become a reality, with higher chances of success if micro-elimination strategies based on mass screening are adopted. At the same time, sustained effort it required from all. The development of screening programs can facilitate the cascade of care from diagnosis to treatment of all patients and the achievement of WHO objectives.
Disclosure: Nothing to disclose.

PP1355

PREDICTORS OF RESPONSE TO SOFOSBUVIR-CONTAINING REGIMENS FOR CHRONIC HEPATITIS C IN INDIVIDUALS WITH CHRONIC KIDNEY DISEASE

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Introduction: Globally, hepatitis C virus (HCV) infection is still common among chronic kidney disease (CKD) patients despite the advent of serologic screening of blood by enzyme-linked immunoassays, routine use of erythropoietin for patients with anemia and CKD, and better adherence to infection control procedures to prevent the spread of HCV within dialysis units. A large body of epidemiological evidence regarding HCV infection among patients undergoing maintenance dialysis in the developed world has accumulated. prevalence rates have been shown to range between 1.4% and 28.3%. The prevalence rates observed in developing countries remain much higher with prevalence rates between 4.7% and 41.9%. Treatment of CKD patients with pegylated interferon plus ribavirin was challenging and with low response rates.
On its approval, sofosbuvir was not used among CKD patients with creatinine clearance < 30 ml/min, but recently its usage was approved after demonstrating its safety among these patients.
Aims & Methods: Our aim was to determine the response rate of sofosbuvir based regimens in CKD stage 4/5 and end stage renal disease (ESRD) patients on maintenance hemodialysis and to determine the predictors of treatment failure, including (IFNL4) SS469415590 gene polymorphism.
The study included 55 HCV pateints CKD stage 4/5 and ESRD on MHD. The sample size was calculated using G Power 3.1.9.4, 2018. Based on an effect size of direct acting antiviral therapy of HCV among patients with ESRD of 0.4, alpha error of 0.05, power of 80%, the minimum required sample size was calculated to be 52 patients.
Results: Sustained virologic response was achieved in 52.7% of cases. Among those who failed to achieve SVR, platelets and albumin was significantly lower ($p < 0.001$), INR and total bilirubin was significantly higher ($p < 0.001$). Both APRI and FIB-4 scores were significantly higher among those who failed to achieve SVR ($p < 0.001$). The favorable IFNL4 genotype (TT/TT) was present in 36.4% of the 55 patients. 58.6% of the TT/TT genotype patients achieved SVR compared to 41.4% of the non-TT/TT genotype patients ($p= 0.001$). On multivariate logistic regression analysis, higher FIB-4 Score was significantly associated with failure to achieve SVR. ROC curve analysis revealed that at a cut-off ≥ 2.63, pretreatment FIB-4 had a sensitivity of 88.46%, and negative predictive value (NPV) of 90%.
Conclusion: In CKD patients with stage 4 or stage 5, greater FIB-4 scores are linked to a higher chance of failing to achieve SVR after receiving sofosbuvir-containing regimens for chronic HCV infection.
Disclosure: Nothing to disclose.

PP1356

TREATMENT OF CHOLESTATIC PRURITUS IN PATIENTS WITH PRIMARY BILIARY CHOLANGITIS (PBC): BASELINE DATA FROM THE PHASE 2B GLIMMER TRIAL

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Introduction: GLIMMER (NCT02966834) was a Phase 2b study of the ileal bile acid transport (IBAT) inhibitor, linerixibat, for treatment of cholestatic pruritus in primary biliary cholangitis (PBC). The study included 147 patients: the largest trial in this population to date. GLIMMER had few restrictions on concomitant medications with the exceptions of other IBAT inhibitors, bile acid sequestrants and obeticholic acid; stable doses of other treatments were permitted.
Aims & Methods: In this analysis we explore the pruritus treatment history of patients entering GLIMMER. Investigators recorded details of prior and concomitant use of itch medications on the electronic case report form. For categorisation of prior and/or concomitant itch medication: prior only included patients who had tried and stopped at ≥1 pruritus medication before first study treatment and were not using anything else during treatment with linerixibat/placebo; concomitant only included patients who had used ≥1 pruritus medication in the past, which they continued to use during treatment; prior and concomitant included patients who had tried and stopped ≥1 pruritus medication prior to the study and, continued to use ≥1 pruritus medication during treatment with linerixibat/placebo. This post hoc analysis included all treatments prescribed for itch; guideline treatments were defined as bile acid sequestrants, naloxone, naltrexone, nalmefene, nalfurafine, sertraline, rifampicin or gabapentin. Pruritus severity was defined using worst itch numeric rating scale (NRS).
Results: At baseline, 24% of patients had mild (NRS <4), 52% moderate (NRS ≥4–<7) and 25% severe (NRS ≥7–10) pruritus. Mean age at baseline was 55.8 years but varied by itch severity, with mild patients being older (60.1 years) than those with moderate and severe pruritus (56.8 and 49.6 years, respectively). Median duration of pruritus at baseline was 6.3 years and those with mild pruritus tended to have a longer history than those with moderate or severe itch. Overall, a large proportion of patients were never previously treated: 37% (n = 55) had no prior/concomitant itch medications. Similar proportions of patients, 24% (n = 36) and 26% (n = 38), had received only prior itch medications or received prior and concomitant treatment for pruritus, respectively; 12% (n = 18) of patients were using only concomitant itch medications. Only 25% of patients were treated with cholestyramine, despite it being the guideline-recommended first-line therapy.
Treatment history differed by baseline itch severity: 43% of mild patients had no prior or concomitant treatment versus 28% of severe patients. However, differences were less marked for concomitant pruritus therapy use: 43%, 36% and 39% of mild, moderate and severe patients, respectively, continued concomitant itch medicines in GLIMMER. The majority of concomitant itch treatments were non-guideline recommended, with only 39% receiving guideline treatments.
Conclusion: Consistent with the literature, increased itch severity is associated with younger age. Many patients do not receive treatment despite lengthy history of pruritus, while prior use of cholestyramine is limited despite its position in treatment guidelines.
Funding: GSK (201000).

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Disclosure: HTS, AC, MMM, AJW and AR are employees of, and hold shares in GSK. SD is an employee of GSK.

PP1357

ALBI AND PALBI SCORES ARE PREDICTORS OF PROGNOSIS IN PATIENTS WITH PRIMARY BILIARY CHOLANGITIS

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Introduction: ALBI and PALBI scores are simple biomarkers developed to evaluate liver function. They are calculated using albumin and bilirubin levels (and platelet count for PALBI score) which are considered ones of the main prognostic hallmarks in primary biliary cholangitis (PBC).

Aims & Methods: This study aimed to determine the prognostic value of ALBI and PALBI scores in PBC patients. We retrospectively included patients followed-up for PBC in our centre from 2000 to 2021, all treated with ursodeoxycholic acid (UDCA) for at least 12 months. Clinical and biological data were collected. Treatment biochemical response was defined according to Paris II criteria.

Liver complications occurring during follow-up were noted; namely ascites, variceal haemorrhage, hepatic encephalopathy and hepatocellular carcinoma. ALBI score /grade as well as PALBI score were determined via online calculators.

Survival analysis was made using Kaplan-Meier model. Diagnostic performance was assessed using ROC-curve analysis and area under the curve (AUROC).

Results: There were 50 patients of mean age 55 ±11 years old and 98% female. Nineteen patients (38%) were cirrhotic at diagnosis. Baseline median (and interquartile range: IQR) of ALBI and PALBI scores were -2.17 [-2.78; -1.60] and -5.31 [-5.99; -4.15].

Patients' distribution according to ALBI grades was as follows: grade 1 (n=22), grade 2 (n=20) and grade 3 (n=8).

At 12 months of UDCA treatment, 32 patients (64%) had biochemical response. During a median follow-up of 75,5 months [30; 110 months], thirteen patients (26%) had at least one liver-associated complication at 5 years.

Median liver related event-free survival was higher in ALBI-grade 1 patients (191 months [IC95%: 173-210 months] than in those with ALBI-grade 2 (84 months [IC95%: 51-117 months]) and ALBI-grade 3 (25 months [11-39 months]). The statistical difference using Log-rank test was significant: grade 1 vs grade 2 (p=0.002), grade 1 vs grade 3 (p<0.001) and grade 2 vs grade 3 (p=0.002).

ALBI score could predict liver complication at 5 years with an AUROC of 0.85 (p<0.001). A cut-off value of -2.07 or greater had a sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and diagnostic accuracy (DA) of 92%, 72%, 57%, 96% and 78% respectively.

PALBI score was also a good predictor of liver complication at 5 years (AUROC: 0.88, p<0.001). A cut-off value of -4.91 or greater had respective values of sensitivity, specificity, PPV, NPV and DA of 92%, 81%, 67%, 96% and 84%.

Both scores could predict treatment response as well. ALBI score had an AUROC of 0.84 (cut-off <= -2.24, sensitivity: 71%, specificity: 88%, PPV: 91%, NPV: 65%, DA: 78%, p<0,001). The AUROC of PALBI score was 0.88 (cut-off <= -4.91, sensitivity: 89%, specificity: 88%, PPV: 93%, NPV: 83%, DA: 89%, p<0,001).

Conclusion: ALBI and PALBI scores were good prognostic biomarkers as they were highly performant in predicting treatment response along with identifying patients at risk of developing liver complications. These scores could help stratify patients eligible for more intensive therapy.

Disclosure: Nothing to disclose.

PP1358

THE DEVASTATING IMPACT OF SEVERE PRURITUS IN PRIMARY BILIARY CHOLANGITIS (PBC)

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Introduction: Pruritus associated with primary biliary cholangitis (PBC) affects sleep and, social and emotional wellbeing. The impact of itch severity on quality of life (QoL) using the EuroQol-5-Dimension 5-Level (EQ-5D-5L) health utility score was explored and quantified in a post hoc analysis of the Phase 2b GLIMMER study of linerixibat for the treatment of pruritus in PBC (NCT02966834). Pruritus (particularly severe pruritus) was previously found to have a significant negative impact on QoL and health utility: mean (standard deviation [SD]) baseline utility was 0.69 (0.23); patients with mild or moderate pruritus at baseline had similar utilities (0.75 [0.17] and 0.76 [0.17], respectively) whereas patients with severe pruritus at baseline had notably worse utility (0.49 [0.28]).

Aims & Methods: Here we look in detail at factors impacting QoL in patients with PBC and pruritus. Patients in GLIMMER completed the EQ-5D-5L and Beck Depression Inventory (BDI-II) at baseline, which followed a 4-week single-blind placebo run-in period. EQ-5D-5L is a generic, standardised and simple health-related QoL instrument. Scores range from 1 "perfect health" to 0 "death". BDI is a 21-item, self-rated scale that evaluates key symptoms of depression. An overall score of 0–9 is classed as minimal depression, 10–18 mild, 19–29 moderate, and 30–63 severe depression. Patients were classified as having mild (<4, at baseline all mild were ≥3 to <4), moderate (≥4 to <7) or severe pruritus (≥7 to 10) using the mean worst daily itch score. Sleep disturbance severity was based on the same numerical rating scale thresholds as those used for pruritus.

Results: There were striking associations between itch severity, sleep disturbance and health utility, and between itch severity, depression and health utility. Overall mean (SD) health utility was highest in those with mild sleep disturbance 0.83 (0.126). Those with severe sleep disturbance had a much lower score and those with severe itch and severe sleep disturbance even lower (0.52 [0.30] and 0.47 [0.31], respectively). For patients with mild itch, 60% had mild sleep disturbance; the remaining 40% of patients had moderate sleep disturbance. In patients with severe itch, 34% experienced moderate sleep disturbance, while 66% had severe sleep disturbance. Thus, no patients with mild itch had severe sleep disturbance and no patients with severe itch had mild sleep disturbance. As might be expected, health utility was lower with worse depression; from 0.81 (0.18) with minimal depression to 0.39 (0.31) for those with severe depression; amongst those with moderate or severe depression the incremental impact of severe pruritus on health utility was striking, with utilities of 0.32 and 0.26, respectively. In mild and moderate itch, the distribution of depression severity was similar, with over 80% having minimal or mild depression. However, in the group with severe itch, 49% had moderate or severe depression.

Conclusion: Pruritus in PBC significantly impacts QoL. Severe sleep disturbance and moderate and severe depression were far more common in patients with severe pruritus. In patients suffering with both severe pruritus and moderate to severe depression, health utility was severely impaired.

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PP1359

THE NEWCASTLE VARICES IN PRIMARY BILIARY CHOLANGITIS SCORE: AN UPPER ENDOSCOPY SUBSTITUTE FOR GASTRO-OESOPHAGEAL VARICES SCREENING?

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Introduction: Gastro-oesophageal varices (GOV) can occur in early stage primary biliary cholangitis (PBC), making it difficult to identify the appropriate time to begin screening with oesophageo-gastro-duodenoscopy (OGD). This proves the utility of a clinical tool to predict the probability of finding GOV in PBC patients such as the Newcastle Varices in PBC (NVP) Score.

Aims & Methods: Our aim was to assess the performance of this score in predicting GOV in PBC patients. We conducted a retrospective study analyzing clinical data of 72 PBC patients treated with Ursodeoxycholic acid (UDCA). The presence of GOV was noted as well as the occurrence of variceal bleeding. The NVP score was calculated for all the patients who underwent OGD. The performance of the score was assessed using ROC curves.

Results: Seventy-two patients were included with a mean age of 53.5 years. UDCA at the dose of 13-15 mg/kg/day was prescribed for all the patients. The median follow-up time was 9 years. An OGD was done for 69 patients (95.8%). Esophageal varices were found in 34 patients (47.2%). They were grade 1, 2 and 3 in respectively 12.5%, 29.2% et 5.6% of the patients. Gastric varices were present in 5 patients (6.9%). A quarter (25%) of the patients had a variceal bleeding during the follow-up time. The analysis of ROC curves showed that the NVP score had a good performance to predict the development of GOV in PBC patients (AUC=0.914, p<0.001).

Conclusion: According to our study, the NVP score is an inexpensive and non-invasive tool that accurately predicts GOV in PBC. Thus, it can be considered a substitute for OGD for GOV screening in PBC patients. Further studies are warranted to confirm these results.

Disclosure: Nothing to disclose.

PP1360

THE PREVALENCE AND RISK FACTORS FOR GALLSTONES IN AUTOIMMUNE LIVER DISEASES

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Introduction: Autoimmune liver diseases (AILDs) includes primary biliary cholangitis (PBC), autoimmune hepatitis (AIH) and primary sclerosing cholangitis (PSC), in which the immune system produces an inappropriate response to self-antigens leading to chronic liver disease. Gallstone disease is one of the most commonly occurring gastrointestinal disorders. The prevalence of gallbladder stones in patients with chronic liver disease is 22%-54%, higher than the general population[1].

Chronic liver disease in most studies mainly refers to viral hepatitis and alcoholic liver disease, and there are no studies on AILDs complicating gallstones. Previous studies have shown that gallstones were associated with autoimmune disease[2] and were a common cause of secondary sclerosing cholangitis[3], but the association between AIH, PBC and gallstones has not been reported yet.

We have observed that the combination of AILDs and gallstones are a common phenomenon in clinical practice. Therefore, our study was intended to analyze the proportion and the clinical characteristics of gallstones in patients with AILDs as a reference for clinical decision making in patients with AILDs complicated by gallstones.

Aims & Methods: We investigated the comorbidity of gallstones and risk factors associated with gallstones in patients with AILDs. AILDs patients attending the General Hospital of Tianjin Medical University from November 2012 to October 2022 were retrospectively included. Analysis of the proportion of AILDs patients with gallstones (including patients who underwent cholecystectomy for gallstones), clinical characteristics, and laboratory test. Logistic regression analysis was used to assess the risk factors for the combination of gallstones in patients with AILDs.

Results: A total of 560 patients with AILDs were enrolled, including 207 patients with PBC, 289 with AIH and 64 with PBC-AIH overlap syndrome (PBC-AIH). The proportion of patients with AILDs, PBC, AIH and PBC-AIH complicated by gallstones was 32.50%, 35.75%, 28.37% and 40.63%, respectively. Multiple stones predominate in patients with AILDs complicated by gallstones (43.41%), followed by single stones (32.42%) and sludge (6.04%). Age at first visit (p=0.007) and serum biochemical markers associated with bile duct injury such as GGT (p=0.003) and ALP (p=0.001) were significantly higher in patients with AILDs complicated by gallstones compared to those without gallstones. Age (odd ratio [OR] = 1.024; 95% confidence interval [CI] =1.006-1.042 and serum ALP levels (OR = 1.001; 95% CI = 1-1.002) were independent risk factors for patients with AILDs complicated by gallstones, while serum GGT levels (OR = 1.002; 95% CI = 1-1.003) were independent risk factors for patients with AIH complicated by gallstones. Significantly higher prevalence of gallstones in patients with AILDs older than 61.5 years (p=0.003).

Conclusion: Gallstones are more common comorbidity in AILDs patients, predominantly multiple stones. Age and serum ALP levels were independent risk factors for patients with AILDs complicated by gallstones. Patients with AILDs complicated by gallstones present with significantly elevated serum biochemical parameters associated with bile duct injury. The comorbidity of gallstones tends to delay the initial diagnosis of patients with AILDs.

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PP1361

DEPRESSION AS A RISK FACTOR FOR CIRRHOSIS IN PATIENTS WITH PRIMARY BILIARY CHOLANGITIS: A DECISION TREE-BASED RETROSPECTIVE COHORT STUDY

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Introduction: Primary biliary cholangitis (PBC) is an immune-mediated cholestatic liver disease characterized by progressive destruction of the small intrahepatic bile ducts, leading to fibrosis and eventually cirrhosis. Previous studies demonstrated a high proportion of depression in patients with PBC. Accumulating evidences have shown that depression is associated with the severity of liver diseases and some extrahepatic autoimmune diseases (EHAIDs). Compared to general population, the prevalence of depressive symptoms in patients with cirrhosis is higher (18-58% vs. 10%).
Moreover, cirrhotic patients with depression experience worse clinical outcomes. A diagnosis of depression before liver transplantation is related to reduced survival after transplantation. Antidepressant mirtazapine correlated with the reduced incidence of decompensated cirrhosis, liver transplantation and decreased mortality in patients with PBC. Therefore, it is important to screen for depression, and the effect of depression on patients with PBC remains to be fully elucidated.
Previous studies demonstrated that HLA alleles were closely related to PBC susceptibility. DRB1*08:03, DRB1*07:01, and DPB1*17:01 conferred an increased risk to PBC among Chinese populations. In another study, DRB1*07:01, 14:01 and 14:05 were the major predisposing alleles for PBC in China. Among Europeans, DRB1*08 was demonstrated to be a risk factor for PBC. HLA-DRB1 alleles were also associated with cirrhosis in patients with autoimmune hepatitis (AIH), autoimmune sclerosing cholangitis (ASC), and chronic hepatitis C. However, DRB1*11 and DRB1*13 were associated with a reduced risk of developing PBC. DRB1*11:01 was also demonstrated to be protective in post-traumatic stress disorder, bipolar affective disorders, and depression of early undifferentiated arthritis. In summary, it is helpful to explore the effect of HLA-DRB1 alleles on depression and further cirrhosis in patients with PBC.
Aims & Methods: A comorbid depression is common in patients with primary biliary cholangitis (PBC), of which the role in disease progression remains unclear. Genetic predisposition such as human leukocyte antigen (HLA)-DRB1 alleles are reported to be linked with both depression and PBC. For better management of PBC, it is pivotal to establish a risk model for cirrhosis that takes depression and HLA-DRB1 alleles into account. In this study, patients with PBC and healthy controls were evaluated for depressive symptoms using the Patient Health Questionnaire-9 (PHQ-9). Patients with PBC were divided into a model (n = 141) and validation cohort (n = 51). Further, we designed our study to determine the role of depression in treatment response, as well as the effect of depression and HLA-DRB1 alleles on cirrhosis.
Results: In detail, depression was observed to be a common phenomenon in patients with PBC (76/141, 53.9%), and positively associated with levels of alkaline phosphatase (ALP), ɣ-glutamyl transpeptidase (GGT), and Immunoglobulin (Ig)M in serum. HLA-DRB1*03:01 allele, which was more common in PBC patients with depression than those without, increased the risk of cirrhosis in patients with PBC (odds ratio [OR], 5.676; p < 0.001). Importantly, our study showed that PHQ-9 score, HLA-DRB1*03:01 allele, and other factors (age and level of ALP), were determined as risk factors for cirrhosis in patients with PBC by logistic analysis. Consistent with the logistic regression model, the elevated PHQ-9 score (>= 3.5) was calculated as a discriminating risk factor for cirrhosis in decision tree model.
Conclusion: In conclusion, the depressive symptom was associated with poor treatment response and was a risk factor for cirrhosis in patients with PBC. These results highlight the important clinical significance of the identification and management of depression in patients with PBC.
Disclosure: Nothing to disclose.

PP1362

THE THERAPEUTIC EFFECTIVENESS AND UNDERLYING MECHANISM OF URSODEOXYCHOLIC ACID IN AUTOIMMUNE HEPATITIS

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Introduction: Ursodeoxycholic acid (UDCA) is often used to treat patients with autoimmune hepatitis (AIH), although the immunomodulatory effects remain unclear. In this study, we investigated the effect of UDCA in patients with AIH and a mouse model of immune-mediated hepatitis (IMH).
Aims & Methods: We performed a retrospective cohort study by collecting patient data from 75 adults with AIH. A mouse model of immune hepatitis induced by concanavalin A (ConA) was established in C57BL/6J mice. The expression of hepatic inflammatory factors and immune cells in the liver and spleen was analyzed by real-time quantitative polymerase chain reaction and flow cytometry.

	UDCA group n = 26	Prednisone group n = 30	Combination Therapy group n = 19	Total n = 75
Female, n (%)	26 (100)	29 (96)	19 (100)	74 (98.67)
Age at diagnosis, years[a]	57.5±11.26	56.57±9.84	56.68±10.68	56.92±10.45
ALT (U/L)[b]	69.50 (93.95)	209.50 (202.76)	247.00 (106.00)	157.00 (216.5)
AST (U/L)[b]	60.50 (67.00)	200.00 (171.20)	224.00 (139.00)	167.00 (143.00)
IgG (g/L)[b]	1800.00 (400.00)	1850.00 (515.00)	1900.00 (630.00)	1850.00 (550.00)
ANA, n(%)	26 (100)	29 (96.00)	18 (94.74)	73 (97.33)
Ishak scores HAI[b]	5.00 (3.50)	8.00 (3.50)	8.00 (4.00)	7.00 (3.50)
HFI[b]	2.00 (1.50)	2.50 (3.75)	3.00 (3.00)	2.00 (2.00)
Liver cirrhosis, n(%)	4 (15.38)	6 (20.00)	6 (31.58)	16 (21.33)

Note: Data represent the number (percentage), mean ± SD or median (interquartile range, IQR). a, mean ± SD; b, median (IQR).
Abbreviations: ALT: alanine aminotransferase; AST: aspartate aminotransferase; IgG: immunoglobulin G; ANA: antinuclear antibody; HAI: histologic activity index; HFI: histologic fibrosis index.
Table.

Results: During the 24-month follow-up, 34.7% of patients with AIH received UDCA monotherapy. The mean levels of biochemical markers in the UDCA monotherapy group were significantly decreased. An additional use of UDCA improved the clinical remission and reduced the required dosage of immunosuppressants. In the mouse model of immune hepatitis, UDCA downregulated expression of cytokine tumor necrosis factor-α(TNF-α)

and necroptosis markers in the liver. UDCA pretreatment upregulated the proportion of immunomodulatory myeloid-derived suppressor cells, and downregulated the accumulation of liver macrophages.

Conclusion: UDCA monotherapy is effective in AIH patients, and the additional use of UDCA improves clinical remission. UDCA pretreatment exhibits immunomodulatory activity against ConA-induced IMH.

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PP1363

HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH AUTOIMMUNE HEPATITIS: A QUESTIONNAIRE SURVEY

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Introduction: Autoimmune hepatitis (AIH) is a rare chronic liver disease. Assessment of Health-Related Quality of Life (HRQoL) in this field has emerged as a novel method to evaluate the well-being of patients and their therapeutic management. The aim of this study was to evaluate the health-related quality of life in patients with autoimmune hepatitis by comparing it to that of patients with chronic hepatitis C and healthy subjects.

Aims & Methods: We conducted a single centre study enrolling patients followed in our department for AIH between 2010 and 2023. Thirty patients followed for hepatitis C in our center et forty healthy subjects were selected as a control group. We assessed health related quality of life in these patients using the chronic liver disease questionnaire which is a specific tool used in liver disease to appreciate the HRQoL. Patients with decompensed cirrhosis were excluded.

Results: A total of 100 patients were enrolled: 30 patients with AIH, 30 patients with chronic hepatitis C and 40 healthy subjects. The median age was 51 (50-, 64- and 45-year-old respectively in AIH, chronic hepatitis C and healthy subjects) and the sex-ratio was 0,4. The overall Chronic Liver Disease Questionnaire scores (82 vs. 190, P<0.001), the worry domain (8 vs 30, P<0.001), the systemic symptom domain (14 vs 35, P<0.001) and the fatigue domain (10 vs 25, P<0.005) were significantly inferior in patients with autoimmune hepatitis compared to healthy subjects. Similarly, these scores were significantly worst in AIH patients compared to hepatitis c patients: overall Chronic Liver Disease Questionnaire scores (82 vs. 138, P < 0.001), the worry domain (8 vs 30, P<0.001), the systemic symptoms domain (14 vs 35, P<0.001) and the fatigue domain (10 vs 25, P<0.001). In AIH patients, the univariate analysis showed that cirrhosis was associated with lower overall score (99 vs 145, P<0.01) and lower score on the worry domain (7 vs 27, P<0.002) and the use of prednisolone was associated with lower scores on the worry domain (7 vs 8, P<0.05).

Conclusion: Patients with autoimmune hepatitis show a significant impairment of health-related quality of life compared to hepatitis c patients and healthy subjects. Therefore, focusing on the quality of life in these patients is important in order to provide an optimum medical care.

Disclosure: Nothing to disclose.

PP1364

SINGLE ORIFICE OUTFLOW RECONSTRUCTION IN RIGHT LOBE GRAFT LIVING DONOR LIVER TRANSPLANTATION: A PRELIMINARY VIETNAMESE STUDY

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Introduction: Outflow reconstruction is one of the key requirements of a successful living donor liver transplantation. The aim of study is to evaluate the technical characteristics and outcomes of single orifice outflow reconstruction in living donor liver transplantation using right lobe graft in a center in Vietnam.

Aims & Methods: The prospective study was performed on 52 cases of living donor liver transplantation using right lobe graft at 108 Military Central Hospital from January 2019 to December 2020. Polyester prostheses were used in reconstructing the MHV when the remnant liver volume was less than 35% of the donor liver volume. Venous branches with diameter ≥ 5mm were preserved and anastomosed to the prosthesis.

Results: There were 42 cases of using the extended lobe living donor liver transplant including the middle hepatic vein (HV) (80.8%) and 10 cases of the modified right lobe graft with the middle HV reconstructed from the V5 and/ or V8 branches (19.2%) by using polytetrafluoroethylene artificial vessels. We conjoined the middle hepatic vein and right hepatic vein as a single orifice anastomosis. The right hepatic vein of recipient were enlarged to the left and downwards at the orifice, with a mean incision length of 14 mm and 9.7 mm, respectively.

A total of 15 accessory right inferior hepatic veins with diameter > 5 mm were anastomosed directly to inferior vena cava (IVC) in an end-to-side fashion in recipient (28.8%). There were 3 cases of middle hepatic vein obstruction (2 stenoses, 1 occlusion) (5.7%).

The mortality rate of hepatic venous outflow obstruction was 1,9%. The caliber of HV anastomosis (< 30 mm) was an independent risk factor for hepatic venous outflow obstruction (p = 0,01).

Conclusion: The single orifice hepatic vein reconstruction in living donor liver transplantation using a right lobe graft is a simple and feasible surgical technique, and it does not require cadaveric vessels.

Disclosure: No Conflict of Interest.

PP1365

THE IMPACT OF SOCIOECONOMIC STATUS IN PREDICTING IN-HOSPITAL MORTALITY IN PATIENTS WITH ACUTE-ON-CHRONIC LIVER FAILURE

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Introduction: Acute-on-chronic liver failure (ACLF) is a critical syndrome occurring in individuals with acutely decompensated cirrhosis, characterised by high short-term mortality and multiorgan failure. Accurate prognostic scores are essential to support ICU treatment and outcomes. Socioeconomic status (SES) is a known, independent contributor to ill health and mortality.

This study aims to determine if incorporating SES into the CLIF-C ACLF score, a prognostic tool for ACLF outcomes, adds value in predicting in-hospital mortality in patients with ACLF.

Aims & Methods: Data from consecutive patients admitted to the Royal Free London ICU with a complication of cirrhosis, between 2016 and 2017, were obtained from the Royal Free NHS Trust database. CLIF-C ACLF scores were calculated at day 0 and 2 of ICU admission and in-hospital survival was assessed. SES was determined using the English Indices of Deprivation, a validated government tool that utilises individual postcodes to infer a deprivation decile. A higher decile indicates a higher SES and vice versa. Multiple logistic regression was used to examine the joint association between both CLIF-C ACLF and SES upon in-hospital mortality.

Results: The cohort comprised of 851 patients, of which 131 patients have been analysed thus far. There is no significant difference in age or sex between mortality groups (Table 1).

Regression analysis showed that SES proves a statistically significant improvement to the CLIF-C ACLF score in predicting in-hospital mortality at day 0 and 2 of ICU admission (p-value = 0.048 and p-value = 0.041, respectively). Additionally, the odds ratios demonstrated a significant inverse relationship between SES and in-hospital mortality, with an odds ratio of 0.847 (95% CI: 0.718 to 0.999) at day 0 and 0.821 (95% CI: 0.664 to 0.992) at day 2.

		Dead		Alive		
	n	Mean ± SD	n	Mean ± SD	Test used	p-value
Age	48	55.8 ± 12.3	83	53.3 ± 15.0	Independent T-Test	0.317
CLIF-C ACLF D0	48	59.9 ± 11.2	83	50.1 ± 9.74	Independent T-Test	<0.001
CLIF-C ACLF D2	32	64.9 ± 10.2	55	50.5 ± 11.3	Independent T-Test	<0.001
Delta (D0 to 2)	32	0.125 ± 9.36	55	-2.49 ± 7.61	Independent T-Test	0.163
	n	Median (IQR)	n	Median (IQR)	Test used	p-value
Deprivation Decile	48	3.5 (2 - 6.25)	83	5 (3 - 7)	Mann-Whitney U Test	0.054
	n	Male/Female	n	Male/Female	Test used	p-value
Sex	48	27/21	83	54/29	Chi-Squared Test	0.317

Table 1: Multiple analyses comparing in-hospital mortality groups.

Conclusion: Our findings suggest SES can add predictive value to the CLIF-C ACLF score with regards to in-patient mortality, allowing acute care clinicians to more accurately risk stratify patients in ICU. These findings may also have implications for public health strategies for targeting primary and secondary prevention schemes. Validation in larger cohorts is justified.

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PP1366

PREGNANCY OUTCOMES AND MATERNAL RISKS AFTER LIVER TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

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Introduction: Pregnancy after liver transplantation (LT) is rising in prevalence. Although recent studies have shown an overall favorable outcome in post-LT pregnancies, there is still an increased risk of complications. Current recommendations suggest postponing pregnancy for at least one year after transplantation, yet the optimal timing of conception is a matter of debate. Since LT is still uncommon in fertile women, a multicenter and international effort is required to accumulate sufficient data to improve outcomes.

Aims & Methods: Our aim was to explore maternal and perinatal outcomes in post-LT pregnancies in a single tertiary referral medical center.

Data on pregnancies and deliveries in LT recipients a single tertiary center (Tel-Aviv Sourasky Medical Center, Israel) from 2013 through 2022 was retrospectively collected and analyzed.

Demographics, clinical data and laboratory tests throughout the course of pregnancy, delivery and perinatal period was retrieved from medical records and reviewed. Birth weight percentile was determined using the Dollberg curve.

Results: During study period we identified a total of 21 pregnancies in nine patients. Mean age at conception was 32 ± 4.8 years and mean time interval between LT and pregnancy was 5.9 ± 3.5 years. The indications for LT in 5 women (56%) were acute liver failure (due to autoimmune hepatitis, paracetamol toxicity and an unknown etiology).

Four other women were transplanted for chronic liver disease (HBV, PSC, Willson's disease and secondary sclerosing cholangitis after Kassai procedure), two of whom had portal hypertension complications (variceal bleeding and ascites).

Seven (33%) out of the pregnancies ended in miscarriages in the first trimester and 14 (67%) in viable newborn deliveries. Mean birth week was 36 ± 3.3 and the mean birth weight was 2640 ± 717.3 grams with mean weight percentile of 41 ± 24. Out of 14 living births only six (42.8%) reached term, seven (50%) were late preterm, of whom one was diagnosed with intrauterine growth retardation, and one (7%) baby was an early preterm (week 25, weight 750) and died shortly after birth.

Maternal outcomes were favorable, with only two (14%) pregnancies complicated by intrahepatic cholestasis of pregnancy (ICP) with full resolution after delivery, and two (14%) by acute rejection episode with good response to medical treatment. All women received calcineurin inhibitor-based immunosuppression either as monotherapy (2 women) or combined with azathioprine (7 women).

Conclusion: Despite improvement in LT outcomes and post-transplant care, pregnancy in LT recipients is still challenging with a high rate of miscarriage, pre-term delivery and low birth weight. There is a need for further data collection and analysis, which may assist in better risk stratification and improving patients care

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PP1367

MACROPHAGE ACTIVATION SYNDROM, RARE CAUSE OF ACUTE LIVER FAILURE WITH POOR PROGNOSIS

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Introduction: Macrophage activation syndrome (MAS), also known as secondary hemophagocytic lymfohistiocytosis (HLH) is poorly described life-threatening condition. It is caused by excessive activation of immune system with subsequent proinflammatory state resulting in multiorgan involvement. Clinically, MAS is characterized by fever, cytopenia, hepatosplenomegaly and elevated circulating ferritin. MAS can develop into acute liver failure (ALF) with poor prognosis.

Aims & Methods: We retrospectively analysed patients referred to our transplantation centre for ALF in whom the diagnosis of MAS was confirmed by histology. We focused on diagnosis leading to MAS, survival, transplantation outcome and clinical, laboratory and histological findings.

Results: From January 2005 to November 2022, we found eight patients with MAS referred to our centre for ALF. The underlying condition was EBV infection in five cases and adult Still disease in three cases. All eight patients had strongly elevated circulating ferritin (in average 19321 µg/l), leukocytosis and thrombocytopenia.

All patients except one had at least one negative bone marrow or lymph node examination prior to definitive diagnosis of MAS. Seven patients were treated with high-dose corticosteroids. Four patients met King's College criteria for urgent liver transplantation. Two of them were transplanted. Despite intensive therapy based on mechanical ventilation, continuous renal replacement therapy and circulation support, their clinical condition further deteriorated and all four patients died on average 34 days after symptom onset of multiorgan failure. At the autopsy, hemophagocytic macrophages have been described in multiple organs. Four patients who responded to corticosteroid therapy are in long-term remission after specialized haematological treatment with etoposide.

Conclusion: Macrophage activation syndrome represents rare cause of acute liver failure with high mortality, it is difficult to diagnose and even harder to treat. Our case series suggests that when the patients meet King's College criteria, they die despite the successful liver transplant. Therefore, it is important to carefully consider liver transplantation in these patients.

Disclosure: Nothing to disclose.

PP1368

ACUTE-ON-CHRONIC LIVER FAILURE AND LIVER TRANSPLANTATION: A TERTIARY REFERRAL CENTER EXPERIENCE

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Introduction: Liver transplantation (LT) is a potentially life-saving treatment for patients with end-stage liver disease, particularly acute-on-chronic liver failure (ACLF) patients due to high mortality rates.

Aims & Methods: Aims: This study aimed to characterize the population and outcomes of patients with ACLF undergoing LT, as well as to identify factors associated with worse prognostic.

Methods: Retrospective cohort study including 155 consecutive LTs performed in a Tertiary Center, between January 2020 and December 2022. ACLF was defined according to the EASL-CLIF consortium definitions. The statistical analysis was performed with the SPSS software v28.

Results: A total of 155 patients received a LT, including 25 with ACLF (16.1%). Of these, 16 (64%) had ACLF-1, 3 (12%) ACLF-2, and 6 (24%) ACLF-3, with renal dysfunction being the most common organ failure (27%). Mean age 55 years (80% male). The most frequent etiology of cirrhosis was alcohol (80%). In 68% of patients, at least 1 precipitating event was identified, with infections being the most frequent one (56%). The 1-year mortality rate after LT was 22%. No statistically significant factors associated with mortality were identified, however, spontaneous bacterial peritonitis as a precipitating event of ACLF showed a strong association with death (p=0.08).

Conclusion: ACLF is a growing indication for LT, comprising 1 in every 6 patients transplanted in this cohort. Our results suggest that renal failure and infections should be carefully managed in cirrhotic patients to avoid progression to ACFL. No predictors of post-LT mortality were identified.

Disclosure: Nothing to disclose.

PP1369

SHEAR WAVE ELASTOGRAPHY IS A RELIABLE NON-INVASIVE METHOD FOR THE ASSESMENT OF PORTAL HYPERTENSION IN NAFLD PATIENTS

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Introduction: Shear wave elastography is a non-invasive method for the assessment of liver fibrosis in patients with chronic liver diseases. Portal hypertension occurs as a result of increased blood flow and resistance due to liver liver fibrosis.

Furthermore, portal hypertension can lead to development of complications such as variceal bleeding, which significantly affects morbidity and mortality.

Aims & Methods: Aim of this study was to investigate correlation of liver tissue stiffness, measured with shear wave elastography, with the presence of esophageal varices found on upper endoscopy. This cross-sectional study included patients treated at the Gastroenterohepatology Clinic of the University Clinical Centre of Serbia, diagnosed with non-alcoholic fatty liver disease. Demographic, etiological, biochemical, clinical, ultrasonographic, and endoscopic features were analyzed in all patients.

The tissue stiffness was measured and expressed in kilopascals (KPa) using the S-Shear wave feature of the SAMSUNG RS80A device with a convex probe. The measurement reliability was determined using the Reliable Measurement Index (RMI) and Interquartile Range (IQR).

Results: Our study included 51 patients, among them 51% were male gender, while 49% were female gender, average age of 48 years, diagnosed with non-alcoholic fatty liver disease. In our cohort 22% of the patients were found to have esophageal varices, while 78% had no evidence of varices. Our results have demonstrated that there was statistically significant difference in values of liver stiffness between the patients with and without esophageal varices (17.7±8.94 vs 8.08±4.04, p<0.05). There was a statistically significant positive correlation between the existence of esophageal varices and the degree of fibrosis (R=0.82, P<0.05).

Conclusion: Our results support the usage of shear wave elastography as a non-invasive method for predicting the presence of portal hypertension in patients with liver diseases.

Disclosure: Nothing to disclose.

PP1370

COMPARISON BETWEEN TRANSIENT ELASTOGRAPHY AND POINT-SHEAR WAVE IN NON-ALCOHOLIC STEATOHEPATITS PATIENTS: A PROSPECTIVE STUDY

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Introduction: Transient elastography (TE) by Fibroscan® is a widespread method for non-invasive evaluation of liver stiffness measurement (LSM). Point-shear wave elastography (pSWE) is an alternative non-invasive method for this type of assessment. Transient elastography is also able to evaluate hepatic steatosis by the function Controlled Attenuation Parameter (CAP).

Aims & Methods: We aimed to compare the results of TE and pSWE for fibrosis assessment in patients with non-alcoholic steatohepatitis (NASH), stratified by the degree of steatosis.

Consecutive patients with established diagnosis of NASH attending our Gaastroenterology Unit underwent liver stiffness measurement (LSM) by both TE and pSWE. Liver steatosis was measured by CAP and the severity was graded into S0-S3. At least 10 measurements were performed and results were expressed as median with interquartile range. Statistical analysis was conducted by Pearson's test for correlation and linear regression. Bland-Altman graphs with bias and ROC curves with estimation of sensitivity, specificity, and area under the curve (AUC) were drawn.

Results: Seventy-seven patients were recruited (17 females, 60 males, aging 54.1 ± 13.9). The overall correlation between TE and pSWE was moderate (r=0,63, p < 0.001). Linear regression showed a "b" coefficient of 0.99 ± 0.033. The Bland-Altman plot found a bias of -0,52 and only six valued exceeded the 95% CI limits. When considering patients with mild steatosis (S1), we found a strong correlation (r=0.81, 95% CI 0.39-0.95, p=0.003). The highest correlation between TE and pSWE was recorded for S2 subjects: r=0.90 (95% CI, 0.64-0.98, p<0.001). The correlation was low in S3 patients (r=0.42, 95% CI, 0.09-0.67, p=0.001). A cut-off of 11.15 kPa of pSWE had sensitivity=87,50 % and specificity=97,10% to detect relevant fibrosis, with an AUC=0.98 compared to TE.

Conclusion: pSWE and TE showed comparable LSM in NASH. A good concordance was observed in patients with mild or moderate liver steatosis, while in S3 patients we observed a weaker agreement between the two techniques.

Disclosure: Nothing to disclose.

PP1371

COMPARISON OF DIAGNOSTIC PERFORMANCES IN ENDOSCOPIC ULTRASOUND-GUIDED LIVER BIOPSY USING DIFFERENT TECHNIQUES

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Introduction: Endoscopic ultrasound-guided fine needle biopsy (EUS-FNB) for hepatic solid lesions has emerged as a safe technique to obtain an adequate liver tissue for diagnosis of parenchymal liver disease. However, the optimal FNB techniques have not been evaluated. Out study aimed to compare the diagnostic yield and specimen adequacy for EUS-FNB in hepatic solid lesions using different FNB techniques.

Aims & Methods: This is a single center retrospective study of EUS-FNB for hepatic solid lesions between Mar. 2015 and Jun. 2022. Each one needle pass of suction and slow-pull suction was applied for the same hepatic lesions and the sequence was randomly assigned. The primary outcomes were diagnostic yield to attain a histological diagnosis and rate of adequate specimen acquisition.

Results: A total of 119 patients (40 female, median age 70 years) underwent EUS-FNB for hepatic solid lesions. The mean size of hepatic solid lesion was 34.9+27.3 mm (range 7-150). Solid live lesions were located at S1 in 5 (4.2%), S2/3 in 97 (81.5%), S4 in 13 (10.9%), and S5/6/7/8 in 4 (3.3%). Needle puncture was approached at esophagus in 5 (4.2%), stomach in 108 (90.8%), and duodenum in 6 (5.0%). The use of needle was 20G Pro-Core in 44 (37.0%) and 22G in 75 (63.0%). The final diagnosis of solid liver lesions was benign in 3 (2.5%) and malignancy in 116 (97.5%) including cholangiocarcinoma (49, 41.2%), metastasis (63, 52.9%), hepatocellular carcinoma (2, 1.7%), and lymphoma (2, 1.7%). The overall diagnostic yield to obtain a tissue diagnosis was 90.8%. There was statistically no difference in diagnostic accuracy between suction and slow-pull suction (79.8% vs. 84.9%, P=0.308). Slow-pull suction obtained more adequate specimen comparing to suction (95.0% vs. 87.4%, P=0.040).

	Slow-pull suction, n (%)	Suction, n (%)	P value
Histologic diagnosis			
- Malignancy	91 (76.5)	86 (72.3)	
- Suspicious for malignancy	7 (5.9)	6 (5.0)	0.203
- Atypical	11 (9.2)	6 (5.0)	
- Benign	4 (3.4)	6 (5.0)	
Inadequate specimen	9 (5.0)	15 (12.3)	0.040
Diagnostic accuracy	101 (84.9)	95 (79.8)	0.308
Grossly core tissue acquisition	111 (93.3)	103 (86.6)	0.085

Table 1. Comparison of specimen adequacy and diagnostic performances according to EUS-FNB techniques.

Conclusion: The use of slow-pull suction EUS-FNB demonstrated improved specimen adequacy compared with suction technique with no difference in diagnostic accuracy.

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Disclosure: Nothing to disclose.

PP1372

EARLY METABOLIC EVALUATION OF RESPONSE BY 13N-AMMONIA PET-CT IN PATIENTS WITH ADVANCED HEPATOCELLULAR CARCINOMA TREATED WITH ANTIANGIOGENIC THERAPY

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Introduction: Hepatocellular carcinoma (HCC) is the most frequent primary liver tumor, emerging on the background of cirrhosis in the vast majority of cases. It is characterized by high vascularization and recent evidence showed a derangement in the metabolism of nitrogen substrates in HCC. Antiangiogenic therapy is the standard of care for patients with advanced HCC or intermediate HCC ineligible to locoregional treatments (1).

However, these therapies are burdened by significant toxicity and high costs. Hence, it is important to early identify responders who can benefit from these agents and non-responders who can be candidate to alternative treatments (2). 13N-ammonia is a PET perfusion tracer that is mainly metabolized in the liver (3).

Aims & Methods: The aim of the present study was to assess the potential role of PET-CT with 13N-ammonia to evaluate early response to antiangiogenic agents in advanced HCC patients, correlating 13N-ammonia PET-CT response with CT mRECIST response. Secondary aims of the study were to evaluate 13N-ammonia PET-CT perfusion parameters (K1 and k2) in HCC lesions, non-neoplastic liver and the liver of patients without liver diseases undergoing PET-CT for cardiologic indications and to correlate HCC perfusion parameters with outcomes of response to treatment.

Eighteen consecutive patients (mean age: 67.3 ± 9.0 years) with advanced HCC underwent contrast-enhanced CT and dynamic PET-CT with 13N-ammonia (acquisition time 20 minutes; 370 mBq) before (baseline) and 8-10 weeks after (post-therapy) the start of antiangiogenic treatment. For each patient, quantitative analysis was performed: volumes of interest (VOIs) were drawn on the descending aorta, on up to five HCC lesions and on two non-neoplastic liver areas using baseline and follow-up contrast-enhanced CT, and transferred on baseline and follow-up PET-CT, respectively. K1 (ml/cm3/min), k2 (min-1) and K1/k2 parameters were estimated using one-tissue compartment model. For each patient, percentage changes in K1 and k2 parameters in HCC lesions (ΔK1, Δk2, ΔK1/k2) between baseline and follow-up PET-CT were correlated to mRECIST response criteria, used as standard reference.

Results: The comparison between CT mRECIST and PET-CT response demonstrated significant concordance (p=0.044).

At baseline, HCC lesions showed higher median K1 values than non-neoplastic liver (0.94 (IQR 0.67) vs. 0.42 (IQR 0.34), p=0.0003) and liver of patients without liver diseases (0.94 (IQR 0.67) vs. 0.44 (IQR 0.13), p=0.001). Median k2 values were also higher in HCC lesions compared with non-neoplastic liver (0.17 (IQR 0.14) vs. 0.07 (IQR 0.06), p=0.0006) and liver of patients without liver diseases (0.17 (IQR 0.14) vs. 0.04 (IQR 0.07), p<0.0001) at baseline.

The comparison of perfusion parameters between responders and non-responders according to mRECIST criteria showed no significant difference at both baseline and follow-up PET-CT.

Early progressors after treatment had higher baseline K1 values compared with early non-progressors (median 1.45 (IQR 0.78) vs. 0.68 (IQR 0.46), p=0.03). Similarly, median k2 values were inversely associated with early progression (early progressors 0.22 (IQR 0.13) vs. early non-progressors 0.14 (IQR 0.11)) with a trend towards statistical significance (p=0.07).

Conclusion: Dynamic 13N-ammonia PET-CT may be a promising metabolic tool to predict response to antiangiogenic therapy in patients with advanced HCC. Particularly, values of PET perfusion parameters may help to evaluate the response of antiangiogenic therapy and predict liver decompensation and death in patients with advanced HCC.

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Disclosure: Nothing to disclose.

PP1373

ASSESSMENT OF LIVER STIFFNESS IN SUBJECTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE WITH ILIVTOUCH AND FIBROSCAN: RESULTS OF PROSPECTIVE TRIAL

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Introduction: Liver stiffness measurements has become a "gold standard" for liver fibrosis assessment. New techniques based on the same physical principles have become available, but little is known about their comparative efficacy, especially in subjects with non-alcoholic fatty liver disease.

Aims & Methods: Aim: to compare the data of liver stiffness measurement with the use of FibroScan 502 (EchoSens, France) and iLivTouch FT200 (Wuxi Hisky Medical Technologies Co., China) devices.

Method: Subjects with non-alcoholic fatty liver disease (per EASL guidelines) who gave informed consent were eligible for the study (NCT05224037 at clinicaltrials.gov). All participants were examined on the same day with the use of both, iLivTouch FT200 (Wuxi Hisky Medical Technologies Co., China) (data are marked as LT) with a standard sensor, and Fibroscan 502 (EchoSens, France) with M or XL sensors depending on the patient's characteristics (FS). We compared the efficacy of examination and analyzed the results obtained with both devices depending on the stage of liver fibrosis. The null hypothesis was the absence of differences between the data obtained using both devices.

Results: The data of 105 people (58 women, mean age per group 52.8±12.6 years, BMI: 32.3±9.48 kg/m^2) were available. Success rate for FS was 68.7 ± 29% compared to LT: 86.9±19%; p<0.001. In 5 patients, it was impossible to conduct examination with FS, while it was possible to obtained at least 10 measurements using LT (in all cases BMI was >35 kg/m^2). In 1 case, it was not possible to obtain sufficient number of measurements with LT, although FS gave successful result.

There was significant direct correlation between the data of liver stiffness measurements obtained with both devices: Spearman rank R=0.56. However, comparison revealed significant difference in values: 9.6±6.6 kPa with LT vs 6.9±4.5 kPa using FS, p<0.0001.

In patients with NAFLD with advanced stages of liver fibrosis (F2+, n=29) the values of FS and LT were similar: 11.8±5.9 kPa for FS vs 13.9±7.9 kPa for LT, p=0.2. However, the values of liver stiffness differed significantly when subjects had milder stages (F0-1, n=71,) of liver fibrosis: 4.9±1.0 kPa for FS

vs 7.4±3.0 kPa, p<0.001. The agreement in liver fibrosis stage assessment (using cut-off values provided by the manufacturers) were as follows: for F0 - 56.9%, for F1-42.9%, F2-43.8%, F3-66.7%, and F4-70% of cases.
Conclusion: The results of liver stiffness obtained with Fibroscan and iLivTouch correlate closely. However, the agreement between studied techniques in subjects with non-alcoholic fatty liver disease is low.To make the measurements obtained with iLivTouch more accurate it may be necessary to develop new cut-off values that corresponds with different stages of liver fibrosis.
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Disclosure: Nothing to disclose.

PP1374

UTILITY OF THE MEASUREMENT OF THE DISPERSION SLOPE IN MULTIPARAMETRIC US FOR THE EVALUATION OF LIVER INFLAMATION

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Introduction: Currently, we can reliably and non-invasively determine steatosis and liver fibrosis by CAP/ATI/PDFF and ET/2D-SWE/MRE, respectively. However, it is not possible to accurately determine the inflammatory component without biopsy. In addition to 2D-SWE and Attenuation Imaging, some new multiparametric US devices incorporate the tissue viscosity-dependent 2D-SWD dispersion slope parameter. The liver is not a purely elastic but a viscoelastic organ, so that 2D-SWD measurement could be useful in the determination of necroinflammation. Our aim was to evaluate the correlation of SWD with the inflammatory component of MAFLD.
Aims & Methods: Prospective study. Immediately prior to liver biopsy (Tru-Cut 16G) in patients with suspected MAFLD, SWD (Canon Aplio i800) was performed. Exclusion criteria were: liver biopsy length <1.5 cm/<11 portal tracts, absence of MAFLD on final biopsy result (steatosis <5%). MAFLD was classified according to NASH-CRN. Normally distributed quantitative variables were described using the mean; otherwise, the median was calculated.
Results: 112 patients were included: age 53 years, women 55%, BMI 30.9 kg/m^2, diabetes 39%, GPT 62 U/L. Biopsy: 2.5 cm, 14 portal spaces. Fibrosis distribution was: F0 53 (46%), F1/F2 37 (32%), F3/F4 25 (22%). Steatosis distribution was: S1 35 (34%), S2 30 (29%), S3 39 (37%). Steatohepatitis: definite 52 (45%), absent 47 (41%), indeterminate 16 (14%). SWD values showed statistically significant differences between patients without steatohepatitis/indeterminate vs. steatohepatitis (13 (m/s)/KHz vs. 13.750 (m/s)/KHz; p=0.015). A positive linear correlation was also observed between SWD and NAS score (rho = 0.216; p=0.028). For the lobular inflammation component, a value of 14.5 (m/s)/KHz had Esp 89.5%, PPV 93.1%, while 10.5 (m/s)/KHz had Sens 90.5%, NPV 80.9%.
Conclusion: The SWD dispersion parameter determined by mulparametric ultrasound could be useful in the non-invasive assessment of liver inflammation and the diagnosis of steatohepatitis in MAFLD patients.
Disclosure: Nothing to disclose.

PP1375

TISSUE ATTENUATION IMAGING AND TISSUE SCATTER DISTRIBUTION IMAGING ARE RELIABLE FOR NAFLD DIAGNOSIS

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Introduction: Non-alcoholic fatty liver disease (NAFLD) is currently the most common chronic liver disease. NAFLD may lead to the development of non-alcoholic steatohepatitis, which further may progress to fibrosis, cirrhosis and hepatocellular carcinoma. Quantitative ultrasonography (QUS) has been recently introduced in to clinical settings as a method for the assessment of hepatic steatosis.
Aims & Methods: To investigate correlation of tissue attenuation imaging and tissue scatter distribution imaging with biochemical markers of NAFLD. This cross-sectional study included patients treated at the Gastroenterohepatology Clinic of the University Clinical Centre of Serbia, diagnosed with NAFLD. Demographic, etiological, biochemical, clinical, ultrasonographic, and endoscopic features were analyzed in all patients. Tissue attenuation imaging and tissue scatter distribution imaging was assessed using the QUS feature of the SAMSUNG RS80A device with a convex probe. The measurement reliability was determined using the Reliable Measurement Index (RMI) and Interquartile Range (IQR).
Results: Our study included 50 patients, among them 51% were male gender, while 49% were female gender, average age of 48 years. Mean TAI values were 0.65±0.16, mean TSI values were 94.01±12.8. There was statistically significant positive correlation between the values of cholesterol levels and these two scores (R=0.732, P<0.05). Furthermore there was statistically significant positive correlation between the values of HOMA IR with these two scores (R=0.866, P<0.05). Moreover these score were in positive correlation with GGT levels (R=0.669, P<0.05).
Conclusion: Our results support the usage of quantitative ultrasonography as a tool for the assessment and diagnosis establishment of NAFLD.
Disclosure: No conflict of interest to disclose.

PP1376

FIBROSCAN (TRANSIENT ELASTOGRAPHY), CONTROLLED ATTENUATION PARAMETER, AND SHEAR WAVE SPEED MEASUREMENTS IN NORTH-CENTRAL NIGERIA

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Introduction: Non-invasive assessment of liver structure is an invaluable current practice of hepatology.

The rate of obesity is increasing globally. Africa is not an exception as obesity has become quite prevalent in many parts of Africa like Nigeria.

Steatosis (excessive fat in the liver) can be assayed in the liver using a controlled attenuation parameter (CAP) during transient elastography (TE).

Aims & Methods: All patients fasted for at least 3 hours prior to carrying out a Fibroscan. The level of fibrosis was recorded in kPa and the CAP in dB/m. The machine (Fibroscan Expert 630) also recorded the Shear wave speed (SWS) in meters per second. Height and weight were obtained using a Stadiometer and BMI was extrapolated. Biodata was obtained using a questionnaire

Results: One thousand four hundred and nine participants (1,409) were studied. The mean age was 43.84 (sd=14.27) years. About Sixty-five percent (64.84%) were males. The commonest (57.5%) indication for Fibroscan was Chronic Hepatitis B (CHBVI). Alcohol consumption and or suspicions of fatty liver disease made up about Nine percent (8.93%) of the indications. About 48% had higher-than-normal BMI.

About 81% had steatosis stage S0 (<248 dB/m). Nineteen percent had different degrees of steatosis. The largest group was S3 (280dB /m and above) with 9.6 %. Stage S1 (2458-267dB/m) was 5.7%. About 20% had significant fibrosis (14.0kPa and above) via TE measurement.

Age had a weak positive correlation (+0.185) with TE scores while BMI had a weak negative correlation (-0.162) with TE scores. On the other hand, the CAP score was strongly and positively (+0.461) correlated with BMI but negatively (-0.073) with SWS. P=0.001

On multiple regression, only BMI (B =4.09) significantly predicts CAP score by about 4 folds, p=0.0001.

Conclusion: The rate of obesity is increasing among adults in North-central Nigeria. Among this cohort, it's clear that as BMI increases, the degree (Stage) of steatosis also increases.

Disclosure: Nothing to disclose.

PP1377

LIVER STEATOSIS ASSESSMENT BY NEW ULTRASOUND-BASED QUANTITATIVE METHODS

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Introduction: The **aim** of this study was to evaluate and to establish cut-off values for two new quantitative ultrasound (QUS) parameters, TSI (tissue scatter-distribution imaging) and TAI (tissue attenuation imaging) in early diagnosis of liver steatosis (LS), as compared to controlled attenuation parameter (CAP).

Aims & Methods: A prospective study was conducted in which LS was assessed in the same session by QUS (Samsung Medison RS85,CA1-7A probe) and CAP (FibroScan Compact M530, M/XL probes). Reliable measurements were defined for CAP the median value of 10 measurements with IQR/M<0.3, and for QUS, five consecutive measurements of TAI and TSI acquired by a color-coded map. TAI and TSI were automatically calculated and considered reliable when reliability index, R^2>0.6. The CAP cut-off value used for the whole cohort for at least mild steatosis (S1) were 248 dB/m[1]; for ALD (alcoholic liver disease) cohort, 268 dB/mm[2]; for NAFLD(non-alcoholic liver disease) cohort 294dB/m[2]. Demographic and health related datas were recorded.

Results: A total of 285 patients, with a mean age of 56.1±12.4, 114 female and 171 male, were included in the study. According to aetiology, 164 (57.5%) patients had NAFLD, 61(21.4%) ALD, and 60 (21.1%) were other etiologies (viral, cardiac, autoimmune). The obtained TSI and TAI cut-off values for the diagnosis of at least mild steatosis (S1) are presented in Table 1.

Variable		Overall	NAFLD	ALD
TSI	S1	**>96.2** AUC=0.74,p<0.0001, Se=87.9%,Sp=53.0%;	**>96.5** AUC=0.73, p<0.0001, Se=90.9%, Sp=47.9%;	**>94.9** AUC=0.70, p=0.003 Se=72.9%,Sp=75.0%;
TAI	S1	**>0.73** AUC=0.82,p<0.0001, Se=78.3%,Sp=71.6%;	**>0.75** AUC=0.81, p<0.0001, Se=57.5%, Sp=90.8%;	**>0.66** AUC=0.74, p<0.0001, Se=84.8%,Sp=57.1%;

Table 1. Cut-off values of TAI and TSI for S1

There were no differences between the performance of TAI and TSI according to the DeLong test, p=0.18 and p=0.24. A strong direct correlation was observed between TAI and CAP r=0.701, moderate between TSI and CAP r=0.56 for the all cohort, but for NAFLD and ALD subgroups moderate correlations were found between TAI and CAP r=0.66, and r=0.66 respectively and TSI and CAP r=0.56 and 0.66, respectively.

In univariate regression analysis, the factors associated with TSI were hypertension, Diabettes mellitus(DM), and obesity, and all p-values were <0.0001, but in multivariate analysis, only hypertension(p=0.001) and obesity(p=0.0005) were associated. For TAI, in univariate analysis, the same factors: hypertension(p=0.004), obesity(p=0.0006) and DM (p=0.002) were associated, but in multivariate analysis, DM was the only factor associated, p=0.02. Age and gender were not correlated with any method, TSI or TAI.

Conclusion: TAI and TSI are feasible non-invasive methods for screening and diagnosis of liver steatosis, with good accuracy. Patients with NAFLD presented highest cut-off values, probably by the presence of DM and obesity, conditions independently associated with TAI and TSI values.

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Disclosure: Nothing to disclose.

PP1378

QUALITY OF TISSUE SAMPLES OBTAINED BY ENDOSCOPIC ULTRASOUND-GUIDED LIVER BIOPSY: A RANDOMISED, CONTROLLED CLINICAL TRIA

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Introduction: Liver biopsy (LB) remains essential for the diagnosis and staging of parenchymal liver diseases. Endoscopic ultrasound-guided LB (EUS-LB) has emerged as an attractive alternative to percutaneous and transjugular routes.

Aims & Methods: Our aim is to compare the sample adequacy of EUS-LB with percutaneous LB.

Methods: A single-centre, randomized, controlled clinical trial was designed. Patients undergoing LB were randomly assigned to EUS-LB or percutaneous LB. EUS-LB was performed with a 19-gauge Franseen core needle through transduodenal and transgastric route. Percutaneous LB was done with a 16-gauge Tru-cut needle.

Main outcome was the percentage of adequate samples obtained.

Secondary outcomes were the percentage of accurate histological diagnosis, number of complete portal tracts (CPT), total and longest specimen length (TSL, LSL), sample fragmentation, adverse events (AE), and patients' satisfaction. An adequate specimen was defined as TSL≥20 mm and including ≥11 CPT.

Results: 90 patients were randomized (44 to EUS-LB and 46 to percutaneous LB) and included in the analysis. Percentage of adequate tissue samples was 32.6% and 70.4% for percutaneous LB and EUS-LB respectively (p<0.001). A final histological diagnosis was provided in all cases but one. TSL was longer after EUS-LB (23.5 mm vs 17.5 mm, p=0.01), while number of CPT was similar in both groups. Sample fragmentation occurred more often after EUS-LB (p<0.001). No differences in AE were found. Satisfaction reported with both procedures was high

Conclusion: EUS-LB is safe and accurate, and may be considered as an alternative to percutaneous LB for the evaluation of parenchymal liver diseases.

Disclosure: Nothing to disclose.

PP1379

POLYCOMB PROTEIN SUZ12 PREDICTS POOR SURVIVAL OF HEPATOCELLULAR CARCINOMA AND PROMOTES INVASION POTENTIAL VIA ACTIVATING CXCR7 TRANSCRIPTION

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Introduction: Hepatocellular carcinoma (HCC) is a well-known deadly malignancy, accounting for about 8.2% cancer-related death worldwide. Particularly, invasion and metastasis is still the main obstacle to improve the survival of advanced HCC patients. Although high-throughout screen, such as GWAS, whole exon-sequencing, RNA sequencing has uncovered some genetics changes, the driver genes are relatively low mutation ratio in HCC. On the other hand, accumulated evidence suggests that cancer cells can use the similar regulation mechanisms in mammalian development. Our previous work revealed that goosecoid, which plays critical roles in gastrulation and neural crest development could promote the metastasis of HCC by modulating the epithelial-mesenchymal transition. However, the underlying development-related mechanisms utilized by HCC cells remain largely unknown, particularly genes involving epigenetic changes.

Aims & Methods: Aims: Polycomb proteins, such as EZH2 and EED, have been widely revealed involving in development and cancer. However, the roles of another development-related polycomb protein suppressor of zeste 12 (SUZ12) in cancer remains largely unknown. Here, we investigated the roles of SUZ12 in hepatocellular carcinoma (HCC) and the underlyling mechanisms.

Methods: Tissue microarray based on 88 tumor tissues and 27 normal liver tissues was used to examine the expression level of SUZ12. The gain- and loss- of function analysis was conducted to evaluate the effects of SUZ12 on the proliferation, migration and invasion of HCC cells. Meanwhile, luciferase reporter assay and RT-PCR assay were conducted to examine the effect of SUZ12 on the transcriptional activity of chemokine receptors 7 (CXCR7).

Results: High frequency of 17q amplification including SUZ12 locus in HCC was revealed through genome sequencing. Further, SUZ12 expressed relatively higher in tumor tissues and HCC cell lines, particularly in HCC cells with highly metastatic potential. Clinically, high SUZ12 expression was an independent prognostic factor for poor overall survival (hazard ratio =2.540, p = 0.002) of HCC patients, which was further confirmed by analyses of TCGA based database. Functionally, in vitro assays revealed that up-regulation of SUZ12 promoted the migration and invasion of HCC cells, whereas down-regulation of SUZ12 inhibited the migration and invasion potentials.

Furthermore, we found SUZ12 strongly upregulated the transcriptional level of CXCR7 screened from chemokine receptors family. Also, CXCR7 was revealed to contribute to the tumor-promoting roles of SUZ12.

Of interest, luciferase reporter assay revealed SUZ12 positively controlled the CXCR7 via direct promoter combination but not epigenetic suppression. Moreover, high SUZ12 expression was positively correlated with CXCR7 in advanced patients with portal vein invasion.

Conclusion: These findings indicate that SUZ12 is associated with the poor survival of HCC, and promotes the invasion potential of HCC cells partially by activating CXCR7 transcription. This non-classical transcriptional control of SUZ12 in HCC warrants future exploration.

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PP1380

ALTERED ANNEXIN EXPRESSION PROFILES IN HEPATOCARCINOGENESIS: INSIGHTS FROM AN EXPERIMENTAL MODEL

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Introduction: Hepatocellular carcinoma (HCC) is one of the most common and second most lethal liver cancer in the world (1). Unfortunately, only 18% of patients bearing HCC have a 5-year survival rate, which places it as the second most lethal cancer, preceded only pancreatic cancer (2).
Therefore, a strategy that could reduce mortality from HCC is to develop an early diagnosis approach based on identifying new biomarkers. Based on a previous transcriptomic study in our lab, which revealed that annexins gene expression was modified in microdissected HCC nodules (3).
Annexins A1, A2, A5, A8, and A10 belong to the A family of annexins that are Ca^{2+}-regulated phospholipid-binding proteins. Members of this family can be peripherally coupled to the surface of negatively charged membranes when they are calcium-linked. This capability provides them with membrane-bound functions, such as organization, transport, and interaction with the actin cytoskeleton (4). The rat hepatocarcinogenesis model, induced with diethylnitrosamine (DEN), has proven to be highly effective in replicating the development of cirrhosis and heterogeneous multinodular HCC within 18 weeks. DEN's alkylating properties induce chronic liver damage, leading to inflammation and fibrosis that are associated with cirrhosis and HCC. This closely resembles the development of HCC in humans (5, 6).
Aims & Methods: We aimed to further investigate the expression profile of five annexin genes in a well-established animal model of hepatocarcinogenesis associated with cirrhosis and to identify potential serological markers for early HCC. The gene expression products of annexin were analyzed by RT-qPCR and western blots. Both mRNA and proteins were extracted from rat liver tissue at preneoplastic stages at 6 and 12 weeks and neoplasia at 18 and 22 weeks.
Also, immunofluorescence was performed on rat liver samples and compared to HCC of clinical origin. Plasma samples were collected from the experimental model, and we used the ELISA technique to measure the serum levels of Annexin A1, A2, and A5.
Results: A gradual increase of annexin A1, A2, A5, and A10 was observed in liver of hepatocarcinogenesis-induced animals compared to normal liver both at mRNA and protein levels, being a statistically significant increase for annexin A1 and A5 since week 6 of the hepatocarcinogenesis model. In contrast, annexin A8 showed a significant decrease in protein levels. The histological location of annexin A1, A2, and A5 was in the tumor cells. The cellular location for annexin A1 and A5 observed in the cytoplasm and membrane of normal hepatocytes showed a re-localization to the nucleus of neoplastic cells. Notably, a significant increase in the plasma level of annexin A5 from week 12 was detected, with a gradual increase until week 22 in the hepatocarcinogenesis model.
Moreover, the plasmatic level of annexin A5 significantly correlated (r^2 = 0.8203) with the hepatic Annexin A5 level. Using the TCGA database, we found that the expression of ANXA2 (HR = 1.7, p = 0.0046) and ANXA5 (HR = 1.8, p = 0.00077) was associated with poor survival in HCC patients.
Conclusion: The results suggest that the expression profile of annexin A1, A5, and A10 may serve as early tumor markers, whereas annexin A2 and A8 could be used as markers of hepatocellular carcinoma progression, given their expression changes during advanced stages of hepatocarcinogenesis. Significantly, the presence of annexin A5 in the plasma of model animals suggests its potential as a biomarker for hepatocarcinogenesis.
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PP1381

DOES *PNPLA3*, *TM6SF2* AND *HSD17B13* GENETIC VARIANTS HAVE ANY ROLE IN THE PROGRESSION OF CHRONIC HEPATITIS B VIRUS?

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Introduction: Genetic predisposition to accumulate fat by carrying risk alleles of PNPLA3, TM6SF2 and HSD17B13, has been shown to influence the probability of developing cirrhosis and hepatocellular carcinoma (HCC) in several liver diseases characterized by hepatic steatosis including non-alcoholic steatohepatitis, chronic hepatitis C and alcoholic liver disease. Whether these variants have any role in the progression of chronic hepatitis B (CHB) disease, without hepatic steatosis, remains unknown.
Aims & Methods: In this cross-sectional case-control study, we determined PNPLA3 rs738409, TM6SF2 rs58542926, and HSD17B13 rs72613567 variants in a cohort of 148 healthy controls, 91 CHB (57 cirrhotic and 34 non-cirrhotic), and 84 CHB-related HCC patients from a tertiary center. Associations between control and case groups with the alleles and geno-

types were investigated using logistic regression analyses, and adjustment for age and sex was applied. Survival analyses were performed using Kaplan-Meier Curves with the log-rank test in the CHB-related HCC cohort.

Results: The genotype and allelic distribution of PNPLA3, TM6SF2 and HSD17B13 were not different between healthy controls, CHB, cirrhosis and HCC groups. No genotype or allele, including the haplotype analysis, was found to be associated with susceptibility to CHB and increased risk for cirrhosis or HCC. Survival analysis revealed that none of the three variants has any influence on overall survival in patients with CHB-related HCC.

Conclusion: Our findings demonstrated that PNPLA3, TM6SF2, and HSD17B13 genetic variants, known for modulating liver fat and disease progression in hepatic steatosis, have no association with disease progression in patients with CHB and survival in CHB-related HCC.

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Disclosure: Nothing to disclose.

PP1382

LONG NON-CODING NPTN-IT1 AS A NEW THERAPEUTIC MODALITY FOR HEPATOCELLULAR CARCINOMA

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Introduction: Hepatocellular carcinoma (HCC) is still an extremely poor prognostic cancer that remains one of the most common and aggressive human malignancies worldwide. The long noncoding RNAs (lncRNAs) have a wide range of functions, including gene transcription, epigenomic regulation, translation of protein-coding genes, RNA turnover, chromatin organization, and genome defense. LncRNAs provide the basis and justification to further develop applications of lncRNA as disease markers and therapeutic targets. LncRNA NPTN-IT1 plays a decisive role in hypoxia-induced metastasis in HCC, and when NPTN-IT1 is downregulated, patients usually face a poor prognosis.

Aims & Methods: In this study, a new therapeutic modality using lncRNA NPTN-IT1 was designed to control HCC progression. Sixty mice were included and categorized into three groups.

The 1st group acted as a normal control group, whereas the 2nd group acted as a pathological control group and was injected with N-Nitrosodiethylamine (DEN) weekly for 16 weeks. The 3rd Group was injected intrahepatically with lncRNA NPTN-IT1 once/week for four weeks starting from the 12th week after initiating the DEN injection. After 16 weeks, animals were euthanized, and liver specimens and blood samples were collected for pathological and biochemical assessment.

Results: Our results showed that lncRNA NPTN-IT1 administration showed regression of HCC with the restoration of normal architecture. The levels of AFP, VEGF, and TNF-α decreased significantly ($P< 0.001$), and the Relative expression of cyclin-D1 and TGF-b1 was significantly down-regulated ($P< 0.001$) after NPTN-IT1 administration.

Conclusion: LncRNA NPTN-IT1 can be considered a new therapeutic modality for Hepatocellular carcinoma.

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Disclosure: Nothing to disclose.

PP1383

MODULATION OF STELLATE CELL EPITHERLIAL-MESENCHYMAL TRANSITION BY URSODEOXYCHOLIC ACID IN RATS WITH BILIARY CIRRHOSIS

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Introduction: Biliary cirrhosis is inevitably accompanied by liver fibrosis, which is characterized by an increase in extracellular matrix (ECM) in the liver along with continuous destruction of liver cells. Until now, many studies have been conducted on the theory of secretion of ECM components by activation of hepatic stellate cells. Ursodeoxycholic acid (UDCA) is a representative hydrophilic endogenous bile acid and has been approved by the FDA. Epithelial-Mesenchymal Transition (EMT) means that epithelial cells lose their cell adhesion and polarity maintenance and are converted into mesenchymal cells. The EMT phenomenon is recognized as a very important molecular/cell physiological factor that causes fibrosis of various organs.

Aims & Methods: We investigated whether UDCA regulates fibrosis-related gene expression and EMT-related protein expression in hepatic stellate cells and conducted an experiment to confirm this in an animal model of biliary cirrhosis.

First, to analyze the regulation of fibrosis-related gene expression in hepatic stellate cells by UDCA, quantitative RT-PCR was performed for α-SMA, Collagen-I, vimentin, and TGF-β1 gene expression in LCX2cells.

Second, the level of phosphorylation of Smad3 in the same cells was quantitatively analyzed by WesternBlot method to measure the regulation of EMT-related protein expression.

Thirdly, the regulation of EMT-related gene and protein expression by UDCA was tested in the same way in the rat common bile duct ligation-model.

Results: As a result, UDCA induces a decrease in target protein expression by reducing the expression of genes related to fibrosis in hepatic stellate cells, which is accompanied by inactivation of the TGF-β 1/Smad3 signaling system, which is an upstream regulator of fibrosis and an EMT-related protein. identified. This effect of UDCA was confirmed to be reproduced in an animal model of biliary cirrhosis.

Conclusion: Through this, the researcher identified that UDCA functions to down-regulate EMT and eventually delay liver fibrosis.

Disclosure: Nothing to disclose.

PP1384

PREDICTIVE FACTORS OF SURVIVAL IN PATIENTS WITH HEPATOCELLULAR CARCINOMA TREATED WITH TRANSARTERIAL CHEMOEMBOLIZATION

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Introduction: Transarterial chemoembolization (TACE) is the first-line treatment for hepatocellular carcinoma (HCC) that cannot be treated with curative methods. It has been shown to be effective in improving radiological response rate and progression-free survival. However, the success of the treatment depends on the appropriate selection of patients.

Aims & Methods: The aim of our study was to identify predictive factors for overall survival (OS) following the first TACE session in patients with HCC on a cirrhotic liver.

We conducted a retrospective study including all patients followed for HCC complicating liver cirrhosis in the general surgery and gastroenterology departments of our Hospital treated by chemoembolization, during the period from January 2011 to December 2020. Median OS was estimated using Kaplan – Meier curves. Univariate and multivariate Cox regression analyses were applied to identify prognostic factors. Differences were considered statistically significant when corresponding p values were less than 0.05 (SPSS software version 26.0).

Results: Fifty-five patients with a mean age of 60±12 years were included in the study. The mean follow-up duration was 16.9 months. Technical aspects of TACE were reported in 48 out of 55 sessions, and radiological response was evaluated in 43 patients. Conventional TACE was performed in 18 cases (37.5%), and TACE with Drug Eluting Beads (DEBs) was performed in 30 cases (62.5%). Cisplatin was used in 9 cases (18.8%), and doxorubicin was used in 39 cases (81.2%). Out of the 43 patients evaluated, 10 (23.3%) showed a complete response, 10 (23.3%) showed a partial response, 6 (13.9%) showed stable disease, and 17 patients (39.5%) showed progression. The median survival was 10 months (range: 6.4-13.26). The survival rates at 3, 12, and 18 months were 81.3%, 33.5%, and 5%, respectively.

Univariate analysis showed that factors associated with significantly shorter survival were age ≥ 60 years (p = 0.04), lack of prior HCC treatment (p = 0.012), a size of the main lesion exceeding 20 mm (p = 0.042), a number of nodules of more than 4 (p = 0.047), the BCLC B stage (p = 0.039), conventional TACE (p = 0.023), the use of cisplatin as a chemotherapy molecule (p = 0.008), and an advanced CHILD score after the 1st TACE session (p = 0.001).

Multivariate analysis identified the absence of previous treatment for HCC (0,044 ; OR = 0,3), a size of the main lesion ≥ 20 mm (0,029 ; OR = 4,6), BCLC stage B (0,016 ; OR = 5,27), the use of cisplatin (0,046 ; OR = 3,24), and an advanced Child score (B or C) after the 1st TACE (0,029 ; OR = 5) session as independent predictors of mortality.

Conclusion: Our study demonstrated that the prognosis of HCC patients treated with TACE depends on various factors, including tumoral characteristics, technique procedure, and liver function. These variables are widely incorporated into prognostic scores such as NIACE, Six and Twelve, STATE, and HAP. Identifying predictive factors for survival can aid in therapeutic decision-making due to the large number of patients affected by this procedure and the heterogeneity of HCC.

Disclosure: Nothing to disclose.

PP1385

ENDOSCOPIC ULTRASOUND-GUIDED FINE-NEEDLE ASPIRATION IN THE DIAGNOSTIC VALUE OF FOCAL LIVER LESIONS: A SYSTEMATIC ANALYSIS OF 88 CASES

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Introduction: Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) is an important diagnostic tool for suspected parenchymal lesions within the gastrointestinal tract and adjacent organs. However, the amount of literature on EUS-FNA for sampling focal liver lesions (FLLs) is limited.

Aims & Methods: This study aims at evaluating the safety and effectiveness of EUS-FNA in FLLs. Data from 88 patients who were diagnosed with FLLs by imaging and underwent EUS-FNA was reviewed in this retrospective study at the Second Affiliated Hospital of Soochow University and Ruijin Hospital of School of Medicine of Shanghai Jiao Tong University from 1 January 2017 to 31 August 2022.The EUS-FNA biopsy results were compared with the final diagnosis to evaluate the diagnostic value. Meanwhile, the relevant factors were analyzed to determine their influences on the EUS-FNA biopsy results.

Results: A final diagnosis was obtained (86 malignant and 2 benign) from the 88 cases. The overall diagnostic accuracy of EUS-FNA in FLLs was 93.18% (82／88; 95% confidence interval [CI],87.9–98.5), with a sensitivity, specificity, positive predictive value, and negative predictive value of 93.02% (80／86; 95%CI, 87.6–98.4), 100% (2／2; 95%CI, 100–100), 100% (80／80; 95%CI, 100–100), and 25% (2／8; 95%CI, -5–55.0), respectively . The parameters related to lesion and procedure were not statistically significant between these two groups (p> 0.05) (Table 1). The number of puncture needles in the groups showed a statistically significant difference between multiple and single punctures (p = 0.001).

Conclusion: It is revealed in this study that EUS-FNA is a safe and excellent diagnostic method for FLLs with high accuracy.

Disclosure: Nothing to disclose.

PP1386

RELIABILITY OF THE TORONTO HCC RISK INDEX IN PREDICTING THE OCCURRENCE OF HEPATOCELLULAR CARCINOMA

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Introduction: Hepatocellular carcinoma (HCC) is the leading cause of death in patients with cirrhosis. Indeed, several risk stratification scores have been developed to anticipate early detection in order to better codify their management, including the Toronto Hepatocellular Carcinoma Risk Index (THRI). It is a simple and validated tool that has been developed to predict the risk of HCC in patients with cirrhosis and is mainly based on the following parameters: etiology, age, sex and platelet count.

The objective of this study was to evaluate the reliability of the THRI score in predicting the occurrence of hepatocellular carcinoma.

Aims & Methods: We conducted a monocentric retrospective study collecting all cirrhotic patients over an 8-year period [2008-2015]. Clinico-biological data, disease severity, and long-term outcomes were collected. THRI was calculated for all patients, and were classified according to HCC risk into three levels : low HCC risk (<120), intermediate HCC risk (between 120 and 240), and those with high HCC risk (>240).

A statistical study using the SPSS tool was carried out. The performance of this score was evaluated with the area under the receiver operating characteristics curve (AUROC).

Results: We included 120 cirrhotic patients with an M/F sex ratio equal to 0.5. The mean age was 57 years [14-85]. The most frequent aetiology of cirrhosis were viral C (49%) and viral B (31%). The mean overall survival was approximately 6 years after diagnosis.

Twenty-five patients developed HCC during follow-up (20.8%). Patients who developed HCC had a higher THRI score than those who did not develop HCC : 264.8 ± 48.6 versus 232.3 ± 64.8, respectively with p-value = 0.008

Patients with a low risk of HCC were 5 (4.2%), none of whom had developed HCC. Fifty-eight patients (48.3%) were at intermediate risk, 12% of them (N=7) had developed HCC. The remaining 57 patients (47.5%) were at a high risk and 31.6% of them (N=18) developed HCC during their follow-up.

The AUROC for the THRI to predict HCC was 0.649 ([95% CI 0.533–0.765]. The cutoff THRI value in predicting the occurrence of HCC was 235.5 with a sensitivity of 72% and a specificity of 50%.

Conclusion: According to our study, the THRI score appears to be an effective tool for predicting the occurrence of HCC in cirrhotic patients. Its good sensitivity allows to identify the high-risk HCC population for early screening.

Disclosure: Nothing to disclose.

PP1387

THE UNEXPECTED LACK OF NEGATIVE IMPACT OF THE COVID-19 PANDEMIC ON HEPATOCELLULAR CARCINOMA SURVEILLANCE

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Introduction: The COVID-19 pandemic negatively affected cancer patients' care in many ways, including the timely diagnosis of malignancies.[1,2] Hepatocellular carcinoma is a tumor with well-defined risk factors that is potentially curable if detected in the early phase. Biannual ultrasound in high-risk patients has proven to be a valuable tool for accomplishing this goal and has therefore long been recommended.[3] However, in Western countries, the reported adherence to surveillance protocols was low in pre-pandemic years.[4] Since the declaration of the pandemic, primarily during the lockdown, but also in the post-lockdown period, many patients missed their regular check-ups, and physicians feared a further fall in surveillance adherence and a rise in the proportion of patients presenting with advanced disease.

Aims & Methods: The aim of this study was to assess whether the pandemic influenced the hepatocellular carcinoma (HCC) surveillance program. 350 patients (80.9% male, median age 66.9 years) treated at our Department between October 2010 and February 2023 due to newly diagnosed HCC were included in the analysis. The ongoing COVID-19 pandemic was declared in March 2020. Patients were divided into groups according to the time of HCC diagnosis (pre-pandemic and during the pandemic) and into surveillance and non-surveillance groups. Chi-square test was used to analyze the results. The level of statistical significance was set at $p < 0.05$.

Results: The number of newly diagnosed HCC cases was 28.4/year pre-pandemic and 27.7/year during the pandemic. There was no statistically significant difference between surveillance rates pre-pandemic (21.8%) and during the pandemic period (27.0%, P=0.385), nor in the proportion of patients that presented with symptomatic disease (P=0.314). During the pandemic, patients were more likely to be diagnosed in the potentially curative stage of the disease (BCLC 0 and BCLC A) (20.9% vs. 36.1%; OR 2.13, 95% CI:1.25-3.65; P=0.005).

Conclusion: Surprisingly, the pandemic did not influence HCC surveillance rates. Moreover, in this period, patients were more likely to be diagnosed in the potentially curative stage of the disease. Even though the benefits of HCC surveillance are well known and its implementation widely encouraged, the rates have been stably low over the last decade.

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PP1388 WITHDRAWN

PP1389

THE ROLE OF PDRM1 GENE AND VDR GENE POLYMORPHISMS IN HCV RELATED HEPATOCELLULAR CARCINOMA PATIENTS

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Introduction: Hepatocellular carcinoma (HCC) is a common malignancy worldwide. A tumor suppressor gene called PRDM1 is necessary for plasma cell development and T cell activity control. Different types of cancers have been linked to polymorphisms in the vitamin D receptor (VDR) gene.

Aims & Methods: This study was conducted to determine whether there may be a link between the polymorphisms in the VDR and PRDM1 genes and the development of HCC in patients with chronic hepatitis C.130 participants in this study were divided into three groups. 30 healthy individuals made up Group 1's control group. 70 chronic hepatitis C patients with HCC were in group 2. Group 3 contains 30 patients with post hepatitis C liver cirrhosis without HCC. Estimation of PDRM1 gene and Apa-1 VDR gene polymorphisms was done using the polymerase chain reaction- restriction fragment length polymorphism.

Results: As regard PDMR1 gene, In comparison to the HCC and cirrhosis group, the rates of the G allele and the GG phenotype in the control group were significantly higher. However, compared to cirrhosis and controls, the rates of the GA genotype and the A allele were considerably higher in the HCC patients. Additionally, the people with AA or GA genotypes have a 2-fold higher chance of developing HCC than those with GG genotypes when comparing the HCC group with the non-HCC group (controls and

cirrhotic patients) (odd ratio = 2.045% and 95% confidence interval are (1.123–3.722) (*P* = 0.019).As regard VDR gene, In comparison to the HCC and cirrhosis group, the rates of the A allele and the AA phenotype in the control group were significantly higher. However, compared to cirrhosis and controls, the rates of the CC genotype and the C allele were considerably higher in the HCC patients.

Conclusion: In patients with chronic hepatitis C, there is association between VDR Apa-1 polymorphism and RDM1 gene polymorphism with the development of HCC.

Disclosure: Nothing to disclose.

PP1390

RISK ASSESSMENT OF HEPATOCELLULAR CARCINOMA BY ELASTOGRAPHYHY: A SYSTEMIC REVIEW

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Introduction: HCC is the sixth most common malignancy worldwide and a major cause of death in patients with CLD and cirrhosis. it accounts for 90% of primary liver cancer.

it is important to detect patient with high risk to develop HCC. Liver fibrosis (LF) is a major risk factor regardless of its etiology.

Using of liver biopsy is limited by its invasiveness, poor acceptance, cost, intra and interobserver errors. TE for liver can rapidly measure liver stiffness and also can predict the absence or presence of significant fibrosis as well as advanced cirrhosis.

Aims & Methods: To assess the ability of TE for detection of LF and HCC in patients with CLD. we searched MEDLINE, Cochrane, EMBASE database until 2019, using the following search items: TE, fibroscan, HCC and hepatoma. Each title and abstract was reviewed to make sure it is relevant. The full text was studied if the abstract indicated that the paper reported HCC risk by fibroscan. sensitivity analysis and assessment of publication bias were performed.

Results: Forty-six studies were included, 18 studies evaluated the role of LSM in predicting HCC in CLDs patients, 6 studies evaluated the role of LSM in predicting hepatic decompensation, 1 study reported a composite outcome of HCC and hepatic decompensation, and 4 studies evaluated the role of LSM in predicting mortality.

Conclusion: HCC is associated with increased LS. Each unit increase in LSM was associated with an 11% higher risk of HCC. LSM may be a useful method to identify patients with CLD at risk for HCC.

Disclosure: Nothing to disclose.

PP1391

BACTERIAL INFECTIONS AND FEVER AFTER HEPATOCELLULAR CARCINOMA ABLATION THERAPY: PREDICTIVE ROLE OF PROCALCITONIN

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Introduction: Hepatocellular carcinoma (HCC) is a leading cause of mortality among patients with liver cirrhosis. Per the current practice guidelines different ablations are used either as curative or palliative therapies. The current study aimed at determining bacterial infections as causes of fever and the predictive role of procalcitonin (PCT) among patients with HCC who had ablation therapy.

Aims & Methods: This cross sectional study carried out on 100 patients with HCC during the period from November 2019 to December 2021. All patients were evaluated by full history taking, clinical examination, CBC, liver biochemistry, coagulation profile, kidney function, C-reactive protein (CRP), serum PCT and blood cultures. All were done for all participants at 4th day follow up after the procedures of ablation. HCC were treated according to the guidelines.

Results: The frequency of fever after HCC ablation was 64% with variable intensities. Bacterial cultures were positive in 20 patients (20%). Twenty four out of 100 patients had abnormally high PCT level. There was highly statistically significant increase of PCT level in patients with high CRP count and positive blood culture, P<0.05. There was statistically significant correlation between increased levels of PCT and levels of CRP, WBCs, Albumin, AST, ALT, degree of fever, Creatinine and BUN.

Variable	AUC	p-value	Cut off	Sensitivity	Specificity	PPV	NPV	Accuracy
CRP	0.965	<0.001*	>28	90.0	92.5	75.0	97.4	92.0
Procalcitonin	1.0	<0.001*	>0.66	100.0	100.0	100.0	100.0	100.0

Abbreviations: AUC, area under the curve; NPV: Negative predictive value;
PPV: Positive predictive value ; *: Statistically significant at p ≤ 0.05 #Cut off was chosen according to Youden index.

Conclusion: Bacterial infection accounts for 20% of fever among HCC patients after ablation therapy. PCT is 100% sensitive and specific for detection of the bacterial causes of fever among those patients.

Disclosure: None

PP1392

CONTRAST-ENHANCED ULTRASOUND FOR THE DIAGNOSIS OF HEPATOCELLULAR CARCINOMA IN ADULTS WITH CHRONIC LIVER DISEASE. A COCHRANE SYSTEMATIC REVIEW

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Introduction: Hepatocellular carcinoma (HCC) is a global problem being fourth in terms of cancer-related deaths[1]. Contrast-enhanced ultrasound (CEUS) is used as an add-on test to confirm focal liver lesions suspected as HCC at prior diagnostic tests such as ultrasound or alpha-foetoprotein, or both[2,3].

According to guidelines[4,5,6,] a single contrast-enhanced imaging techniques, with either computed tomography (CT) or magnetic resonance imaging (MRI) showing the typical hallmarks is sufficient to diagnose HCC in cirrhotic patients. However, a significant number of HCC show atypical imaging features, and therefore, are missed at imaging.

The advantages of CEUS over CT and MRI is the use of contrast agents not containing iodine and that are not nephrotoxic, and quick image acquisition. Despite the advantages, the use of CEUS in the diagnostic algorithm for HCC remains controversial, with disagreement on relevant guidelines.

Aims & Methods: The aim was to assess the diagnostic accuracy of CEUS for the diagnosis of HCC of any size and at any stage in adults with chronic liver disease, in a surveillance programme or in a clinical setting and to assess the diagnostic accuracy of CEUS for the diagnosis of resectable HCC in people with chronic liver disease and identify potential sources of heterogeneity in the results.

We included studies assessing the diagnostic accuracy of CEUS for the diagnosis of HCC in adults with chronic liver disease, with cross-sectional designs, using one of the acceptable reference standards, such as pathology of the explanted liver, and histology of resected or biopsied focal liver lesion with at least a six-month follow-up.

Standard Cochrane methods [7] were used to screen studies, extract data, and assess the risk of bias and applicability concerns, using the QUADAS-2 checklist[8]. We used the bivariate model and provided estimates of summary sensitivity and specificity. We assessed the certainty of the evidence using GRADE[9,10]. We presented uncertainty-of-the-accuracy estimates using 95% confidence intervals (CIs).

Results: We included 23 studies with 6546 participants. Studies were published between 2001 and 2021. We judged all 23 studies at high-risk of bias in at least one domain, and 13/23 studies at high concern for applicability. Most studies used different reference standards to exclude the presence of the target condition. The time interval between the index test and the reference standard was rarely defined. We also had major concerns on their applicability due to the participant characteristics.

CEUS for HCC of any size and stage: sensitivity 77.8% (95% CI 69.4% to 84.4%) and specificity 93.8% (95% CI 89.1% to 96.6%) (23 studies, 6546 participants; very low-certainty evidence).

CEUS for resectable HCC: sensitivity 77.5% (95% CI 62.9% to 87.6%) and specificity 92.7% (95% CI 86.8% to 96.1%) (13 studies, 1257 participants; low-certainty evidence).

The observed heterogeneity in the results remains unexplained.

Conclusion: Using CEUS, as an add-on test following abdominal ultrasound, to diagnose HCC of any size and stage, 22% of people with the tumor would be missed, and 6% of people without would unnecessarily undergo further testing or inappropriate treatment. As to resectable HCC, we found that 23% of people with resectable tumor would incorrectly be unresected, while 8% of people without HCC would undergo further inappropriate testing or treatment. The uncertainty resulting from the high risk of bias of the included studies, heterogeneity, and imprecision of the results and concerns on their applicability limit our ability to draw confident conclusions.

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Disclosure: nothing to disclose.

PP1393

EFFECT OF COVID-19 PANDEMIC ON HEPATOCELLULAR CARCINOMA DIAGNOSIS: RESULTS FROM A SINGLE CENTER STUDY FROM TURKEY

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Introduction: One of the most frequently diagnosed cancers in the world is liver cancer , it is the sixth most frequently detected tumor, approximately 905.677 new cases were reported in 2020 . In addition, liver cancer is the third most common cause of cancer-related mortality worldwide, with over 830.180 deaths in 2020 [1].

During the coronavirus disease 2019 (COVID-19) pandemic, suspension of elective non-emergency medical services was imposed all over the world. As a result of this, many patients couldn't get access to medical services which led to the delay in the diagnosis and treatment of various diseases. Cancer screening program have been temporarily interrupted worldwide

during the pandemic. These measures may have led to a reduction in COVID-19 transmission but it is thought that the delayed diagnoses of cancer patients will put an additional burden on the global health system.The aim of this study was to reveal whether restrictions during the COVID-19 pandemic lead to reductions or delays in the diagnosis of hepatocellular cancer (HCC).

Aims & Methods: This study was designed as a single center,cross-sectional and retrospective,study including adult patinet with a new diagnosis of HCC. Date of diagnosis, general demographics, main tumour size, extrahepatic disease, Barcelona Clinic Liver Cancer (BCLC) stage, serum alpha-fetoprotein level, adherence to surveillance, underlying disease aetiology, presence of tumour thrombosis and treatment were recorded.Patients were divided into two groups; patients with a new diagnosis of HCC during pre-COVID-19 period (March 2017 – February 2020) and patients with a new diagnosis of HCC during the COVID-19 period (March 2020 - March 2023).

Results: A total of 72 patients with de-novo HCC diagnosis were collected. During the pre-COVID-19 period there were 46 new HCC diagnoses compared with 26 new HCC diagnoses in the COVID-19 period.The largest tumor diameter and serum AFP levels were found to be statistically significantly higher in the COVID-19 period than in the pre-COVID- 19 groups (p=0.009; 0.005 , respectively).In the pre-COVID-19 period 8.7% (n=4) patients and in the COVID-19 period 30.7% (n=8) were diagnosed with portal vein thrombosis,the diffrence was statistically significant (p=0.042).There were no significant differences in sex distribution (p=0.179) or median age (p=0.495) between the two groups. When cases were analyzed according to etiology, there were no significant differences overall.In terms of etiology, the most common etiologic cause was chronic viral hepatitis B infection in both groups [pre-COVID-19 and COVID-19 period, respectively 60.9% (n=28); 56.9% (n=13)].

Variable	Pre-COVİD-19 n=46	COVİD-19 n=26	P
MELD score	10 (7-31)	11 (7-27)	0.165
Child-Turcotte-Pugh score	6 (5-13)	6 (5-14)	0.799
Largest tumor diameter	3.90 (1.10-20.0)	6.75 (1.50-20.0)	**0.009**
AFP	11.81 (1.51-14290.0)	90.0 (2.10-629495.0)	**0.005**
Albumin	3.3 (3.0-4.5)	3.6 (4.0-4.8)	0.302

AFP: *Alpha-fetoprotein,;MELD:* Model for End-stage Liver Disease

Table 1. Comparison of clinical and laboratory parameters between the two groups.

Conclusion: Current study showed that with the strict measures taken to keep the COVID-19 pandemic under control, we can encounter hepatocellular cancer patients at more advanced stages and complications in long-term follow-ups[2].

To minimize the negative impact of the pandemy such as an increase of avoidable advanced cancers and cancer-related deaths, post-pandemic management should focus on improving the number of screening programs and encouraging patients to strictly obey visits in the follow-up.

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Disclosure: Nothing to disclose.

PP1394

TIMING OF SURGERY AND CLINICAL OUTCOMES IN PATIENTS WITH SYNCHRONOUS COLON CANCER LIVER METASTASES UNDERGOING NEOADJUVANT CHEMOTHERAPY: A PROPENSITY SCORE ANALYSIS

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Introduction: The optimal time for surgery after NAC for patients with SLM is still controversial. We plan to analyze whether the selection of different surgical timing will have different effects on the short-term clinical outcomes and long-term prognosis of patients.

Aims & Methods: We retrospectively collected all patients who met the inclusion and exclusion criteria from 2015 to 2020. Patients were grouped according to Time interval (TI) after NAC to surgery. The short-term and long-term clinical outcomes of the two groups were compared after propensity score matching. Univariate and multivariate analyzes were used to identify factors associated with patient prognosis.

Results: Among 152 enrolled patients, 98 were matched with comparable baseline (48 each group). In the matched cohort, postoperative ascites (8.3% vs. 22.9% , p = 0.049)
and bile leakage (4.2% vs. 16.7%, p = 0.045) occurred significantly more frequently in patients who underwent surgical resection 8~12 weeks after NAC than in patients who underwent surgery 4~8 weeks after NAC. Pleural effusion (31.3% vs. 12.5%, p = 0.026) occurred significantly more frequently in patients who underwent surgery 4~8 weeks after NAC. Although OS and DFS were not significantly different between the two groups, 13 factors were identified to be associated with patients’ OS and DFS by multivariate analysis.

Conclusion: Although our study did not reveal a significant effect of timing of surgery after NAC on patient prognosis, there was a difference in the risk of certain postoperative complications between the two groups that warrants clinical attention. Randomized controlled trials are needed in the future to confirm these findings.

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Disclosure: Nothing to disclose.

PP1395

NIVOLUMAB AS MONOTHERAPY IN CIRRHOTIC PATIENTS WITH ADVANCED HEPATOCELLULAR CARCINOMA NON RESPONDERS TO PREVIOUS SYSTEMIC THERAPY

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Introduction: Nivolumab is an anti-programmed death receptor-1 monoclonal antibody, evaluated as monotherapy for advanced HCC in two trials (Checkmate 040[1] and Checkmate 459[2]). It showed promising results with durable response, good tolerability and a favourable safety profile but failed to demonstrate a statistically significant benefit in overall survival (OS) benefit over sorafenib, the first-line therapy at the time.

Aims & Methods: The objective of this study was to evaluate the efficacy and OS of nivolumab as monotherapy in cirrhotic patients with advanced HCC ineligible for other treatments.

Approval for off-label use was obtained from the hospital committee for each patient based on literature review and personal medical history.

We conducted a retrospective, single-centre study of 22 cirrhotic patients with intermediate or advanced HCC treated off-label with nivolumab between September 2019 and April 2023. Enrolled patients were ineligible for local or surgical therapy, had disease progression or intolerance to prior tyrosine kinase inhibitor (TKI) therapy, and were not eligible for other systemic therapies.

All patients received intravenous nivolumab 3 mg/kg once every two weeks for the first 6 months and then 6 mg/kg once every 4 weeks. Treatment was continued until disease progression, serious adverse events, impaired performance status or death.

Outcomes measured were overall survival, radiological response (RR), defined as stable disease, complete or partial response at quarterly abdominal and thoracic CT scans, and biological response (BR), defined as a decrease in alpha-fetoprotein (AFP) blood level of ≥ 25% from baseline after 3 months of therapy. Safety profile of nivolumab was also assessed.

Results: Twenty-two patients were included: 73% male, median age 64.5 years (range: 30-80), 91% Barcelona Clinic Liver Cancer score C, 82% Child-Pugh A. One patient received nivolumab as I-line, 11 as II-line, 8 as III-line and 2 as IV-line. AFP at baseline was available in 19/22 patients and was elevated in 16/19 patients (median 259.9 ng/ml; IQR 26.7-1752). Median time of treatment was 3.5 months (range: 0.4-36.9). OS was 7.8 months (95%CI 4.7-14.2; range 1.1-34.1). RR (defined as partial response or stable disease) at 3 months was achieved in 8 patients and 6 patients maintained it at 6 months. BR at 3 months was achieved in 6 patients.

OS was significantly associated with RR (p 0.002) and BR (p 0.0001) at 3 months. Median OS in patients with RR at 3 months was 27.7 months (95%CI 4.7-27.7) versus 6.4 months (95%CI 3.2-9.1) in patients with disease progression (p 0.0003).

At baseline, better performance status (ECOG 0 vs 1-2) (p 0.031), presence of metastatic lymph nodes (p 0.040) and lower disease burden (monolobar vs bilobar involvement) (p 0.009) were associated with a better OS.

Grade 3-4 adverse events occurred in 5 patients (2 pulmonary thromboembolism, 1 variceal bleeding, 1 autoimmune colitis, 1 severe asthenia).

Conclusion: Nivolumab monotherapy in non-responder or intolerant to TKI patients without any other therapeutic option could represent an acceptable treatment, showing an OS greater than 6 months in 68% of patients (median 7.8 months). RR at 3 months predicts long survivors (median OS 27.7 months), as does BR at 3 months (median OS 27.9 months). Overall, nivolumab was well tolerated.

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Disclosure: Nothing to disclose.

PP1396

TIME TRENDS AND AGE-PERIOD-COHORT ANALYSES ON INCIDENCE RATES OF LIVER CANCER IN THE UNITED STATES, HONG KONG, AND SWEDEN

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Introduction: The incidence of liver cancer has shown different temporal trends across regions around the world. The incidence of liver cancer has shown an increasing trend in many western populations, while it has shown a decreasing trend in some Asian countries, while the underlying reasons remain unclear.

Aims & Methods: Using data from population-based cancer registries, we examined temporal trends in the incidence of liver cancer in the United States, Hong Kong, and Sweden since the 1970s through 2021, using joinpoint regression. We further performed an age-period-cohort analysis to address possible underlying causes for the observed temporal trends.

Results: The age-standardized incidence rate of primary liver cancer in the United States increased on average by 2.4% (95% confidence interval [CI] 1.7% to 3.1%) per year in men and by 2.2% (95% CI 1.7% to 2.6%) in women during the period 1975-2019, but decreasing trends were noted in 2015-2019 in both sexes (annual percent change [APC] -5.9%, 95% CI -8.1% to -3.6% in men; APC -4.9%, 95% CI -9.4% to -0.1% in women). The rate in Hong Kong steadily decreased in men (APC -2.1%, 95% CI -2.5% to -1.8%) and in women (APC -2.2%, 95% CI -3.2% to -1.1%) during the period 1983-2020. The rate in Sweden increased on average by 0.8% (95% CI 0.2% to 1.4%) per year in men and was generally stable in women (APC 0.2%, 95% CI -0.9% to 1.4%) per year in 1970-2021.We observed distinct changes in trends across age groups in the three populations and different trends across generations (birth cohorts).

Conclusion: The incidence of liver cancer has shown increasing trends in the United States and Sweden, while the incidence has decreased in Hong Kong population. Such disparities across populations may be explained by different etiology and implementation of preventive measures, such as vaccination against hepatitis virus infection, in different populations.

Disclosure: Nothing to disclose.

PP1397

THE EFFECT OF SARCOPENIA AT THE TIME OF DIAGNOSIS ON MORTALITY IN HEPATOCELLULAR CANCER PATIENTS

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Introduction: Sarcopenia, defined as the loss of skeletal muscle mass, quality, and function, is an important metabolic disorder associated with malignancies and is an independent predictive factor for mortality in malignant patients [1].

Hepatocellular carcinoma (HCC) is the most common type of malignant liver cancer, and sarcopenia has been associated with a higher rate of complications and recurrences in patients with cirrhosis and HCC [1].

The assessment of patient general status before HCC treatment, including the presence of sarcopenia, is a key-point for achieving therapy tolerability and to avoid short- and long-term complications.

Aims & Methods: In this study, the material and methods involved the inclusion of 101 patients who were diagnosed with HCC and had admission CT images in the system between February 2019 and October 2021. The study evaluated the effect of admission Visceral-Subcutaneous Fat Ratio (VSR) indicating visceral adiposity and Intramuscular Adipose Tissue Content Ratio (IMAC) on mortality in patients with HCC . The VSR and IMAC were calculated for each patient using CT image analysis. The study did not involve any interventions or treatments, and all data were collected retrospectively. The study was approved by the institutional review board, and all patients provided informed consent for the use of their medical records for research purposes.

We aim to evaluate the effect of admission VSR indicating visceral adiposity and IMAC on mortality in patients with HCC.

Results: The median age of the patients was 61.4 (21-77) years, and 77 (76.2%) of the patients were male. Sixty-two of the patients (62%) had Child Pugh Score (CPS) A, and the 12-month transplant-free survival rate was 78.2%. The study found that there was a positive correlation between age and diagnosis time IMAC (R= 0.337, p=0.045) and a weak positive correlation with VSR (R= 0.223 and p= 0.045). Fourteen patients were excluded from the mortality analysis because they had undergone transplantation during this period.

The study found that the percentage of patients with HCC in Milan criteria was 44.9% (n:44).In an analysis of 87 patients, IMAC and VSR were associated with mortality independently of CPS (p=0.017 and p=0.048, respectively).

Conclusion: In conclusion, sarcopenia is an important indicator in predicting mortality and morbidity in patients with HCC independent of CPS. Nevertheless, the concurrent evaluation of radiological and clinical sarcopenia must be evaluated to determine the relationship between sarcopenia and mortality in HCC patients. The large population studies provide more accurate results.

Disclosure: Nothing to disclose.

PP1398

PROGNOSTIC VALUE OF MEAN PLATELET VOLUME IN HEPATOCELLULAR CARCINOMA

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Introduction: It is proven that platelets play an important role in growth, invasion, and angiogenesis of a variety of tumors. The mean platelet volume (MPV) indicates platelet activation and is altered in malignancies such as hepatocellular carcinoma (HCC).

Aims & Methods: The aim of this study was to explore the association between MPV and prognosis in HCC according to the Barcelona-Clinic Liver Cancer (BCLC) Staging Classification. This retrospective study performed between January 2020 and December 2021 included 92 patients with HCC who did not receive antiplatelet therapy. The overall survival was compared, and the predictors of overall survival were analyzed. High mean platelet volume (MPV) was defined as ≥median value of the cohort (≥ 8 fL). All the patients were divided into the normal and lower MPV groups according to the median MPV. We used receiver operating characteristic (ROC) curves to assess the prognostic value of MPV.

Results: Among 92 patients, high MPV was present in 50 (54.3%) and was associated with favorable baseline tumor characteristics: diameter of the largest nodule less than 3 cm (77.4 vs. 22.6%, p=0,01), less extrahepatic spread (16.7 vs. 83.3%, p=0.004), less macrovascular invasion (2 vs. 52.4%, p < 0.001), and lower BCLC stages (2 vs. 100% BCLC C/D; p< 0.001) as compared to patients with normal MPV. In receiver operating characteristic (ROC) curve analysis, MPV presented 93.3% of sensitivity and 69.4% of specificity at the criterion <8.5 fL (area under the curve (AUC) = 0.706) to predict higher BCLC stages (C/D).

Conclusion: Higher MPV is associated with better outcome in patients with advanced HCC. These findings may prompt further clinical research on additive antiplatelet therapy in the prevention and management of HCC.

Disclosure: Nothing to disclose.

PP1399

MEAN PLATELET VOLUME AND PLATELET DISTRIBUTION WIDTH AS PREDICTING BIOMARKERS OF HEPATITIS C RELATED HEPATOCELLULAR CARCINOMA

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Introduction: Platelets play an important role in inflammation, immunity, malignancy, and organ regeneration [1, 2]. Tumour cells use them for protection from immune-cell-mediated clearance [3].

Platelets may also promote formation of metastasis [4].

However, there is limited knowledge on the impact of platelet indices on HCC tumour biology [5].

Aims & Methods: The aim of the study was to explore the association between platelet count, mean platelet volume (MPV) & platelet distribution width (PDW) and tumour behaviour of HCV related HCC & their predictive power.

The study was conducted on two groups of patients, group 1which included patients with naive HCV related HCC and group 2 which included patients with chronic HCV cirrhosis. Liver function tests, AFP, serum creatinine, multi-phasic abdominal CT and or MRI were done at baseline for all

cases. In Group 1, non invasive diagnosis of HCC in cirrhotic patients according to the EASL guidelines was done. CBC was done using automated hematology analyzer with reporting of platelet count, MPV& PDW.

Results: Group 1 included 144 patients, 120 males &24 females, while group 2 included 116 patients, 52 males &64 females. In group 1, the age was significantly older (62.11±7.32 Vs 56.53 ± 9.23, p =0.000) &males were significantly more (120 Vs 52 , p=0.000). The MPV was 10.34±1.74 fl in group 1, while it was 10.21±1.19 fl in group 2, without significant difference (p=0.507). The PDW was 15.43±2.22% in group 1, while it was 15.14±1.52% in group 2, without significant difference (p=0.254). Also, the PLT count was significantly lower in group 1 (127080 ± 78101 Vs 156674 ± 80613, p=0.000).In group 1, platelet count was ≤150×109/L (thrombocytopenia) in 102 cases (71.8%) while it was >150×109/L in 40 (28.2%).

The median HCC diameter was significantly larger in patients with normal PLT count than thrombocytopenic patients (6.5 cm versus 5 cm, p= 0.025). There was no significant difference regarding BCLC,TNM stage, presence of malignant PVT or distant metastasis between group 1 cases with normal and low platelet count (p=.197,.169,.189 &.305 respectively).

There was significant positive correlation between PLT count & both BCLC and TNM tumor stage (r =0.185, 0.226 & p=0.027,0.007 respectively) but the correlation was insignificant regarding serum AFP level (r =0.118 & p=0.182). In group 1, MPV was ≥10.4 fl in 67 (52.3%) & <10.4 in 61cases (47.7%) while the PDW was ≥14.5% in 94 (79%) &<14.5 in 25 cases (21%).

There was no significant correlation between both MPV and PDW & both BCLC and TNM stage (r = -.035, -.037, p=0 .679,0 .679 & r = -.131 , -.154, p = .157, .095 respectively) but there was significant negative correlation between the MPV and serum AFP level (r = -.195 & p=0 .034).PDW at cut off value of 15.05% can significantly predicts HCC with sensitivity = 62,2%. specificity = 58,1%, AUC = 57,8%, P=0.043, 95% CI=0.503-0.654).

Conclusion: PLT count positively correlates with BCLC &TNM stage of HCV related HCC with larger tumor size in presence of normal platelet count. MPV negatively correlates with serum AFP level. PDW at cut off value of 15.05% can significantly predict HCV related HCC.

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Disclosure: Nothing to disclose.

PP1400

STUDY THE RELATION OF A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN-13 AND PORTAL VEIN THROMBOSIS IN EGYPTIAN PATIENTS WITH HCV RELATED LIVER CIRRHOSIS

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Introduction: Portal vein thrombosis (PVT) is common in cirrhotic patients. The prevalence ranges from 1%, at earlier stages to 30% in candidates for liver transplantation. The ADAM (a disintegrin-like and metalloproteinase) proteins, with their subfamily of ADAMTS -13 (A Disintegrin and Metalloprotease with Thrombospondin-13) are produced exclusively by hepatic stellate cells and play an important regulatory role in coagulation. The ADAMTS-13 protein is an enzyme, Willebrand factor cleaving protease. In vascular injury, von Willebrand factor (VWF) together with platelets initiates formation of thrombus.

Functional deficiency of ADAMTS-13 results in presence of unusually large VWF multimers in plasma, which promotes platelet aggregation and thrombus formation.

Aims & Methods: The aim was to investigate the relation of serum level of ADAMTS -13 and portal vein thrombosis in patients with HCV related liver cirrhosis. The study was carried out on 56 Egyptian patients with HCV related liver cirrhosis (LC) (LC group: 28 cirrhotic patient without PVT and LC+PVT group: 28 cirrhotic patient with cirrhosis and PVT) and 28 healthy volunteers as controls from Menoufia University Hospitals (Egypt).

The study was conducted in period from March 2020 to April 2021. They underwent history taking, physical examination and laboratory investigations (CBC, liver profile {ALT, AST, serum albumin, bilirubin, INR}, urea, creatinine, HBsAg, HCV Ab and serum ADAMTS-13 assay). Abdominal ultrasound with Doppler of portal vein (PV) was done for all patients and controls. Triphasic CT of the liver was done for patients with PVT to exclude hepatocellular carcinoma (HCC). Child-Pugh score, MELD score, AST/Platelet ratio index (APRI score) and FIB-4 were calculated for all patients.

Patients on anticoagulant therapy, age less than 18 years, inflammatory or bleeding events in previous 2 months, history of personal unprovoked thromboembolism (familial in first-degree relatives), etiology of liver cirrhosis other than HCV and HCC are excluded from the study.

Results: Serum ADAMTS-13 (ng/ml) was significantly lower in LC+PVT group (0.66±0.44) than in LC (0.92±0.99) and control group (0.96±0.92) (P=0.0001 for both) but there was no significant difference between LC group and controls (P=0.2). ADAMTS13 at cutoff level 1.62 ng/ml have 71.4% sensitivity and 62.5% specificity for prediction of PVT. In LC+PVT group, level of serum creatinine (mg/dl) (1.5±0.5) and INR (1.7±0.6) were significantly higher than LC group (creatinine 1.28±0.37) (INR 1.29±0.34) (P=0.03 and 0.001 respectively).

There was no significant difference between LC+PVT group and LC group as regard, history of encephalopathy, history of gastrointestinal bleeding, presence of ascites, CBC, liver profile (ALT, AST, serum albumin, bilirubin), urea, APRI score, FIB-4, and MELD score (P>0.05).

Regression analysis showed that ADAMTS 13 level and advanced degree of Child-Pugh score predict occurrence of PVT by 1.26 and 4.66 fold respectively. In LC+PVT group, there was a positive correlation between ADAMTS 13 level and INR (r=0.41, P=0.03) but there was no correlation with other parameters (age, platelet count, Hb, albumin, AST, ALT, bilirubin,

urea, creatinine and INR, APRI score, FIB-4, MELD score and Child-Pugh score (P>0.05). In LC group, there was a positive correlation between ADAMTS 13 and Child-Pugh score (r=0.41, P=0.03) and MELD score (r=0.46, P=0.02).

Conclusion: Low levels of ADAMTS-13 are associated with pathogenesis of PVT in liver cirrhosis. ADAMTS-13 concentration is potential biochemical marker in diagnostic strategy of PVT in patients with cirrhosis.

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Disclosure: Nothing to disclose.

PP1401

MUTATIONS ASSOCIATED WITH THROMBOPHILIA IN PATIENTS WITH LIVER CIRRHOSIS AND NON-TUMORAL SPLENO-PORTO-MESENTERIC AXIS THROMBOSIS. A FUTILE DIAGNOSTIC TEST?

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Introduction: Liver cirrhosis has been considered historically a hypocoagulant disease. However, currently its association with hypercoagulable states, mainly when liver function is impaired, is well established. The presence of a procoagulant phenotype has been suggested for development of spleno-porto-mesenteric axis thrombosis; however, there are no standardized data and no definitive recommendations have been reported in clinical guidelines regarding the screening of mutations related to thrombophilia in these patients.

Aims & Methods: The primary outcome of our study is to analyse the prevalence of inherited mutations associated with thrombophilia in patients with liver cirrhosis and non-tumor splenic portal axis thrombosis in our center. We analyze demographics, clinical features, and disease characteristics. We retrospectively included all patients with liver cirrhosis and non-tumoral thrombosis of the spleno-porto-mesenteric axis who underwent a thrombophilia study between January 2015- September 2022 in our center. As a thrombophilia study, factor V Leyden mutation, 20210A mutation of the prothrombin gene, proteins C and S, antithrombin, plasmatic homocysteine, and antiphospholipid antibodies were analysed. Data were analysed with SPPS (version 27).

Results: A total of 75 cases were enrolled (61.33 % male; median age: 64.8 ± 12.5 years). At the time of thrombosis patients belonged to Child-Pugh classes A: 64 % (n = 48); B: 29.3 % (n = 22) and C: 6.6 % (n = 5). Etiologies of cirrhosis included: Chronic HCV infection 36 % (n = 27), followed by alcohol-related liver disease 34.6 % (n = 26), indeterminate 9.33 % (n = 7) and MAFLD 6.6 % (n = 5). Most common sites of thrombosis were the portal vein 58.6 % (n = 44), followed by portal branches 10.6 % (n = 10), and 9.3 % (n = 7) in both territories. Regarding the thrombophilia study (Table 1), protein C, S, or antithrombin deficiency were observed in 60 cases (80%). However, mutations related to thrombophilia were detected only in 10.6% of cases (Factor V Leyden: n = 5; 20210A prothrombin mutations: n = 3), lupus anticoagulant in 0.75 % (n = 1) and hyperhomocysteinemia in 4 % (n = 3). Univariate and multivariate analysis did not show statistically significant association between presence of thrombophilia and baseline patient variables such as etiology, Child-Pugh class, MELD score, or thrombosis extent.

Non detected	63	84 %
Hiperhomocisteinemia	3	4 %
G20210A (Heterozygous)	3	4 %
Factor V Leiden (Heterozygous)	5	6.6 %
Lupus anticoagulant	1	1.3 %

Table 1. Thrombophilia study.

Conclusion: Most of the patients in our series presented protein C and S deficiency, probably secondary to their liver disease. However, the prevalence of other mutations related to thrombophilia were very low, like that usually observed in general population, so their screening in cirrhotic patients with thrombosis may be futile in most cases.

Disclosure: Nothing to disclose.

PP1402

ENDOSCOPIC ULTRASOUND DIRECT PORTAL PRESSURE MEASUREMENT IS MORE RELIABLE THAN HEPATIC VENOUS PRESSURE GRADIENT MEASUREMENT IN PATIENTS WITH PRE-SINUSOIDAL FORMS OF PORTAL HYPERTENSION

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Introduction: Hepatic venous pressure gradient (HVPG) represents the gold standard for the evaluation of portal hypertension (PH). HVPG > 10 mmHg defines clinically significant portal hypertension (CSPH), a condition that is independently associated with the occurrence of decompensation events. Portal pressure measurement is of fundamental importance for prognostic stratification and assessment of response to therapies. Indeed, a decrement of HVPG by 20% and/or < 10 mmHg reduces the decompensation risk. HVPG, however, indirectly measures PH and it may underestimate portal pressure gradient (PPG) in patients with pre-sinusoidal forms or with a pre-sinusoidal component of PH such in the case of initial stages of primary biliary cholangitis (PBC), non-alcoholic fatty liver disease (NAFLD), porto-sinusoidal vascular disorder (PSVD).

Moreover, HVPG procedure is invasive, involves radiographic exposure, and requires use of intravenous contrast media. Endoscopic ultrasound (EUS)-guided PPG measurement has recently become available. This technique allows measurement of portal pressure directly in the portal vein system and theoretically overcomes HVPG limitations.

Aims & Methods: We investigated the safety and accuracy of EUS measurements as compared to HVPG in evaluating PPG in a cohort of patients with CSPH. In patients naïve to non-selective beta-blockers (NSBBs) hemodynamic response to therapy was also evaluated.

Consecutive outpatients with liver disease characterized by pre-sinusoidal forms of PH who presented specific sign(s) of CSPH (gastro-oesophageal varices and/or portosystemic collaterals) underwent HVPG and EUS-guided PPG measurements with Echotip Insight 25G device (Cook Ireland Ltd.). In patients naive to NSBBs, treatment was started and after its titration EUS-PPG measurement was repeated. Definition and severity of adverse events (AEs) were based on classification of Cotton et al.

Results: Between March 2022 and December 2022, fourteen patients (mean age 58 ± 15; 57% males; etiology NAFLD related-cirrhosis 21.4%, PBC 7.2%, PSVD 71.4%) were enrolled. Mean platelet count was 71.000 U/microliter with 21% of patients having platelet count < 50.000 U/microliter. A total of 18 EUS-guided PPG and 14 HVPG measurements were performed. EUS-PPG was technically successful in all cases, without any AEs and requirement for platelet transfusion. EUS-PPG mean value was 18.7 ± 3.4 mmHg versus 9 ± 4.4 mmHg of HVPG (p<0.0001). In four patients naive to NSBBs we repeated a new EUS-PPG measurement after drug titration. The average PPG value in these patients before and after NSBBs titration was respectively 19.7 (± 3.4) and 17 (± 2.7) mmHg, with one patient out of four who achieved a decrement of PPG > 20 %.

Conclusion: Direct EUS-guided PPG measurement is safe and significantly more reliable than HVPG in the evaluation of PH in patients with pre-sinusoidal forms of PH. This technique could be also used to assess hemodynamic response to therapy in these patients.

Disclosure: N/A.

PP1403

PORTO-SINUSOIDAL VASCULAR DISORDER (PSVD): PREDICTING CLINICALLY SIGNIFICANT PORTAL HYPERTENSION WITH LIVER HEMODYNAMIC ASSESSMENT AND TRANSIENT SPLEEN ELASTOGRAPHY

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Introduction: Previously known as idiopathic non-cirrhotic portal hypertension (PHT), porto-sinsuoidal vascular disorder (PSVD) has been recently introduced as a clinical entity with a spectrum of clinical presentations ranging from mild liver enzyme changes to clinically significant portal hypertension(CSPH). PSVD has well-established diagnostic criteria[1] requiring histologic evaluation of liver. Splenic stiffness evaluation with transient elastography is a non-invasive method to evaluate signs of portal hypertension in patients with chronic liver disease

Aims & Methods: We aimed to evaluate the correlation between clinical evidence of CSPH (ascites, and varices) with HVPG and liver and spleen elastography. We performed a retrospective analysis of 17 consecutive patients with histological evidence of PSVD on transjugular liver biopsy performed during liver hemodynamic assessment. Clinical charts were evaluated for evidence of PHT including ascites, splenomegaly (spleen diameter >13cm)and esophageal or gastric varices. Patients underwent liver and spleen transient elastography evaluation. The hepatic venous pressure gradient(HVPG) was evaluated during liver hemodynamic study and the presence of vena-vena communicants was noted.

Descriptive statistical analysis was performed. Quantitave variables with non-normal distribution were expressed as median (min-max). A p-value <0.05 was considered significant. Data analysis was performed with SPSS IBM 28.

Results: The median age was 44 (19-71) years and 15(88%) patients were male. Mild liver enzyme elevation and esophageal varices were the first presentation in 47% (n=8) and 41% (n=7) patients, respectively. Additionally, splenomegaly 76% (n=13) and ascites in 12% (n=2) were noted. Possible underlying etiology for PSVD included common variable immunodeficiency in 35% (n=6) patients, azathioprine use in 12% (n=2) and autoimmune disease: antiphospholipid syndromein 12% (n=2).

Concomitant partial or complete portal vein thrombosis was noted in 18% (n=3). Median spleen stiffness was 74.1kPA (23.3-75) and median hepatic stiffness was 9.6 (4.9-22.5 kPA). Spleen stiffness was significantly associated with the presence of varices (p=0.03) but not with ascites (p=0.32). There were 3 patients (18%) with spleen stiffness <40kPA , 33%(n=1) presenting with ascites and none with varices.

Median hepatic venous pressure gradient (HVPG) was 11(4-15)mmHg with presence of vein-to-vein communicant vessels in 35%(n=6) patients thus underestimating the HVPG. Considering 71%(n=12) patients with clinical evidence of portal hypertension (ascites/varices), 33%(n=4) had HVPG <10mmHg with vena-vena communicants detected in 75%(3/4). There was no association between HVPG and presence of varices (p=0.171), ascites (p=0.05) or splenomegaly (p=0.441)

Conclusion: Spleen transient elastography rather than HVPG is significantly associated with presence of varices in patients with PSVD.

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Disclosure: Nothing to disclose.

PP1404

LOCAL CAUSES OF PORTAL CAVERNOMA: ABOUT A UNIVERSITY SERIE

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Introduction: Chronic portal thrombosis and/or portal cavernoma is a cavo-portal collateral venous pathway secondary to chronic thrombotic obstruction. The etiologies are numerous and must be systematically investigated. Our work aimed to study the profile of patients with portal cavernoma secondary to a local cause.

Aims & Methods: We conducted a 6-year retrospective, descriptive and monocentric study (2016-2022) including all patients followed for portal cavernoma and who have in their history a notion of abdominopelvic surgery or local non-surgical cause. All patients underwent a comprehensive etiologic workup for thrombosis.

Results: Out of the 56 patients diagnosed with portal cavernoma, 20 had a history of surgery or a local cause, indicating a prevalence of 35.71%. The mean age of the patients was 43.68 years with a range of 20 to 69 years and there was a clear female predominance with a sex ratio F/M of 19.

The clinical presentation of patients with portal cavernoma included acute abdominal pain in 83.3% of cases, digestive haemorrhage in 33.3%,

ascites in 33.3% and asthenia in 16.7%. Biologically, cholestasis was observed in 40% of cases, cytolysis in 26.6%, hepatocellular insufficiency in 6.6%, and pancytopenia in 6.6%. Abdominal ultrasound coupled with Doppler was performed in all patients, revealing a dysmorphic liver in 40% and heterogeneous liver in 26.6%.

Furthermore, angiography demonstrated extensive portal thrombosis in 20% of patients, and upper endoscopy found esophageal varices in 60%, gastroesophageal varices in 26.6%, and congestive gastropathy in 16.6% of patients.

Local causes of portal thrombosis included abdominal surgery (50%), pelvic surgery (25%), and non-surgical causes (25%). The abdominal surgeries included cholecystectomy (30%), appendectomy (30%), Porto-azygos shunt (20%), cholecystectomy followed by splenectomy (10%), and cholecystectomy followed by liver surgery: resection of the protruding dome for a hydatid cyst (10%).

An exhaustive etiological work-up was performed in all patients, revealing various underlying prothrombotic causes such as protein C and/or S deficiency (25%), celiac disease (10%), polycythemia vera (10%), chronic inflammatory bowel diseases (5%), Biermer disease (5%), and Paroxysmal Nocturnal Hemoglobinuria clone mutation (5%). whereas no associated prothrombotic pathology was found in 40% of the patients.

In the 40% where no underlying prothrombotic cause was found, the only cause of portal thrombosis was local: pelvic surgery in 20% of all cases, two abdominal surgeries in 10%, and main bile duct stent in 10% of patients.

As for the complications, 4 patients were complicated by portal biliopathy objectified by Cholangio-MRI and one patient died of hepatorenal syndrome.

Conclusion: The local cause of portal cavernoma is rare in the literature and is 4 % in our series. The most frequent surgery found in history is cholecystectomy, but these patients often have another associated prothrombotic factor. In the rare cases where no underlying prothrombotic factor was found, it was most often pelvic surgery followed by the association of 2 abdominal surgeries and a main bile duct stent.

Disclosure: Nothing to disclose.

PP1405

PREDICTING VARICEAL BLEEDING IN NON-CIRRHOTIC PORTAL VEIN THROMBOSIS

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Introduction: Non-cirrhotic portal vein thrombosis (NCPVT) is a rare pathology of the liver characterized by the formation of a network of porto-portal collateral veins occurring after obstruction of the portal trunk in the absence of underlying liver disease. The long-term consequences of NCPVT are poorly understood. Published data regarding portal hypertension (PH) complications notably variceal bleeding in this context are scarce.

Aims & Methods: The aim of this study is to identify factors associated with the occurrence of variceal bleeding in patients with NCPVT.

Methods: We conducted a single-center retrospective cross-sectional study in the gastroenterology department of Sahloul University Hospital, over a period of 10 years, from January 2010 to December 2019.

Were included all non-cirrhotic patients over 18 years old, with chronic portal vein thrombosis. The diagnosis of NCPVT was retained based on the absence of flow in the portal vein and the visualization of a network of porto-portal collateral shunts on abdominal Doppler ultrasound or on 4-phase CT with contrast injection. We compared the 2 groups of patients: with (Group 1) and without (Group 2) variceal bleeding in order to identify the factors associated with its occurrence.

Results: Forty seven patients were included. The mean age was 40.7 years with a sex ratio (male/female) of 0.95. Variceal bleeding occured in 16 cases (34%) with a mean delay of 22.3 months, among which, 9 were on anticoagulants.

The factors associated with the occurrence of variceal bleeding in univariate analysis were: GI bleeding as the circumstance of discovery of portal thrombosis (22.2% in group 1 Vs 77.8% in group 2 with a p=0.004),the presence of clinical signs of PH (37.5% in group 1 Vs 62.5% in group 2 with a p <10-3), the presence of anemia (p=0, 014) or hyperleukocytosis on biology (p=0.023), the presence of signs of portal hypertension on follow-up imaging (37.5% in group 1 Vs 62.5% in group 2 with a p<10-3) and the presence of endoscopic signs of PH (48.3% in group 1 Vs 51.7% in group 2 with a p=0.001).

In multivariate analysis, the presence of endoscopic signs of portal hypertension (p=0.002) and the presence of collateral venous circulation on imaging (p=0.014) were independent factors associated with the occurrence of variceal hemorrhage during follow-up. Anticoagulant therapy was not associated with an increased risk of bleeding during follow-up.

Conclusion: This study emphasizes the importance of effective management of portal hypertension during non-cirrhotic portal cavernoma, especially when the manifestations of PH are in the foreground without delaying the possible initiation of anticoagulants.

Disclosure: Nothing to disclose.

PP1406

INCREASE IN POINT-PREVALENCE AND COSTS OF LIVER CIRRHOSIS IN THE NETHERLANDS – A NATIONWIDE HEALTH CLAIMS DATA ANALYSIS

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Introduction: Chronic liver injury ultimately progresses to the development of cirrhosis. Patients with cirrhosis can be in a compensated or decompensated phase, the latter marked by clinical events such as ascites, hepatic encephalopathy and variceal bleeding. These events are associated with significant morbidity and mortality and the management is challenging and labor-intensive. Due to ongoing unhealthy lifestyle factors resulting in chronic liver injury, the burden of cirrhosis on healthcare systems in Europe is increasing. There is however limited data on the impact of cirrhosis on Dutch healthcare resources.

Aims & Methods: We aimed to determine the point-prevalence and claimed health costs of adults (≥ 18 years) registered as patients with cirrhosis at Dutch hospitals. To this end we extracted health claims data (timeframe 2017-2021) from the records of the Dutch health claims database (Vektis), which covers almost all inhabitants of the Netherlands. We used diagnosis codes ‘compensated cirrhosis’ and ‘decompensated cirrhosis’ to identify patients.

Results: The point prevalence of patients with cirrhosis increased from 48,7 patients per 100.000 adult Dutch inhabitants in 2017 to 75,2 per 100.000 in 2021 (+54%). The point-prevalence for cirrhosis was highest in the province of Limburg with 105,6 patients per 100.000 adult Dutch inhabitants. The annual increase in unique new patients for which hospitals claimed costs was n=3.725 in 2018, n=3.840 in 2019 (+3%), n=3.749 in 2020 (-2%) and n=3.695 in 2021 (-1%). The largest increase was observed in the province of Zuid-Holland (approximately 5 new patients per 100.000 adult Dutch inhabitants per year). Total number of hospital admissions increased with 19% from 2.443 admissions in 2017 to 2.899 admissions in 2021. The median length of stay for admitted patients with cirrhosis in 2017-2021 was four days [IQR 2-7 days]. The annual reported costs for patients with cirrhosis increased from €35 million in 2017 to €78 million in 2021 (+120%).

Conclusion: The point-prevalence of Dutch adults registered as a patient with cirrhosis in Dutch hospitals increased by more than fifty percent, with remarkable regional differences. Consequently, the total healthcare costs claimed for these patients more than doubled in less than five years.

Disclosure: Nothing to disclose.

PP1407

DEVELOPING PRACTICE GUIDANCE AND RECOMMENDATIONS FOR THE MANAGEMENT OF NAFLD IN PRIMARY CARE: CONSENSUS RESULTS

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Introduction: In spite of its high prevalence and impact on health, non-alcoholic fatty liver disease (NAFLD) is not sufficiently addressed in European primary care (PC), with a large proportion of cases going undiagnosed or receiving late diagnosis. An international project was developed to design and evaluate an integrated, multidisciplinary, patient-centered model for NAFLD screening, diagnosis and linkage to specialty care and translate learnings into PC practice guidance.

Aims & Methods: Based on learning from this project, latest research evidence and existing guidelines for the management of NAFLD, we sought to develop a set of practice recommendations for screening, referral and management of NAFLD in PC.

The Rand/UCLA modified Delphi panel methods with 2 rounds was used to reach consensus on pre-defined statements. The international panel consisted of 15 experts from 6 countries, representing family medicine, gastroenterology, hepatology, cardiology and public health. Initially, 15 statements were drafted based on a synthesis of evidence from the literature and findings of this project. Prior to the consensus meeting, statements were rated by the experts in a first round. Subsequently, during a hybrid meeting of eight hours, experts discussed findings of round one, modified statements and rescored the updated recommendations in a second round.

Results: In round one, 10 of the 15 statements received high level of agreement (75% or greater). During the consensus process, 14 of 15 statements were considered appropriate and consensus was reached for all, with high agreement (>90%). The approved list included recommendations from several domains, including NAFLD risk assessment. diagnosis, referral to specialists, management, treatment, surgical management and integrated care.

Conclusion: The final set of 14 recommendations seeks to increase the comprehensive care for NAFLD in PC. We anticipate these recommendations to contribute to the ongoing discussion on systematic approaches to tackle NAFLD and support European PC providers through the integration of latest evidence into practice.

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PP1408

YOUTUBE® IN SPANISH AS AN INFORMATION SOURCE FOR PATIENTS WITH AUTOIMMUNE HEPATITIS

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Introduction: A large number of patients with autoimmune hepatitis (AH) seek information about their disease on the internet. The reliability, comprehensiveness, and quality of said information in Spanish has not been studied.

Aims & Methods: Our aim was to describe the characteristics of the information about AH on YouTube®. Methods: An analytic observational study evaluated videos in Spanish about AH available on YouTube®, describing their general characteristics, viewer engagement, and information sources. Standardized tools were utilized to analyze reliability (DISCERN), comprehensiveness, and overall quality (Global Quality Score [GQS]).

Results: One hundred videos were included, 93% of which provided information from healthcare professionals (group 1), and 7% of which reflected patient opinions (group 2).

There were differences in the median reliability (DISCERN: 4 vs 2, P ≤ .05) and comprehensiveness (4 vs 2, P ≤ .05) scores between groups, but equal overall quality (GQS 3 vs 2, P = .2). Reliability (DISCERN: 4; IQR: 3-4) and comprehensiveness (4.5; IQR: 3-5) were higher in videos by professional organizations, compared with those by independent users, healthcare information websites, and for-profit organizations (DISCERN: 3; IQR: 2.5-3.5; P < .001). Reliability (DISCERN: 2; IQR: 1.5-3), comprehensiveness (2; IQR; 1.5-2.5), and quality (GQS: 2.5; IQR: 1.5-3.5) were lower for videos made by for-profit organizations.

Conclusion: The majority of videos about AH in Spanish on YouTube® have good reliability, comprehensiveness, and quality. Videos created by academic organizations had higher scores, thus their collaboration, with respect to patient opinion videos, is suggested.

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PP1409

DISEASE PATTERNS AND ENTITIES IN CONSULT MEDICAL LIVER BIOPSIES HIGHLIGHT CHALLENGING DIAGNOSTIC AREAS IN HEPATOPATHOLOGY

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Introduction: Difficult liver pathology cases often require expert review for optimal patient care. We reviewed consult cases received in our reference centre aiming to highlight challenging areas in hepatopathology that may benefit from consultation and focused educational activities.

Aims & Methods: We included all medical liver biopsies received for primary consultation in our Department between October 2016 and December 2022. Data on the sender (clinician/pathologist/patient) and the reason for consultation were collected. Initial and consult reports were screened for adequacy of clinical/laboratory/imaging information received, stains performed, initial and final diagnosis, disease grading/staging and comment on aetiology with suggestions to the clinician, where appropriate. Statistical analysis was performed using one sample t tests and descriptive statistics.

Results: We retrieved 147 consult cases (84 female-57.1%, median age 51, range 13-86 years), 135 (92.5%) submitted by hepatologists, 10 (6.9%) by pathologists and 1 (0.6%) by a patient. Adequate clinical/biochemical/imaging information was available in only 35/131 (26.7%) initial reports, while 51 (38.9%) did not have any information. Additional data was available with the consult in 122/147 (83%) cases but in 38 (25.8%) this was acquired by the consultant pathologist. Additional histochemical stains and immunostains were performed in 111 (78.7%) consult cases, while unnecessary stains had been initially performed in 30 (23.1%) cases. Most common reasons for consultation were confirmation of initial diagnosis 74 (50.3%), autoimmune hepatitis-AIH? 17 (11.6%), nonalcoholic steatohepatitis-NASH? 11 (7.5%) and primary biliary cholangitis-PBC? 11 (7.5%). Most common initial diagnoses were non-specific changes, chronic hepatitis, NASH and drug induced liver injury-DILI while most common consult diagnoses were vascular diseases, PBC, AIH, NASH and DILI (p<0.001, more details in Table 1).

Major changes in the initial diagnosis occurred in 73 (54.9%), minor changes in 37 (27.8%) and no change in 23 (17.3%) consults. Absence of adequate liver special stains, disease aetiology, grading/staging and comments/suggestions was recorded in 100 (76.9%), 71 (55.5%), 51 (45.1%) and 65 (49.6%) of initial reports, respectively (p<0.001compared to consults).

Diagnosis	Initial Report n (%)	Consult Report n (%)
Non specific changes	37 (27.8%)	7 (4.8%)
Chronic hepatitis	17 (12.8%)	1 (0.7%)
NASH	10 (7.5%)	14 (9.6%)
DILI	8 (6%)	12 (8.2%)
AIH	8 (6%)	17 (11.6%)
PBC	6 (4.5%)	19 (13%)
Vascular diseases	3 (2.3%)	22 (15.1%)

Table 1.

Conclusion: Study of consult medical liver biopsy patterns provides useful information on areas of hepatopathology posing diagnostic difficulty. The majority of consult cases in our Department are submitted by hepatologists. The most common diagnostic challenges in medical liver biopsies are vascular liver disease, interpretation of hepatitic pattern of injury, and recognition of primary cholangiopathy. These areas can be the subject of future continuing medical educational activities in hepatopathology.

Disclosure: Nothing to disclose.

PP1410

PREVENTING LIVER DISEASE WITH POLICY MEASURES TO TACKLE ALCOHOL CONSUMPTION AND OBESITY: A MICROSIMULATION STUDY

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Introduction: Chronic liver disease (CLD) causes 1.8% of all deaths in Europe. Without policies to mitigate harmful alcohol consumption and obesity, that proportion will continue to increase.

This study aims to estimate the impact of policy interventions targeting alcohol and obesity on the incidence of CLD and primary liver cancer in France, the Netherlands, and Romania.

Aims & Methods: A validated and peer-reviewed microsimulation model was employed using data from online databases and published literature. Static and dynamic trends in alcohol consumption and body mass index (BMI) respectively were projected from 2022 to 2030.

We modeled the incidence of CLD and liver cancer under three policy scenarios versus an inaction scenario. The policies were 1€ minimum unit pricing (MUP) on alcohol; a combination of 0.7€ MUP and a sugar sweetened beverage (SSB) tax; and a combination of 0.7€ MUP, SSB tax, and a volumetric tax on alcohol.

Results: All policies had an important impact ranging from a 2% to 7% reduction in annual incidence of chronic liver disease and liver cancer by 2030. The 1€ MUP policy had the largest predicted impact: In the three countries combined, that policy would result in 11,550 fewer cases of CLD and 7,921 fewer cases of liver cancer by 2030. Policy interventions combining a €0.7 MUP, an SSB tax, and a volumetric tax on alcohol would prevent nearly as many cases: 7,317 cases of CLD and 5,390 cases of liver cancer by 2030 compared with the inaction scenario.

Conclusion: In conclusion, we can reduce the number of Europeans who develop chronic liver disease or liver cancer by up to 7% before 2030 if we introduce a €1 MUP on alcohol, or we introduce complementary public health policies targeting alcohol consumption and obesity.

Disclosure: Financial support statement: This research was carried out as part of the HEPAHEALTH II project, commissioned by the European Association for the Study of the Liver (EASL), a non-profit medical association and has been supported by grants from Gilead Sciences Europe Ltd and Bristol-Myers Squibb. Nine EASL members co-authored this study.

PP1411

LONG-TERM FOLLOW-UP OF LIVING LIVER DONORS: A SINGLE-CENTER EXPERIENCE

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Introduction: Living donors are healthy individuals who are exposed to a major surgical procedure during which a major part of their liver is resected. Data on the long-term consequences of living liver donation are scarce.

Aims & Methods: This study examined clinical, laboratory, and long-term health-related quality of life (HRQoL) in 237 living liver donors and 239 matched controls during 48–168 months of postdonation follow-up. We used the 36-item short-form health survey (SF-36), version 1.

Results: The scores for the four following subscales were higher in nondonors than in donors: physical functioning ($p = 0.009$), role limitations due to physical health ($p = 0.002$), energy/fatigue ($p < 0.001$), and bodily pain ($p < 0.001$). The scores on the eight subscales of the SF-36
were higher in donors with living recipients than in donors whose recipients died ($p < 0.001$).

Conclusion: Our results suggest that living donor right hepatectomy is safe and results in a postdonation HRQoL similar to that of nondonors in those donors whose recipients are healthy, whereas donors whose recipients die have a lower HRQoL that is significantly negatively correlated with the time since recipient death and improves over time.

Disclosure: Nothing to disclose.

PP1412

PREDICITVE FACTORS OF SEVERITY IN ACUTE CHOLANGITIS. WHO SHOULD BE PRIORITIZED FOR URGENT BILIARY DRAINAGE? A RETROSPECTIVE STUDY

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Introduction: According to guidelines for acute cholangitis management (Tokyo 2018), urgent drainage of the biliary tract is indicated in moderate and severe cases. However, it does not consider factors such as bacteraemia or comorbidities. In addition, the availability of immediate biliary drainage may be limited in some centres.

Aims & Methods: Aims: To evaluate the clinical characteristics of acute cholangitis in our environment and to identify predictive factors of severity.

Methods: A retrospective study of clinical and analytical variables at admission of 331 patients diagnosed with acute cholangitis at Hospital del Mar (2018-2021). Analysis of predictive factors for mortality during admission and at 30 days from discharge. Severty was assessed as association of mortality with clinical, haemodynamic and analytical variables analyzed via logistic regression. Analysis of differences in mortality between early drainage (before 48 hours) and late drainage through Pearson Chi squared test.

Results: The average age was 78 years, 53% were men, 35% had a smoking habit and 17.5% had a Charlson index of high morbidity (>5p). As relevant antecedents they had: diabetes (32.1%), COPD (11.48%), heart failure (16.92%) and ischaemic heart disease (10.3%). The causes of cholangitis were: choledocholithiasis (48.33%) and both benign and malignant strictures (24.92%), 26.75% of cholangitis did not have a clear cause. Choledocholithiasis was diagnosed by endoscopic ultrasound (41.67%), CT scan (23.72%), magnetic ressonance (19.87%) or abdominal ultrasound (14.74%). 197 patients required biliary drainage, median time to drainage of 5 days. The median hospital stay was 9 days and 6.65% of patients needed intensive care unit (ICU) admission.

Mortality was 4.23% during admission and 3.34% at 30 days from discharge. Intra-hospital mortality was related to high morbidity ($p<0,002$), a malignant aetiology of the cholangitis ($p<0,026$), alkaline phosphatase (AP) >300UI/L ($p<0,005$), CRP (C reactive protein) >8mg/dl ($p<0,006$), low albumin <3,3g/dl ($p<0,007$) and high leukocytes >12x10^3/uL ($p<0,022$).

Mortality at 30 days was associated with low levels of albumin, high levels of AP and CRP, high morbidity and a malignant origin of the cholangitis. In the multivariate analysis for intrahospital mortality, having high morbidity, AP>300 U/L and CRP>8mg/dl, were predictors of intra-hospital mortality (OR 2,34, IC 95% 1,19-4,16; OR 6,37 IC 95% 1,20-31,01; OR 5,10 IC95% 1,05-24,68; respectively). A malignant origin of a biliary stenosis was significantly associated with higher risk of mortality at 30 days after discharge (OR 12,57 IC 95% 1,58-100,17).

There were no differences in mortality of moderate and severe cholangitis between those drained before 48h of admission and those drained after 48h ($p=0,571$). In those patients who had the risk factors for mortality we identified, no differences in mortality were found between drainage before and after 48h of admission.

Conclusion: Patients with a high Charlson score, initial PA >300 U/L or initial CRP >8 mg/dL have a higher risk of mortality and therefore, should be considered as useful factors to prioritize those patients who need urgent drainage.

Disclosure: Nothing to disclose.

PP1413

THE EFFICACY OF BILIARY COVERED METAL STENT OVER CONVENTIONAL TREATMENT IN ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY RELATED TYPE II RETROPERITONEAL PERFORATION

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Introduction: Perforation is one of the most serious complications in endoscopic retrograde cholangiopancreatography (ERCP). Conventional non-surgical treatment, including intravenous antibiotics with nothing per oral(NPO) and traditional bile drainage (plastic ERBD, PTGBD, PTBD), is generally approved treatment for the ERCP-related Stapfer's type ll perforation (perivaterian type). The biliary covered metal stent placement has recently been reported to have favorable outcomes in ERCP-related type ll perforation.

Aims & Methods: We aimed to compare the outcomes of conventional treatment and biliary covered metal stent insertion in patients with Stapfer's type II perforation. The medical records of patients who underwent ERCP at Kyungpook National University Hospital in Daegu from 2011 through 2022 were retrospectively reviewed.

Results: 8,402 ERCP procedures were conducted in our hospital. 66 ERCP-related perforations (0.78%) were identified with 47 patients (71.2%) had type II perforations. 34 patients received conventional treatments, 13 patients received biliary covered metal stent insertions. There were also no significant differences in clinical success rate (97.1% vs 92.3%, p=0.481), hospital stay (15.53±11.35 vs. 9.46±5.97 days, p=0.227), and NPO times (3.79±3.00 vs. 5.42±3.40 days, p=0.127). The conventional bile drainage group took shorter time for ERCP than SEMS group (12.62±6.315 vs. 18.46±11.16 minutes, p=0.028).

Conclusion: The biliary covered metal stent insertion did not improve patient' outcomes when compared with the conventional treatment method in ERCP-related type II perforations. Conventional treatment is sufficient for management of ERCP-related type II small sized perforations.

Disclosure: Nothing to disclose.

PP1414

DEVELOPMENT OF PREOPERATIVE ENDOSCOPIC ULTRASOUND-GUIDED GALLBLADDER DRAINAGE KIT FOR ACUTE CHOLECYSTITIS

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Introduction: Laparoscopic cholecystectomy (LC) remains the standard treatment for acute cholecystitis; however, it is not always suitable for patients who are poor candidates for surgery. Moreover, the rate of complications is approximately 10-30% and the mortality rate is approximately 1-2 %, which is not low. Percutaneous transhepatic gallbladder drainage (PTGBD) is recommended as conservative treatment, but the average hospital stay for PTGBD is considerably longer than that for LC especially in Japan. Recently, endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) has been reported as an alternative treatment for inoperable cholecystitis.

However, it has rarely been reported as a preoperative gallbladder drainage because the stent is commonly placed between the gallbladder and duodenum. We have developed an EUS-GBD kit for preoperative gallbladder drainage and have verified the function of it in live pigs for clinical introduction. This kit consists of anchors to fix between the gallbladder and stomach walls and the drainage tube.

Aims & Methods: The purpose of this study is to investigate the feasibility of LC after EUS-GBD with our novel drainage kit. Between May 2019 and March 2023, EUS-GBD with the novel drainage kit was performed on 38 live pigs. In six of them, LC was performed 2-9 weeks after EUS-GBD. We investigated the feasibility of LC, the rate of conversion to open cholecystectomy, and the complications.

Results: LC was successfully performed in all cases. In four cases, the anchors and drainage tube were endoscopically removed just before LC. In two cases, they were not removed before LC, and the gallbladder was removed along with the fistula including a part of the stomach. In all cases, there were no conversion to open cholecystectomy and no complications.

Conclusion: Laparoscopic cholecystectomy after EUS-GBD using our novel drainage kit is feasible in live pigs, and we will verify it though clinical trials involving humans in the future.

Disclosure: Nothing to disclose.

PP1415 WITHDRAWN

PP1416

LOW PHOSPHOLIPID-ASSOCIATED CHOLELITHIASIS (LPAC) SYNDROME AS A NOT UNCOMMON CAUSE OF BILIARY PROBLEMS AND HOSPITAL ADMISSIONS

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Introduction: Biliary diseases are an important source of morbimortality for patients, as well as a burden for the healthcare system. In Spain they represent the main cause of hospitalization (2018: 104551 admissions, 81400 cholecystectomies). The genetic syndrome LPAC (low phospholipid-associated cholelithiasis) is a poorly known and considered as infrequent condition,

that involves the development of hepatolithiasis due to mutations in the ABCB4 gene, which encodes the MDR3 protein that functions as a biliary transporter. Its treatment with bile salts avoids symptoms, admissions and the need for surgery. Our aim is to determine its incidence and characteristics in our center.

Aims & Methods: We conducted an ambispective study between February 2021 and September 2022. To be eligible, the patients had to fulfil at least two of the following: onset of biliary symptoms before the age of 40 years; recurrence of symptoms after cholecystectomy; image of intrahepatic macro- or microlithiasis (hyperechoic foci, comet-tail images, biliary sludge alongside intrahepatic bile ducts).

Demographic, clinical, ultrasound and genetic characteristics (analysis of MDR3 gene mutations) were analyzed, as well as their incidence among hospital admissions.

Results: 36 patients with LPAC were enrolled (Table 1). 6 of them were identified among 237 patients admitted to the for biliary causes in the last 9 months, which represents an incidence of 2.5% (95% CI: 1.17-5.41). By age subgroup, the incidence was 16.7% among those admitted <40 years and 9.1% among those <50 years. Considering only women, the incidence was 21% among those admitted <40 years and 15.8% among those <50 years.

The ultrasound characteristics were also analyzed. A trend was found between macrolithiasis with acoustic shadowing and presence of MDR3 mutations (42.9% vs 14.3%), although the differences were not statistically significant.

All patients remained asymptomatic and with no need of hospital readmissions after treatment with ursodeoxycholic acid was initiated.

Mean age at first symptoms (years)	27.5
Female gender	69.44% (25)
Hispanic origin	33.33% (12)
History of biliary diseases in first-degree relatives	58.82% (20)
BMI at diagnosis (kg/m^2)	22.2
Comorbidities	
- Hypertension	0.03% (1)
- Hypercholesterolemia	13.89% (5)
- Diabetes	0.03% (1)
Intrahepatic cholestasis of pregnancy in women with a history of pregnancy	14.29%(2)
Clinical and imaging features	
- Acute cholecystitis	19.44% (7)
- Acute pancreatitis	22.22% (8)
- Acute cholangitis	0.03% (1)
- Gallbladder lithiasis	80.56% (29)
- Common bile duct lithiasis	25% (9)
- Intrahepatic lithiasis:	88.89% (32)
· Hyperecoic foci	38.9% (14)
· Comet-tail images	27.8% (10)
· Intrahepatic lithiasis with acoustic shadow	22.2% (8)
Cholecystectomy	77.78% (28)
Recurrence after cholecystectomy	60.71% (17)
Genetic confirmation	
- among the total number of patients	28%
- among those who fulfil 3/3 criteria	40%

Table 1. Demographic, clinical, ultrasound and genetic characteristics of LPAC patients.

Conclusion: LPAC syndrome is not as uncommon as it might seem, especially among individuals younger than 40 years old admitted for biliary diseases, and mostly women. Its correct diagnosis based on simple criteria would avoid a large number of hospital admissions and unnecessary cholecystectomies.

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Disclosure: Nothing to disclose.

PP1417

PRIMARY CHOLEDOCHOLITHIASIS OCCURRENCE AND RECURRENCE IS SYNERGETCALLY MODULATED BY THE BILE MICROBIOME AND METABOLOME ALTERNATIONS

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Introduction: Primary choledocholithiasis is a common digestive disease that is closely related to biliary bacterial infection and host metabolic dysregulation. However, the compositions and functions of the bile microbial ecosystem and the pathogenesis of microfloral regulation of host metabolism resulting in stone formation are poorly understood.

Aims & Methods: To explore the orchestrated function of the bile microbial ecosystem and metabolite changes, biliary samples collected from patients with acute cholangitis induced by benign biliary stricture (n = 17) and primary choledocholithiasis (n = 33) were subjected to multiomics analyses.

Furthermore, clinicopathological features collected over a 24-month follow-up period were examined to evaluate the predictive value of candidate microbes.

Results: Compared with that in the nonlithiasis group, bile microbiome and metabolome analyses indicated that the diversity and composition of the microbiome were reduced and the microbial and metabolic functions changed greatly in the lithiasis group. Five alpha diversity indices of the bile microbiome were significantly decreased in the lithiasis group. Furthermore, we identified 49 differential bile flora between the two groups, and the relative abundances of 6 bacteria were associated with primary choledocholithiasis relapse conditions. Multiomics analyses showed that specific changes in disease-related bacterial taxa were closely related to metabolite variation, which might reflect disease prognosis.

According to pathway analyses, we revealed that bacterial infections, microbiota-derived amino acid metabolites and secondary bile acid-related pathways were significantly enriched in the stone-formation group, suggesting a novel host-microbial metabolic mechanism of primary choledocholithiasis.

Conclusion: Our study first indicates that bile host-microbial dysbiosis modulates the abnormal accumulation of metabolites might further disrupt calcium homeostasis and generate insoluble saponification. Meanwhile, bile bacterial infection inhibits the function of bile duct epithelial cells and eventually synergistically promotes stone formation. Finally, we determined the predictive value of Actinomycetes phylum reduction for recurrence in primary common bile duct stone patients.

Disclosure: Nothing to disclose.

PP1418

ERCP-BASED TRANSCYSTIC DUCT GALLBLADDER-PRESERVING CHOLECYSTOLITHOTOM FOR CHOLECYSTOLITHIASIS PATIENTS WITH OR WITHOUT COMMON BILE DUCT STONES

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Introduction: Cholecystolithiasis is a common digestive disorder worldwide, affecting about 7% of adults aged 20-74 years. Laparoscopic cholecystectomy (LC) is considered as a safe and preferred surgical treatment for gallstone. Here, we assessed performance of ERCP-based transcystic duct gallbladder-preserving cholecystolithotom for patients having cholecystolithiasis with or without common bile duct stones.

Aims & Methods: A total of 41 patients having cholecystolithiasis with or without common bile duct stones (CBDS) and treated with ERCP-based transcystic duct gallbladder-preserving cholecystolithotom were enrolled in this study from March 2021 to April 2023 at the endoscopy center, Shenzhen University General Hospital.

Results: Of the 41 patients, 26 (63.4 %) had cholecystolithiasis without CBDS, while the rest 15 (36.6%) had concomitant cholecystolithiasis and CBDS. Among them, 33 (80.5%) patients had their gallbladder stones successfully removed by ERCP. The success rate of stone removal, operation time, and the full-covering metal stent (FCMS) implantation time were similar between patients with cholecystolithiasis only or with concomitant CBDS. The reported adverse events include post-ERCP pancreatitis (n=1), postoperative peritonitis (n=1), and postoperative acute cholecystitis (n=1), which were all resolved by subsequent intervention. Patients (n=33) who underwent this operation were followed up for 1 to 24 months, and none of them reported residue nor recurrence of gallbladder stones.

Conclusion: Cholecystolithiasis removal by ERCP-based transcystic duct gallbladder-preserving cholecystolithotom is a safe and effective treatment for cholecystolithiasis, and it preserves gallbladder function without incisions to abdominal wall or gastrointestinal tract. ERCP-based transcystic duct gallbladder-preserving cholecystolithotomis equally effective for cholecystolithiasis with or without CBDS.

Disclosure: Nothing to disclose.

PP1419

EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY VERSUS SPYGLASS-GUIDED LITHOTRIPSY FOR THE REMOVAL OF DIFFICULT BILIARY STONES

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Introduction: ERCP is the conventional therapy for removing bile duct stones (BDS). Some large, impacted stones cannot be removed, and such patients need other advanced endoscopic lithotripsy procedures to remove these stones.

This study compares the safety and efficacy of extracorporeal shock wave lithotripsy (ESWL) and spyglass-guided lithotripsy.

Aims & Methods: Patients at our hospital diagnosed with complex large BDS between January 2021 and June 2022 were randomly assigned to the ESWL group or a spyglass group for lithotripsy. Our results include clinical and technical success, the mean number of ERCP sessions, the hospital stay, and any complications from the procedure.

Results: A total of 78 patients were included and randomly assigned to two groups (32 ESWL group and 46 Spyglass group). There was no significant difference in the characteristics of the two groups. Technical success was 93.5% for the ESWL group and 100% for the spyglass group (P = 0.019), whereas clinical success was 62% and 87%, respectively (P = 0.011). The EWSL group had 2.32±0.98 ERCPs, and the spyglass group had 1.13±0.36 (P = 0.000). The mean hospital stay was 13.25±6.39 and 9.80±5.85 days, respectively (P = 0.001). The mean lithotripsy sessions for ESWL were 2.3±0.63 and 1.13±0.36 for spyglass (P = 0.000). All groups had similar adverse effects, except for skin issues.

Conclusion: Compared to ESWL, spyglass-guided lithotripsy provides a safe and effective treatment for large and complex BDSs

Disclosure: Nothing to disclose.

PP1420

A TWO-YEAR SINGLE CENTER RETROSPECTIVE ANALYSIS OF THE EFFICACY AND POTENTIAL COMPLICATIONS OF BILIARY PLASTIC STENTS

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Introduction: Although biliary plastic stents (BPS) are frequently utilized in ERCP procedures, their effectiveness and associated complications can vary significantly.

This study aimed to determine the risk factors associated with BPS patency within our patient population.

Aims & Methods: We conducted a retrospective analysis of patients who underwent endoscopic cholangiopancreatography (ERCP) at our facility from January 2021 to December 2022, excluding those with a malignant cause. The study included patients who underwent at least one ERCP re-intervention within the past 23 months and received a biliary plastic stent during their initial ERCP

Results: Over a period of two years, our Gastroenterology department performed a total of 1354 procedures, with 1077 of these being for benign conditions. Of the 1077 benign cases, 212 (19.7%) required reintervention due to their etiology, and therefore had biliary plastic stents placed previously.

Out of a total of 212 subjects, 45% were male and had a mean age of 68.36±14.96 years. Among these subjects, choledocholithiasis was found to be the cause of obstruction in 81.1% of cases, common biliary duct stenosis in 9.5% of cases, chronic pancreatitis in 7% of cases, and other causes in 2.4% of cases.

The median interval between the initial procedure and the reintervention was 90 (1-1095) days. Acute cholangitis was the reason for reintervention in 32% (68/212) of the subjects, with 34% of them having Tokyo grade 3 cholangitis. In univariate regression analysis, the following factors were identified as independent predictors of cholangitis in patients with biliary plastic stents: total bilirubin levels, AST levels, ALT levels, number of days until reintervention, and CRP levels ($p<0.05$)

Conclusion: Within our cohort, 19.7% of patients required a reintervention for a benign condition following the initial placement of a biliary plastic stent. Of these patients, 32% experienced acute cholangitis as a reason for the reintervention. Our findings revealed that acute cholangitis in patients with biliary plastic stents was associated with days until reintervention, TGO levels, TGP levels, total bilirubin levels, and CRP levels.

Disclosure: Nothing to disclose.

PP1421

INCIDENCE AND RISK FACTORS FOR RESIDUAL COMMON BILE DUCT STONES IN CHOLEDOCHOLITHIASIS COMBINED WITH CHOLELITHIASIS AFTER ERCP EXTRACTION AND SUBSEQUENT CHOLECYSTECTOMY

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) with sequential cholecystectomy is the preferred treatment for patients with choledocholithiasis and cholecystolithiasis.

Aims & Methods: Aims: To investigate the incidence of residual common bile duct (CBD) stones in choledocholithiasis combined with cholelithiasis patients who undergoing ERCP and subsequent cholecystectomy, and analysis the related factors of postoperative residual stones.

Methods A retrospective analysis was performed for the clinical data of a total of 301 patients who underwent endoscopic removal of CBD stones via ERCP followed by cholecystectomy in Hangzhou First People's Hospital from January , 2017 to July, 2022. Endoscopic nasobiliary drainage tube was placed after clearance of CBD stones by ERCP in all people until cholecystectomy. Postoperative residual common bile duct stone were detected by nasobiliary cholangiography after cholecystectomy or found in follow-up within 6 months after cholecystectomy, which were confirmed and removed by ERCP. All patients were divided into residual group and non-residual group. Possible factors associated with postoperative residual CBD stones were collected and statistically analyzed, including clinical characteristics, test indices, bile duct anatomical factors, CBD stones and gallbladder stone characteristics, endoscopic factor.

Results: 1. According to the inclusion and exclusion criteria, a total of 301 patients underwent cholecystectomy after endoscopic extraction in this study. 54 patients discovered suspicious residual CBD stones by nasobiliary cholangiography, of which 50 patients were confirmed to have residual stones by ERCP. 5 patients were found and removed residual CBD stones within 6 months follow-up by ERCP. The incidence of postoperative residual CBD stones was 18.3%(55/301), and nasobiliary cholangiography had a positive predictive value of 92.6%(50/54).

2. The results of univariate analysis showed that there were significant differences between the two groups in gallbladder triangle adhesion, cystic duct diameter≥5mm, CBD diameter ≥15mm, multiple CBD stones, CBD stones diameter≥10mm, and applying of endoscopic mechanical lithotripsy (EML) ($P<0.05$). The multivariate logistic regression analysis showed that cystic duct diameter ≥5mm (OR=2.297, 95% CI:1.193–4.421, P=0.013), and multiple CBD stones (OR = 2.613, 95% CI:1.017–6.717, P=0.046) were the independent risk factors for postoperative residual CBD stones.

Conclusion: There was a high incidence of residual CBD stones in patients with CBD stones combined with gall blader stones who underwent endoscopic stones extraction and subsequent cholecystectomy. Cystic duct diameter≥5mm and multiple CBD stones were independent risk factors for postoperative residual CBD stones. Patients with high-risk factors should be followed-up carefully for early detection of postoperative residual CBD stones.

Disclosure: Nothing to disclose.

PP1422

GLI1-SELECTIVE INHIBITOR, GLABRESCIONE B, IMPAIRS PROLIFERATION IN INTRAHEPATIC CHOLANGIOCARCINOMA

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Introduction: Cholangiocarcinoma (CCA) constitutes a heterogeneous group of epithelial malignancies that arise in the biliary tree. CCA is a very aggressive cancer and carries a poor prognosis[1].

Furthermore, in view of the constant increase in its incidence and mortality in recent decades throughout the world, it represents a growing global health problem[1,2].

CCAs are divided into three subtypes according to their anatomical site of origin: intrahepatic CCA (iCCA), perihilar (pCCA), and distal (dCCA). Specifically, iCCA is characterize by high intertumoral clinical-pathological and molecular heterogeneity, leading to an innovative histological classification approved by WHO (ICD-O-3.2), into small bile duct iCCA and large bile duct iCCA[3].

The molecular pathogenesis of iCCA is very intricate and involves multiple molecular networks: among them, the Hedgehog (Hh)[4,6] signaling pathway. Indeed, the Hh pathway plays an important role in many aspects of iCCA, such as tumor survival, proliferation, migration and EMT reprogramming[5]. The impact of innovative therapies on the survival of patients with iCCA is an ongoing area of investigation. Evidence on the pathogenetic role of Hh in iCCA implies the possibility of targeting this signaling pathway for therapeutic purposes in iCCA subtypes.

Aims & Methods: The aim of this study is to demonstrate the antitumor efficacy of a natural therapeutic compound, from an in-house library, that inhibits the Hh pathway in experimental models of human iCCA, in vitro, in established iCCA cell lines (CCLP1) and primary cell lines derived from small or large bile duct iCCA.

The iCCA samples from resected specimens have been processed by mechanical and enzymatic digestion to obtain patient-derived primary cell lines. The effect of Glabrescione B (GlaB), a selective inhibitor of GLI1 (Hh downstream transcriptional factor), has been evaluated. The dose-dependent efficacy of GlaB [0, 1, 5, 10, 20, 50 µM] or hyaluronic acid (HA) nano-

hydrogel-encapsulated Glab [0, 0.5, 1, 5, 10 µM], have been evaluated by Trypan Blue Exclusion Test and MTS assay (cell viability), at different time points (24h, 48h, 72h, 96h). Its ability as inhibitor of Hh signaling pathway has been evaluated by Western Blot analysis. All experiments have been conducted in N.3 experimental replicates.

Results: Our research shows a dose-dependent and time-dependent reduction of cell proliferation by Trypan Blue Exclusion Test in all cell lines ($p<0.05$). The decrease already occurs at low concentrations and at 24-hour incubation (40-50%) and becomes more evident at higher concentrations and at 96-hour incubation (80-90%) ($p<0.05$). Likewise, at the protein level, Gli1 knockdown, in a dose and time-dependent manner, is demonstrated ($p<0.05$). MTS assays confirmed the cytotoxicity effect of GlaB at 20 µM and 50 µM ($p<0.05$). Therefore, we decided to pursue the study with lower concentrations (from 1 µM to 10 µM) capable of knocking down the cell viability by 50%.

Thereafter, successful, and stable encapsulation of GlaB [0.5-10 µM] in HA nanohydrogel has been accomplished. Data showed a dose-dependent and time-dependent inhibitory activity of HA-encapsuled GlaB [0.5-10 µM] in all cell lines ($p<0.05$).

Conclusion: Aberrant Hh pathway activation is widely known to be closely related with the development and malignant progression of various human cancers. Preclinical experimental data denote that dysregulation of this pathway is a determinant of cholangiocarcinoma progression and invasiveness. The achievements of this study could lay the groundwork for pre-clinical studies of HA-encapsuled Glab in iCCA.

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Disclosure: Nothing to disclose.

PP1423

THERAPEUTIC POTENTIAL OF TARGETING PROTEIN HYPER-SUMOYLATION IN CHOLANGIOCARCINOMA

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Introduction: Cholangiocarcinoma (CCA) comprises a heterogeneous group of malignant tumors with dismal prognosis. Alterations in post-translational modifications (PTMs), including SUMOylation, result in abnormal protein dynamics, cell disturbances and disease. Here, we investigate the role of SUMOylation in CCA development and progression.

Aims & Methods: Levels and function of SUMOylation, together with response to S-adenosylmethionine (SAMe) and ML792 (SUMOylation inhibitors) or CRISPR/Cas9 against UBE2I were evaluated in vitro, in vivo and/or in patients with CCA. The impact of SUMOylation in CCA cells on tumor-stroma crosstalk was assessed performing co-culture experiments with CCA-derived cancer-associated fibroblasts (CAFs), human endothelial cells and monocytes. Proteomic analyses were carried out by mass spectrometry.

Results: The SUMOylation machinery was found overexpressed and over-activated in human CCA cells and tumors, correlating with poor prognosis. Most SUMOylated proteins found upregulated in CCA cells, after SUMO1-immunoprecipitation and further proteomics, participate in cell proliferation, survival or cell homeostasis. Genetic (CRISPR/Cas9-UBE2I) and pharmacological (SAMe and ML792) inhibition of SUMOylation reduced CCA cell proliferation and impeded colony formation in vitro. Moreover, both SAMe and ML792 induced apoptotic cell death in CCA cells in vitro. SUMOylation depletion (SAMe, ML792 or CRISPR/Cas9-UBE2I) halted tu-

morigenesis in subcutaneous models of CCA in vivo. Furthermore, SUMOylation deficiency in CCA cells reduced cancer-associated fibroblast and endothelial cell proliferation and impaired macrophage polarization towards an anti-inflammatory M2-like phenotype.

Conclusion: Aberrant protein SUMOylation contributes to cholangiocarcinogenesis by promoting cell survival and proliferation. Moreover, SUMOylation impacts the CCA-stroma crosstalk. Impaired SUMOylation halts CCA growth and, thus, may represent a potential new therapeutic strategy for patients with CCA.

Disclosure: Nothing to disclose.

PP1424

NOVEL PLATINUM-BASED CHEMOTHERAPEUTIC AGENTS HALT CHOLANGIOCARCINOMA PROGRESSION THROUGH THE INDUCTION OF DOUBLE-STRAND DNA BREAKS, PREVENTING DNA REPAIR MECHANISMS

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Introduction: Cholangiocarcinoma (CCA) comprises a heterogeneous group of biliary malignant tumors characterized by dismal prognosis. The first-line treatment for advanced CCA [cisplatin (CisPt) and gemcitabine] is considered palliative due to the high chemoresistance of this cancer, barely impacting on patients' overall survival.

Here, we aimed to design, synthesize and study a new generation of platinum (Pt)-derived chemotherapeutic drugs that produce double-strand DNA breaks (vs classical single-strand breaks induced by CisPt and related compounds) and thus, prevent the development of DNA repair mechanisms in cancer cells.

Aims & Methods: Ten Pt-derivatives (Aurki-Pt#s) were designed and synthesized. Atomic Force Microscopy (AFM) and Transmission Electron Microscopy (TEM) were used to characterize the binding of Aurki-Pt#s to DNA. The antitumoral effect of the two best candidates (Aurki-Pt#1 and #2) was evaluated by measuring the viability of human CCA cells (EGI-1 and HUCCT1), newly generated CisPt-resistant EGI-1 CCA cells, normal human cholangiocytes (NHC) and cancer-associated fibroblasts (CAFs). The DNA damage induced by Aurki-Pt#1 and #2 was assessed using the comet assay.

To ascertain the internalization mechanism of Aurki-Pt#1 and #2, substrate competition studies through flow cytometry and accumulation studies using HPLC-MS/MS were carried out. Finally, the effect of Aurki-Pt#1 and #2 was also tested in vivo on a subcutaneous xenograft model of CCA.

Results: Aurki-Pt#s induced double-strand DNA breaks, and the subsequent DNA fragmentation, contrary to CisPt. Aurki-Pt#1 and #2 significantly reduced CCA cell viability. Both compounds triggered increased DNA damage in CCA cells when compared to CisPt, augmenting the reactive oxygen species levels and being more effective when inducing apoptosis in vitro.

Additionally, Aurki-Pt#1 and #2 decreased the proliferative capacity of those CCA cells that survived. Importantly, Aurki-Pt#1 and #2 also promoted cell death in CisPt-resistant CCA cells. Moreover, Aurki-Pt#1 and Aurki-Pt#2 caused CCA spheroid shrinkage.

On the contrary, Aurki-Pt#1 and #2 did not induce a lethal effect in NHC in culture, but promoted cell cycle arrest. Besides, Aurki-Pt#1 and Aurki-Pt#2 had an impact on the survival of CAFs. Aurki-Pt#1 and #2 were transported into cells through OCT1, OCT3, CTR1 and OATP1A2, which did not transport CisPt. Finally, Aurki-Pt markedly hampered tumor growth on a subcutaneous xenograft model of CCA in comparison with CisPt or vehicle control.

Conclusion: This new generation of Pt-derived chemotherapeutic drugs selectively diminishes CCA cell viability through the induction of double-strand DNA breaks, and has an impact on its tumor microenvironment, representing a promising therapeutic tool for naïve or CisPt-resistant CCA tumors.

Disclosure: Nothing to disclose.

PP1425

BILE METABOLITES AND MICROBIOME COMPOSITION: NEW INSIGHTS INTO CHOLANGIOCARCINOMA

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Introduction: Cholangiocarcinoma continues to exhibit a high mortality rate despite advancements in diagnostic and therapeutic approaches. The contribution of the human microbiota to cholangiocarcinoma remains inadequately elucidated, with recent metagenomic analyses revealing a significant association between microbiota-driven carcinogenesis and cholangiocarcinoma.

This investigation seeks to explore alterations in microbiota composition in relation to cholangiocarcinoma and their metabolic signatures by integrating taxonomic and functional data with metabolomic findings and in vitro experiments.

Aims & Methods: The study included patients with and without cholangiocarcinoma who underwent endoscopic retrograde cholangiopancreatography (ERCP) between February 2019 and January 2021. Bile samples were procured through endoscopic nasobiliary drainage, followed by DNA extraction, PCR amplification of the bacterial 16S rRNA gene V3-V4 region, and data analysis utilizing QIIME2. In vitro CFSE proliferation and Annexin V/PI apoptosis assays were conducted to examine the effects of metabolites on cholangiocarcinoma cells.

Results: The study encompassed a total of 24 patients. Analysis of bile fluid indicated a significantly increased abundance of Escherichia coli in the cholangiocarcinoma group. Alpha diversity analysis demonstrated a marked difference between cholangiocarcinoma and non-cholangiocarcinoma cohorts.

NMR metabolic profiling identified 15 metabolites with significant concentration disparities, among which isoleucine exhibited the most pronounced variation. In vitro assays revealed that isoleucine inhibited cholangiocarcinoma cell proliferation without inducing apoptosis.

Conclusion: This study underscores the significance of biliary dysbiosis and bile metabolites, particularly isoleucine, in the development and progression of cholangiocarcinoma.

Disclosure: Nothing to disclose.

PP1426

NEXT-GENERATION SEQUENCING OF BILE CELL-FREE DNA IN INDETERMINATE BILIARY STRICTURES. A COST PERSPECTIVE

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Introduction: Despite the use of various multidisciplinary diagnostic tools, early differentiation between benign and malignant biliary strictures remains challenging. BILEMUT consists of a mutational analysis of bile cfDNA collected at the time of first ERCP using a next-generation sequencing (NGS) panel of 52 genes (1).

It has demonstrated a sensitivity and specificity of 96.4% and 69.2%, respectively, for malignancy in biliary strictures. While genetic analyses were once very expensive, they have become more affordable nowadays. When evaluating new diagnostic techniques, it is crucial to consider not only their accuracy but also their cost, adverse events, and potential for early diagnosis.

Aims & Methods: Prospective observational descriptive pilot study in a cohort of patients diagnosed with non-malignant biliary strictures after the first ERCP recruited in a tertiary hospital between 2017-2020. The aim of this study is to compare the differences in diagnostic costs in euros between performing BILEMUT and repeating tests to achieve a diagnosis according to current clinical practice in biliary strictures. Moreover, adverse events and time required for diagnosis were evaluated.

Results: From the cohort of 68 patients with biliary stricture, 35 received a non-malignant diagnosis after undergoing the first ERCP. Of those patients, 12 were directly referred to surgery, 7 were considered for a wait and see or palliative care approach due to age and/or comorbidity, and 16 required further diagnostic tests to confirm the diagnosis.

In these 16 patients, the median cost of the different endoscopic procedures, radiological techniques, hospital admissions and consultations performed was 8641.52 euros (895.9 – 31704.4). The cost of BILEMUT was 1223 euros per patient. BILEMUT assay had a S=100%, E= 62.5%, NPV=100%, PPV=72,7%. Repeating tests to achieve a definitive diagnosis according to current clinical practice in biliary strictures yield a S = 62.5%, E=100%, PPV=100% and NPV=62.5%.

Both strategies had the same diagnostic accuracy in this cohort, 81.3% (57-93.4%). Among the 8 patients who were diagnosed with malignant biliary stricture, the median time to reach the final diagnosis in real clinical practice was 43 days (range 10-930).

In contrast, BILEMUT analysis was obtained much faster, with a median turnaround time of 10 days (range 7-14 days). BILEMUT does not pose any additional risks to patients. Furthermore, no complications occurred in the current clinical practice strategy in this cohort despite the extra invasive tests.

Conclusion: This pilot study suggests that the BILEMUT approach in patients with indeterminate biliary strictures after the first ERCP could reduce costs without impairing diagnostic accuracy compared to the current clinical practice approach.

In addition, BILEMUT reduced the time and number of diagnostic tests needed to achieve a final diagnosis. There could be a lower theoretical risk of complications associated with the BILEMUT approach due to its ability to reduce the need for invasive tests. However, this study did not demonstrate such a risk reduction.

Reference: Arechederra M, Rullán M, Amat I, et al. Gut 2022;71:1141–1151.

Disclosure: Nothing to disclose.

PP1427

A COMPARATIVE ANALYSIS OF ARTIFICIAL INTELLIGENCE-BASED DIGITAL CHOLANGIOSCOPY AND PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY FOR DETECTING MALIGNANT BILE DUCT LESIONS: A SINGLE-CENTRE RETROSPECTIVE STUDY

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Introduction: Digital single-operator cholangioscopy (DSOC) allows an accurate diagnosis of biliary strictures. Two DSOC-based artificial intelligence (AI) models trained to identify neoplasia were proposed. DSOC-guided pCLE biliary strictures direct visualization, using the Miami and Paris classifications has demonstrated high diagnostic accuracy for neoplasia (higher than expert endoscopists at times). To date, there are no head-to-head studies comparing DSOC-AI vs DSOC-pCLE.

Aims & Methods: We aim to compare the diagnostic accuracy for identifying neoplasia in indeterminate biliary lesions using a novel DSOC-AI model against DSOC-pCLE. Historic cohort-based diagnostic accuracy study in agreement with STARD initiative including patients ≥18 years old who underwent DSOC-pCLE (06/2014 to 11/2021). Patients without available DSOC videos, biopsy, or impossibility for 12-month follow-up were excluded. For DSOC direct visualization, neovasculature constituted neoplasia. For DSOC-pCLE, a higher presence of the Miami classification's malignancy criteria (thick white and dark bands, dark clumps, epithelium) than the Paris classification's inflammatory criteria (vascular congestion, roughness aspect, increased inter-glandular space, and thickened reticular structure) constituted neoplasia. For DSOC and pCLE-guided biopsy, corresponding histological findings constituted neoplasia. An offline DSOC-based AI model analysis was performed using the DSOC recorded videos from the selected cases. The DSOC-AI model considered neovasculature as the criterion for neoplasia. The gold standard for neoplasia was based on further clinical evolution, imaging, or surgical specimen findings during a 12-month follow-up. Accuracy of DSOC direct visualization, DSOC-pCLE, DSOC and pCLE-guided biopsy, and DSOC-AI model was calculated in terms of sensitivity, specificity, positive and negative predictive values (PPV and NPV), observed agreement, and area under the curve (AUC). Comparison of obtained diagnostic accuracies were defined through DeLong's test for two ROC curves.

Results: Ninety patients were selected, median age was 66.4 ± 13.7 years, 56.7% female. Tumour suspicion was the most common indication (55.6%) (Table 1). DSOC-AI reached a 97.7% sensitivity, 75% specificity,

98.8% PPV, 60% NPV and 96.7% observed agreement; whereas, DSOC-pCLE had a 94.2% sensitivity, a 100% specificity, 100% PPV, 44.4% NPV, and 94.4% observed agreement (Table 2). AUC for DSOC-AI was 0.79; for DSOC direct visualization (0.74; P=.763), DSOC-pCLE (0.72; P=.634), and DSOC and pCLE-guided biopsy (0.83; P=.809).

	Sensitivity	Specificity	PPV	NPV	OA
DSOC direct visualization	83/86; 96.51 (90.14 - 99.27)	3/4; 75 (19.41 - 99.37)	83/84; 98.81 (93.54 – 99.97)	3/ 6; 50 (11.81 – 88.19)	86/90; 95.56 (89.01 – 98.78)
DSOC-guided pCLE	81/86; 94.19 (86.95 – 98.09)	4/4; 100 (39.76 – 100)	81/81; 100 (95.55 – 100)	4/ 9; 44.44 (13.7 - 78.8)	85/90; 94.44 (87.51 - 98.17)
DSOC and pCLE-guided biopsy	84/86; 97.67 (91.85 - 99.72)	4/4; 100 (39.76 - 100)	84/84; 100 (95.7 – 100)	4/ 6; 66.67 (22.28 – 95.67)	88/90; 97.78 (92.2 – 99.73)
DSOC-based AI model	84/86; 97.67 (91.85 – 99.72)	3/4; 75 (19.41 – 99.37)	84/85; 98.82 (93.62 - 99.97)	3/ 5; 60 (14.66 - 94.73)	87/90; 96.67 (90.57 - 99.31)

PPV: Positive predictive value; NPV: negative predictive value; OA: observed agreement; pCLE: probed-based confocal laser endomicroscopy.

Conclusion: The DSOC-AI model demonstrated an offline diagnostic accuracy similar to DSOC-pCLE. Larger multicentric head-to-head trials with a proportional sample among neoplastic and non-neoplastic cases are advisable for best estimation of obtained results.

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PP1428

CHOLECYSTECTOMY DECREASE THE INCIDENCE OF HEPATOBILIARY CANCERS AFTER ENDOSCOPIC CHOLEDOCHOLITIASIS MANAGEMENT

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Introduction: There were lots of previous references showed cholecystectomy (CCY) can increase the incidence of hepatobiliary and pancreatic cancers, while CCY can reduce the probability of recurrent biliary events in patients after endoscopic retrograde cholangiopancreatography (ERCP) intervention for choledocholithiasis. Chronic inflammatory environments could promote the risk of malignancy, but the current evidence showed in a different way. We need to know the true risk of hepatobiliary cancers in patients, who underwent CCY after choledocholithiasis managed with ERCP.

Aims & Methods: We selected all the patients who underwent first time endoscopic sphincterotomy and endoscopic papillary balloon dilatation in their life time for choledocholithiasis or cholangitis management from 2011 to 2017 in Taiwan. After exclusion the patients had missing data, age under 18, CCY before admission, relevant cancer diagnosed before index date, we collected 13413 patients who accepted CCY after ERCP intervention.

We used propensity score matching to get 13330 patients in both CCY and non-CCY group after ERCP intervention. Each specific cancer incidence and mortality were compared between CCY and non-CCY group.

Results: In the CCY group, 60 patients had cholangiocarcinoma and 15 patients had Ampulla Vater cancer (AVC). In the non-CCY group, 168 cases had cholangiocarcinoma and 49 patients had AVC. The incidence rates of cholangiocarcinoma and AVC were 1.19, and 0.3 per 1,000 person-years in the CCY group, all significantly lower than 3.52 ($P < 0.0001$) and 1.02 ($P < 0.0001$) per 1,000 person-years, respectively, in the non-CCY group.

Conclusion: CCY is a definite treatment after ERCP intervention for choledocholithiasis or cholangitis, not only reduce the future recurrent biliary events, but also decreased the incidence risks of hepatobiliary cancers.

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PP1429

HILAR CHOLANGIOCARCINOMA WITHOUT MACROSCOPIC MASS FORMATION CLASSIFIED INTO EXTRAHEPATIC CHOLANGIOCARCINOMA BASED ON MOLECULAR PATHOLOGIC STUDIES

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Introduction: Recent genomic analysis of biliary tract carcinoma has revealed the distinct genetic features based on their primary sites and is expected to help develop primary site-specific treatments. However, the exact primary site of perihilar cholangiocarcinoma (phCCA), which is located between the intrahepatic and extrahepatic bile ducts, is virtually unknown. A precise diagnosis of the primary tumor site of phCCA is urgently necessary to select appropriate treatment and improve prognosis.

Aims & Methods: This study aims to identify the primary site of phCCA by molecular pathological analysis. We analyzed a total of 358 surgically treated invasive CCA operated at the National Cancer Centre Central Hospital Tokyo, Japan from 1990 to 2013. The primary site of the tumor was evaluated based on bile duct stenosis location on preoperative image findings, detailed macroscopic observation in the resected specimen and histological tumor localization using elastic fiber staining. Hilar CCA (hCCA) was defined as a tumor originating in the upper common, right or left hepatic duct without macroscopic mass formation in liver.

The analysis set included 39 cases of mass-forming type intrahepatic CCA (iCCA-MF) and 9 cases of extrahepatic CCA (eCCA) in which both frozen and formalin-fixed paraffin-embedded specimens were available. The validation set included 60, 100, 85, 14, 36, and 15 cases of iCCA-MF, eCCA, hCCA, periductal infiltrating intrahepatic CCA (iCCA-PI), periductal infiltrating plus mass-forming intrahepatic CCA (iCCA-PI+Mass), and iCCA-MF with perihilar invasion, respectively.

First, transcriptome analysis was performed using the analysis set to identify candidate genes differentially expressed between eCCA and iCCA-MF. Second, immunohistochemical staining of the candidate genes was performed on the analysis set to determine the evaluation criteria.

Finally, immunostaining of the candidate markers was performed on the validation set to evaluate the expression levels of each CCA subtype and statistically analyze the comparison between hCCA and the other CCA subtypes.

Results: Candidate genes included Serpin Family A Member 1 (SEPRINA1), Claudin18 (CLDN18), and Mesothelin (MSLN) as positive cases, with their immunohistochemical staining evaluation criteria of ≥33%, ≥5%, and ≥1+ (positive intensity), respectively. The immunohistochemical expression of each three molecules in the analysis set between eCCA and iCCA-MF revealed SERPINA1 at 0% vs. 82% ($P < 0.01$), CLDN18 at 100% vs. 41% ($P < 0.01$), and MSLN at 100% vs. 48% ($P < 0.01$).

Similarly, a statistically significant difference was observed in the expression of each of the three molecules in the validation set. However, no significant difference was found in the immunohistochemical expression of the three molecules between eCCA and hCCA. Conversely, SERPINA1 expression in iCCA-MF cases with perihilar invasion was significantly different from that in cases of hCCA with microscopic hepatic parenchyma invasion, but not significantly different from that in cases of iCCA-PI+Mass. Furthermore, clustering analysis of the combination of three molecule expressions revealed that CCA was divided into three subgroups, consisting of iCCA-MF, iCCA-PI+Mass and iCCA-PI, and hCCA and eCCA.

Conclusion: We demonstrated molecular pathologically that the primary tumor site of phCCA can be identified and clinicopathologically classified in detail. In particular, we succeeded in showing that hCCA is classified into the same group as eCCA.

Disclosure: Nothing to disclose.

PP1430

OVERALL SURVIVAL AND ASSOCIATION OF PRE-CHEMOTHERAPY ALBUMIN BILIRUBIN (ALBI) PROGNOSIS SCORE IN UNRESECTABLE CHOLANGIOCARCINOMA RECEIVED SYSTEMIC CHEMOTHERAPY

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Introduction: Cholangiocarcinoma (CCA) prevalence is high in East and Southeast Asia, especially in northeast Thailand. The first line of treatment for unresectable CCA is systemic chemotherapy which a median OS of less than 1 year under palliative systemic therapy. Albumin-Bilirubin (ALBI) prognosis score is the new method for the evaluation of liver performance status and prediction of treatment outcome but there is a lack of data in CCA patients.

Aims & Methods: Aim: To study the association of overall survival and ALBI prognostic score in unresectable CCA patients who received systemic chemotherapy.

Methods: This retrospective cohort study was conducted in Maha Chakri Sirindhorn Medical Center, Thailand. Demographic data, Clinical information, Laboratory profile, and survival analysis were extensively reviewed in the patient who received systemic chemotherapy from 2012 - 2022. All patients were monitored for at least 1 year after initial treatment with chemotherapy or until death.

Results: 69 patients of Unresectable CCA received systemic chemotherapy enrolled in this study. Most of the patients were men (45/69, 65.22%) and Intrahepatic type CCA (55/69, 79.71%). 17 patients (24.6%) need Biliary drainage before systemic chemotherapy which median pre-drainage TB was 11.35 mg/dL (10.7 – 20.6). Most ALBI prognostic score were group 2 (37/69, 53.6%) and anemia was significantly in ALBI 2 group (81.08%, $P <0.001$). The median overall survival was 10.23 months and the median progression-free survival was 5.77 months.

Significantly better overall survival of the ALBI 1 group compared with the ALBI 2 group (ALBI 1, 13.76 months; ALBI 2, 6.33 months; log-rank test, $P <0.001$). The estimated 6, 12, 18, and 24-month survival rates were 72.46%, 40.58%, 18.84%, and 8.70%, respectively, whereas the estimated progression-free survival rate at 6, 12, 18, and 24 months were 47.83% and 10.14%, respectively.

Conclusion: ALBI prognosis score may serve as a surrogate marker in predicting the overall survival and progression-free survival of CCA patients who received Systemic chemotherapy.

Disclosure: Nothing to disclose.

PP1431

THE YIELD OF NEXT GENERATION SEQUENCING IN DIAGNOSTIC WORK UP OF SUSPICIOUS BILIARY STRICTURES

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Introduction: It is often difficult to correctly diagnose a suspicious biliary stricture. Biliary brushes and biopsies usually yield low cellularity and when cytopathological assessment is indecisive, additional sensitive diagnostic tests are lacking. Next generation sequencing (NGS) is an adjunctive diagnostic tool that may improve the diagnostic sensitivity. The aim of this study is to assess the added value of NGS for morphological classification of biliary brushes and biopsies in patients with suspicious biliary strictures.

Aims & Methods: In this retrospective single-center cohort study between 2019-2022, patients with suspicious biliary strictures of which biliary specimens by brush or intraductal biopsy were obtained and on which NGS (Ion Torrent) was performed, were included. Targeted NGS panels covering 40 (v5.1) and 59 genes (v6.1) were used for analysis of biopsies whereas brushes were analysed using the Oncomine™ Colon cfDNA Assay covering 14 genes with >240 hotspots. NGS was classified as malignant by an expert cytopathologist whenever one or more pathogenic mutations were identified. Sensitivity and specificity of NGS were calculated in general and in addition to type of morphology; i.e. benign, atypical, suspicious for malignancy and malignant.

Final diagnosis of the suspicious biliary strictures was defined on surgical resection specimens and autopsy, other endoscopic or percutaneous biopsies and/or clinical follow-up (>1 year). In addition, the changes in clinical decision making (CDM) after NGS outcome were evaluated retrospectively by an expert treatment panel. CDM was defined as a change in the course of treatment or the decisive factor to continue current treatment, without the need of additional imaging or pathology material.

Results: A total of 109 samples in 106 patients were included (94 brushes, 15 biopsies). Without taking into account initial morphology/histology, NGS had an overall sensitivity of 65% for brushes and 58% for biopsies, and specificity of 100% for both. Whenever taking initial morphology and histology into account, this resulted in an 85% sensitivity and 93% specificity. Whenever the initial morphology was described as atypical, NGS was able to correctly classify 54% of malignant cases, with a 64% sensitivity and 100% specificity.

Overall, NGS was able to identify 42 of the 75 (56%) malignancies correctly. There were no false positive results. Table 1 shows the sensitivities and specificities for both the brush and biopsy groups, stratified by initial morphology. The outcome of NGS resulted in a change of CDM in 8% of the patients.

	Brush		Biopsy	
	Sensitivity	Specificity	Sensitivity	Specificity
Benign	NA	1.00 [0.29 – 1.00]	-	-
Atypia	0.64 [0.41 – 0.83]	1.00 [0.85 – 1.00]	0.00 [0.00 – 0.60]	1.00 [0.16 – 1.00]
Suspicious for malignancy	0.67 [0.46 – 0.83]	1.00 [0.16 – 1.00]	0.88 [0.47-0.99]	1.00 [0.03 – 1.00]
Malignancy	0.60 [0.15 – 0.95]	NA	-	-

Table 1.

Conclusion: There is a significant additional yield of NGS in the setting of biliary strictures. Nevertheless, NGS has a limited impact on clinical decision making and for now should only be used in patients in which the outcome is most valuable. This could be to differentiate between different causes of cancer to determine the optimal chemotherapy regimen, or in patients with a clinical suspicion of malignancy but without any mass on cross-sectional imaging. With more sensitive NGS panels for cholangiocarcinoma and more targeted therapy options, in the future the clinical impact will likely increase.

Disclosure: M.J. Bruno received research funding for industry initiated studies from Boston Scientific and Cook Medical. He received research funding for investigator initiated studies from Boston Scientific, Cook Medical, Pentax Medical, Interscope, Mylan and ChiRoStim. He is a consultant to Boston Scientific, Cook Medical, and Pentax Medical. The other authors declare no conflicts of interest.

PP1432

THE USEFULNESS OF DETECTIVE FLOW IMAGING (DFI) FOR MALIGNANT BILIARY TRACT LESIONS

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Introduction: Detective flow imaging (DFI) is a novel technology that enables the evaluation of low-speed blood flow signal that is difficult to visualize with conventional Doppler techniques[1)-3)].

This technique allows for evaluating microvascular signals within tumors in endoscopic ultrasound (EUS) without using contrast agents. In this study, we aimed to investigate the usefulness of DFI for the diagnosis of biliary tract lesions.

Aims & Methods: A retrospective study was conducted of patients who underwent DFI with EUS between September 2019 and December 2022 at our institution. Patients with biliary tract lesions diagnosed by either endoscopy or pathology were included. Malignant biliary tract lesions were defined as those with histopathological diagnoses of non-invasive or invasive carcinoma.

To evaluate the diagnostic ability of DFI for malignant biliary tract lesions, we assessed the presence of tortuous or variable caliber vessels in DFI findings.

Inter-observer agreement and the diagnostic ability of DFI in identifying malignant biliary tract lesions were also assessed. Additionally, the DFI findings of intraductal papillary neoplasms (IPNB) and cholangiocarcinoma in patients who underwent surgical resection.

Results: There were 17 cases of cholangiocarcinoma, 9 cases of IPNB, 3 cases of bile duct stone, and 3 other cases. The final diagnosis of biliary tract lesion was made by surgery in 20 cases and by EUS-FNA or biopsy in 9 cases.

In the first analysis, the sensitivity and specificity for the presence of tortuous or variable caliber vessels for the diagnosis of malignancy were 80% and 43% for tortuous vessels and 68% and 100% for variable caliber vessels, respectively. Interobserver agreement was k=0.63 for tortuous vessels and k=0.75 for variable caliber vessels.

In the second analysis, DFI identified stalk vessels in 7 of 8 cases (87.5%) of IPNB and in only 1 of 10 cases (10%) of invasive cholangiocarcinoma. The rate of concomitant stalk vessels was significantly higher in IPNB than in invasive cholangiocarcinoma (P<0.01).

Conclusion: DFI is a simple and easy-to-use technique that allows for the evaluation of blood flow in biliary tract lesions without the use of contrast agents. It has the potential to be a useful tool for the differential diagnosis of malignant biliary tract lesions.

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Disclosure: Nothing to disclose.

PP1433

FEASIBILITY, CLINICAL SUCCESS AND SAFETY PROFILE OF INTRADUCTAL RADIOFREQUENCY ABLATION IN THE MANAGEMENT OF INOPERABLE PERIHILAR CHOLANGIOCARCINOMA PATIENTS: INTERIM ANALYSIS OF THE COMBORFA RANDOMIZED CLINICAL TRIAL

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Introduction: Therapeutic options in the management of inoperable perihilar cholangiocarcinoma (pCCA) patients are very limited and include palliative chemotherapy and endoscopic drainage procedures. Recently, ERCP-guided intraductal radiofrequency ablation (RFA) has been proposed as a potential adjuvant therapy in these cases.
Aims & Methods: We aimed to evaluate the feasibility, clinical success rates and safety profile of an endoscopic treatment protocol including RFA and biliary stenting in inoperable pCCA patients.
We performed an interim analysis of a single center, randomized control trial of native papilla cases of pCCA patients with ECOG 0-2 performance status and localized disease who required endoscopic biliary drainage (NCT05563870). Patients in the control arm underwent palliative stenting with plastic stents while patients in the active arm received RFA ablation with the Habib probe and plastic stenting. Treatment in both arms was planned based on preprocedural CT and MRCP, with the aim of draining as much of the viable liver volume. All patients were referred for palliative chemotherapy according to the current standard of care. Technical and clinical success rates and procedure-related adverse event (AE) rates were evaluated prospectively at 30 days.
Results: We included 15 patients (6 in the RFA arm, 9 in the control arm) between April 2022-April 2023. Patients were predominantly female (9/15), mean age was 72 years and most cases were classified as Bismuth IV strictures (7/15). Median ECOG status was 1 (range 0-2) and mean bilirubin level prior to endoscopy was 15.9 mg/dL (range 1.8-36.8).
Technical success was achieved in 14/15 patients and clinical success in 13/15 patients. Notably, there were 4 cases of cholangitis in the control arm compared to only 1 case in the active arm, 1 case of bleeding (control arm), 2 cases of cholecystitis (1 in each arm) and 1 perforation (active arm) and 1 case of severe pancreatitis requiring percutaneous drainage (control arm). There was no difference in the advent of moderate and severe AEs following the procedure (4 in the active arm vs. 7 in the control arm, p=0.64) and most cases were successfully managed by endoscopy, with only 1 case requiring surgery and 1 death recorded at 30 days after the procedure. 5 patients underwent systemic chemotherapy after endoscopic drainage.
Conclusion: Our preliminary data suggests that RFA followed by adequate biliary drainage is technically feasible even in difficult-to-treat cases such as high-grade hilar stricture, with no additional increase in complication rate in patients receiving ablation therapy.
Disclosure: Nothing to disclose.

PP1434

HIGH SENSITIVITY OF BILIARY BRUSH CYTOLOGY AFTER OPTIMIZATION OF PROTOCOL IN PATIENTS WITH SUSPECTED PERIHILAR OR INTRAHEPATIC CHOLANGIOCARCINOMA: A PROSPECTIVE COHORT STUDY WITH HISTORICAL CONTROL

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Introduction: Endoscopic or percutaneous bile duct brushing is often performed as first step to differentiate between benign and malignant biliary strictures. Although brush cytology has a high specificity (95-100%), the sensitivity for detection of malignancy has been reported to be poor (41-67%).(1-4) This results in repeated diagnostic procedures with potential treatment delay, adverse events, and additional costs.
Aims & Methods: Aim of this study was to evaluate a change in protocol for brush cytology with optimization of handling and rating, Next Generation Sequencing (NGS), and the use of two brushes plus intraductal biopsies in patients with suspected perihilar or intrahepatic cholangiocarcinoma (pCCA/iCCA). Patients with suspicion of pCCA or iCCA were prospectively included between June 2021 and December 2023. Preferably two brushes and 2-4 intraductal fluoroscopy guided biopsies were taken during the initial procedure. Cells were dislodged in a Cytolyt container within 30 seconds of which two 'thin prep' slides were prepared. Double reading was routinely performed by at least two expert cytopathologists. NGS was performed in samples with an uncertain diagnosis of atypia.
A historical cohort (January 2017-June 2021) was used as control. In this cohort a single brush was performed without intraductal biopsies. The obtained cells were preserved in a Roswell Park Memorial Institute (RPMI)

1640 medium of which four cytospins were done. Double reading and NGS were not routinely performed. In both cohorts morphological diagnosis was assessed according to the Papanicolau society of cytopathology system for reporting pancreatobiliary cytology. Both the diagnostic category 'suspicious for malignancy' and 'malignant' were classified as results compatible with malignant disease. Final diagnosis was confirmed by either histological proof of malignancy or in case unavailable, follow-up compatible with malignant disease. Primary endpoint was the sensitivity before and after implementation of the protocol; secondary endpoints were the sensitivity of the individual steps of the modified protocol in the prospective cohort e.g. the sensitivity of only the first brush and additional value of NGS, the second brush, and intraductal biopsies.

Results: In this study, a total of 167 patients were evaluated (51 prospectively and 116 historical controls). The final diagnosis was malignant disease in 153 patients (91.6%). After implementation of the protocol, the sensitivity rose to 86% (95%CI, 72.6-93.7%) versus 48.5% (95%CI, 38.7-58.5%) prior to implementation (difference 37.5%; 95%CI, 22.3-52.6%). Specificity was 100% in both groups (1/1 vs 13/13). Sensitivity of the first brush in the prospective cohort was 76% (95%CI, 61.5-86.5%). NGS was of additional diagnostic value in 3 patients with uncertain brush cytology results, increasing the sensitivity to 82% (95%CI, 68.1-91%). A second brush was performed in 37 patients; in one of these patients, the second brush had additional diagnostic value over the first brush. Intraductal biopsies were performed in 26 patients (4 benign, 9 suspicious of malignancy, 13 malignant), leading to a malignant diagnosis in 2 out of 12 patients with false-negative brush cytology.

Conclusion: A modification in the handling of cytopathology, led to a significant improvement in the sensitivity of bile duct brushes to 76% for patients with suspected pCCA or iCCA. Furthermore, adding NGS, use of two brushes, and intraductal biopsies in the initial procedure could further increase sensitivity to 86%.

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Disclosure: Jeska A. Fritzsche, Esmée Smit, Otto M. van Delden, Frederike Dijk, Arantza Farina Sarasqueta, Sybren L. Meijer, Anne M. Uyterlinde, Mattheus C.B. Wielenga, IJsbrand A.J. Zijlstra, and Joanne Verheij have no conflicts of interest or financial ties to disclose.

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PP1435

RECEIVING DIRECT ORAL ANTICOAGULANTS CAN BE A RISK FACTOR FOR SEVERE BLEEDING REQUIRING BLOOD TRANSFUSIONS AFTER ENDOSCOPIC SPHINCTEROTOMY

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) with endoscopic sphincterotomy (EST) is an established endoscopic treatment for common bile duct stones and acute cholangitis. Due to its less invasiveness compared to surgery, it has been accepted as a first choice even for the elderly receiving anticoagulants.

However, there is only a limited number of reports of the safety of EST after minimal cessation of anticoagulant based upon the Japan Gastroenterological Endoscopy Society (JGES)guideline.

Aims & Methods: To evaluate the safety, we aimed to clarify the bleeding risk in patients taking anticoagulants in our institute. Patients who underwent ERCP at double institutes from January 2018 to December 2021. Among them, we compared the rate of bleeding after EST and bleeding requiring blood transfusion in anticoagulant patients and non-administrators. Patients taking anticoagulants were allowed to discontinue the direct oral anticoagulant (DOAC) on the day before or the day of ERCP, and those who followed the JGES guideline for warfarin were included.

Results: ERCP was performed in 1616 patients and an analysis of a total of 882 patients of EST including 69 patients taking anticoagulants revealed that there were no significant differences in the bleeding rate although the blood transfusion rate was significantly higher in the DOAC group (2/52 3.9%) and antiplatelet drug combination cases (1/15 6.7%) compared to other cases (5/805 0.6%).

Univariate and multivariate analyzes were performed according to background age, sex, hypertension, diabetes mellitus, heart disease, cerebrovascular disease, hemodialysis, platelet count decreased (less than $10x10^4/\mu L$), and urgency (within 24 hours after consultation). In the univariate analysis for EST bleeding, cerebrovascular disease, hemodialysis, and thrombocytopenia were significant risk factors($p<0.05$).

As a result of the multivariate analysis of these, only cerebrovascular disease was a significant risk factor (OR=2.11, 95%CI: 1.21-3.68, p=0.0086). In the univariate analysis for blood transfusion, DOAC users, cerebrovascular disease, and hemodialysis patients were significant risk factors($p<0.05$). A multivariate analysis that added EST bleeding to these results also found significant risk factors for similar items. DOAC (OR=6.89, 95%CI: 1.06-44.65, p=0.043) and cerebrovascular disease (OR=18.85, 95%CI: 3.01-117.93, p=0.0017), hemodialysis (OR=55.68, 95%CI: 6.51-475.99, p=0.00024) were significant risk factors for severe bleeding requiring blood transfusion.

Conclusion: Although there were no significant differences between the bleeding rates of EST for those taking anticoagulants and those not taking anticoagulants, it was suggested that there is a possibility of serious bleeding requiring blood transfusion in patients receiving anticoagulants, especially DOAC.

Disclosure: None.

PP1436

DEVELOPMENT AND VALIDATION OF AN ARTIFICIAL-INTELLIGENCE-BASED ANATOMICAL CLASSIFICATION OF PERIAMPULLARY DIVERTICULA

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Introduction: Advanced cannulation technique has transformed the management of difficult selective biliary cannulation (DSBC), which is associated with an increased risk of post-ERCP pancreatitis (PEP). However, Periampullary diverticula (PAD) was not sufficient for DSBC on its own and the role of different types in cannulation may be ambivalent.

Aims & Methods: In this study, we developed DeepDV, a novel artificial-intelligence-based diagnostic identification system to advance using of rescue technique for DSBC with PAD. DeepDV is trained using a large-scale multimodal dataset that includes Electronic Health Record (EHR) and duodenoscope images. For training DeepDV, a total of 1704 patients with native papilla and PAD who underwent ERCP from January 2016 to June 2022 were retrospectively collected.

Results: In a retrospective, multicenter testing cohort of patients with PAD (n=325), who underwent ERCP, we demonstrate that DeepDV can predict the cases needed advanced cannulation technique used by the ESGE to define the difficult cannulation (after 5minutes, 5 attempts, or more than 1 unintended pancreatic duct cannulation).

Outcome/ n, (%)	Type I	Type II	Type III	Type IV
Pancreatitis post ERCP	2(0.83)	3(11.11)	1(1.40)	5(2.32)
Successful cannulation rate	11(91.67)	23(85.19)	70(98.59)	213(99.07)
Difficulty at cannulation	7(58.33)	23(85.19)	6(8.85)	98(45.58)

Conclusion: Our results represent how artificial intelligence and multimodal dataset may be used to provide a more accurate prognostication for the advanced cannulation technique and may help to avoid unintentionally and repeatedly attempts.

Disclosure: Nothing to disclose.

PP1437

MORPHOLOGY OF THE PAPILLA CAN PREDICT A HIGHER RATE OF POST-ERCP ADVERSE EVENTS - A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Endoscopic Retrograde Cholangiopancreatography (ERCP) is the most commonly used therapeutic procedure for pancreaticobiliary disorders. However, how to best achieve safe and effective bile duct cannulation is still debated. Endoscopists doing ERCP routinely recognize the differences in the macroscopic appearance of the major papilla. This has led to a conception that certain appearances of the papilla are more difficult to cannulate and, therefore, more prone to adverse events.

Aims & Methods: We aimed to assess the influence of papilla morphology on ERCP outcomes and adverse events.

PROSPERO registration number: CRD42022360894. Three medical databases (MEDLINE via Pubmed, Embase, CENTRAL) were systematically searched from inception to 29/09/2022. Studies detailing the cannulation process or the rate of adverse events in the context of papilla morphology were included. For the primary classification of the papilla, the Haraldsson system was used.

Additional analyses were conducted including further studies comparable to the Haraldsson classification. A pooled event rate with a 95% confidence interval (CI) was used for the effect size measure. The risk of bias assessment was performed using the Joanna Briggs Institute Critical Appraisal tool for studies reporting prevalence.

Results: A total of 17 studies were eligible, and 14 of them were included in the quantitative synthesis. In studies using the Haraldsson classification, the rate of difficult cannulation was the lowest in type I ("regular") papilla (26%; CI: 18–37), followed by type III ("protruding/bulging") (35%; CI: 25–48) and type II ("small") papilla (39%; CI: 28–52). The highest rate was observed in the case of type IV ("creased/ridged") papilla (41%; CI: 28–55). For post-ERCP pancreatitis, the event rate was the highest in type II ("small") papilla (11%; CI: 8–15), and the lowest in type I ("regular") (6%; CI: 5–8) and III ("protruding/bulging") papilla (6%; CI: 4–8). In the case of both outcomes, similar results were observed including also the studies with different classifications. There was no difference in the event rate of cannulation failure and post-ERCP bleeding between the different papilla types. Most studies carried a low risk of bias.

Conclusion: Compared to the regular papilla type, other types are associated with a higher rate of difficult cannulation. Small papilla is associated with a higher rate of post-ERCP pancreatitis.

Disclosure: Nothing to disclose.

PP1438

AGGRESSIVE HYDRATION WITH LACTATED RINGERS FOR REDUCING POST-ERCP PANCREATITIS: A SYSTEMATIC REVIEW AND META ANALYSIS

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Introduction: The most common complication of Endoscopic Retrograde Cholangiopancreatography (ERCP) is post-ERCP Pancreatitis (PEP). Aggressive periprocedural hydration with PLR has been shown to reduce incidence of PEP, but the evidence is still lacking. This meta-analysis aims to determine if aggressive hydration with Lactated Ringer Solution reduces the incidence of PEP.

Aims & Methods: RCTs studying the effect of aggressive PLR hydration on the incidence of PEP were retrieved from Pubmed, Cochrane and OVID databases using the following key terms and their equivalents: ERCP, pancreatitis, hydration. Nonrandomized studies and studies that included other interventions were excluded. Quality assessment was done using the Cochrane risk of bias tool. Pooled odds ratio (OR) at 95% confidence intervals were computed to generate forest plots. Data synthesis and analysis were performed using Revman 5.4 for Mac. A p-value <0.05 was considered as statistically significant.

Results: Six RCTs with 1516 patients were included in this meta-analysis. The incidence of PEP was significantly lower in the aggressive hydration group overall 5.6% (43/765) compared to 13.4% (101/751) in the standard (OR=0.37, CI= 0.23 - 0.60, P<0.0001, I^2=34%). This effect was maintained re-

gardless of timing of onset of hydration, with decreased risk of PEP seen in the aggressive hydration group, given hydration pre-procedure (OR =0.51, CI= 0.28 - 0.93, P=0.03, I^2=41%) and those that only started hydration peri-procedure (OR =0.22, CI= 0.11 - 0.44, P<0.00001, I^2=0%).

Conclusion: Aggressive hydration with Lactated Ringer Solution in patients undergoing ERCP can prevent PEP.

Disclosure: Nothing to disclose.

PP1439

RESCUE NEEDLE KNIFE PAPILLOTOMY AND CONVENTIONAL SPHINCTEROTOMY IN THE ENDOSCOPIC RETROGRADE CHOLANGIO-PANCREATOGRAPHY (ERCP) CANNULATION: A COMPARISON OF SUCCESS AND ADVERSE RATE BY USING PROCEDURE TIME MATCHED COHORT

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is a minimally invasive endoscopic procedure that is crucial for pancreato-biliary diseases and selective cannulation is the most important step. However, even an experienced endoscopist can face cannulation failure in up to 15-30% of cases in the first ERCP when standard methods alone are used.[1]

Many studies suggested the various needle knife fistulotomy or papillotomy as an alternative technique in difficult cannulation cases.[2,3]

However, needle knife papillotomy (NKP), which is modified technique with needle knife has not been evaluated well.

Aims & Methods: To evaluate the clinical outcomes and adverse events of bile duct cannulation by NKP, we performed a retrospective review on medical records of all ERCP cases in Sheikh Khalfia Specialty Hospital, UAE. For six years, Sphincterotomy (SPT) naïve patients except altered-anatomy cases were enrolled and their procedure times, cannulation success rates, radiation exposures, and adverse events were measured between the procedure time matched two cohort group of SPT only and rescue NKP.

Results: In total 416 ERCP cases, 43 procedure time matched cases were selected among 352 (84.7%) SPT only cohort and 43 cases from 64 rescue NKP cohort. Biliary cannulation was succeeded in all cases (100%) by using SPT cannulation with rescue NKP technique without failure. There was no differences in cumulative radiation doses, cannulation time, and adverse event rates in rescue NKP group compared to SPT only group: Post-ERCP hyperamylasemia/hyperlipasemia (16.5% vs. 34.8%, p=0.080), pancreatitis (3.9% vs. 4.3%, p=0.883), cholangitis (4.7% vs. 4.3%, p=0.695), and no perforation case was noticed in both groups.

Conclusion: The SPT with rescue NKP technique can be used in the difficult biliary cannulation cases during ERCP safely and effectively.

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Disclosure: Nothing to disclose.

PP1440

MORPHOLOGICAL EVALUATION OF THE RELATIONSHIP BETWEEN DIFFICULT BILIARY CANNULATION DURING ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY AND THE SHAPE OF THE MAJOR DUODENAL PAPILLA AS WELL AS INTRA-AMPULLARY BIFURCATION OF THE PANCREATICOBILIARY DUCTS

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Introduction: Recent reports have evaluated the difficult biliary cannulation (DBC) during endoscopic retrograde cholangiopancreatography (ERCP) based on the shape of the papilla [1)2)].

However, it is more important to elucidate how the difficulty of biliary cannulation changes depending on the morphology of the papilla. We performed a morphological evaluation to investigate the causes of DBC during ERCP, including the relationship between the shapes of the papilla and intra-ampullary pancreaticobiliary bifurcations (IAPBs).

Aims & Methods: We prospectively established a database and retrospectively assessed the difficulty of selective biliary cannulation (SBC) with contrast-assisted cannulation (CAC) during ERCP, in which any morphological IAPBs are visualized. In all cases, both the bile and pancreatic ducts were cannulated or imaged in a naïve major duodenal papilla. The database included papilla shapes with Haraldsson’s classification of Type 1-Type 3, the number of papillary orifices classified as Mono or Dual. The IAPBs were classified into four types based on their branching angle (Figure V for acute branching, Figure T for perpendicular branching, Figure X for orifice of bile duct located just above the papillary orifice inside, and pancreaticobiliary maljunction classified as Figure I). In addition, small intra-ampullary cysts (choledochocele, IAC) were classified into three types based on their location: the common channel (Ac) type, equivalent to Elton’s dilated common channel syndrome [3)];, the bile duct (Ab) type, including a cyst within the papilla; and the common bile duct (CBD) type, corresponding to Alonso Lej type III. DBC was defined as cannulation longer than 5 minutes, and when guidewire placement in the pancreatic duct (P-GW) was attempted to facilitate SBC. We conducted a logistic regression analysis to investigate the association among the anatomical morphology of the papilla, the variation of IAPBs, and the presence of IAC.

Results: We analyzed a database of 1,700 consecutive cases. The shape of papilla Type 1 was found in 621 (36.5%), Type 2 in 82 (4.8%), and Type 3 in 997 cases (58.6%). Mono orifice was confirmed in 1,192 cases (70.1%), and P-GW was performed in 709 cases (41.7%). IAC was observed in 203 cases (11.9%). The odds ratio (OR) for DBC in relation to papilla morphology was analyzed with Type 1 as the reference. The OR for Type 2 was 1.9 (95% confidence interval [CI], 1.5-3.0) (p=0.07), and for Type 3, it was 1.7 (95% CI, 1.3-2.1) (p<0.01). In the analysis of the number of orifices, the OR was calculated with Dual as the reference. Mono was 2.5 (95% CI, 2.0-3.2) (p<0.01). In the analysis of IAPBs, the ORs were calculated with Dual as the reference. The ORs for Figures V, T, X and I were 1.6 (95% CI, 1.2–2.1) (p<0.01), 2.4 (95% CI, 1.7–3.2) (p<0.01), 5.1 (95% CI, 3.8–7.0) (p<0.01) and 0.6 (95% CI, 0.3–1.4) (p=0.39), respectively. In the analysis of IAC, the ORs were calculated with the absence of IAC as the reference. The ORs for Ac, Ab and CBD were 1.3 (95% CI, 0.9–2.0) (p=0.17), 1.5 (95% CI, 0.9–2.6) (p=0.14), and 0.6 (95% CI, 0.3–1.4) (p=0.23), respectively. When the shape of papilla was Type 3 and had a Mono orifice with IAPBs of Figures V, T, or X, the difficulty of SBC significantly increased.

Conclusion: Our study suggests that morphological DBC depends not only on the shape of the major duodenal papilla, but also on the number of orifices, the type of IAPBs, and the presence of IAC. Sometimes, IAPBs can exhibit unexpected bifurcations that make SBC difficult. To overcome this difficulty, it is important to perform SBC using CAC to confirm IAPBs.

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PP1441

THE IMPACT OF PERIAMPULLARY DIVERTICULUM ON CANNULATION RATE AND ADVERSE EVENTS IN ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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Introduction: A common finding in patients undergoing endoscopic retrograde cholangiopancreatography (ERCP) is periampullary diverticulum (PAD). It is more prevalent in females and elderly patients but is also linked to cholangitis and common bile duct stones. The anatomy may be distorted by PAD, possibly making papilla cannulation challenging. Whether PAD increases the difficulty of cannulation and whether it is linked to a higher incidence of adverse events has been debated.
To provide further insights into this scenario, we conducted a nationwide registry-based study.
Aims & Methods: Our objective was to determine the impact of PAD on the cannulation rate, adverse events, and ERCP duration. We collected data on ERCP procedures performed between 2006 and 2021 from the Swedish Registry for Gallstone Surgery and ERCP (GallRiks). The 125,558 ERCPs that were registered in the registry during the study period were reduced to 73,937 after we excluded rendezvous procedures, previous sphincterotomies, previous stenting, and procedures with missing follow-up data.
Results: PAD was discovered in 12,782 (10.2%) ERCPs, with data recorded in the registry, and was present in 8,589 (11.6%) ERCPs in the study population. For 2,796 (3.8%) of the patients in the study group had the papilla inside the PAD (Boix Type 1), while 5,793 (7.8%) of the patients had a papilla on the edge of the PAD (Boix Type 2) or immediately next to it (Boix Type 3).
The probability of successful cannulation was greater in non-PAD patients (89.7% vs. 88.6%; P=.002), whereas successful cannulation was reduced to only 81.1% if the papilla was located within the PAD (Type 1) (P<.001). The procedure time did not differ between the PAD (37.4 min) and non-PAD (37.5 min) groups (P=.73).
There were no differences in intraprocedural complications (3.1%) or adverse events (16.4% vs. 15.5%; P=.05), whether PAD was present or not. In the PAD group, the risk of bleeding increased (1.8% vs. 1.3; P=.001). The perforation risk did not differ across the groups (PAD 0.8% vs. 0.7% non-PAD; P=.22), however PAD had a reduced incidence of cholangitis (1.8% vs. 2.3%; P=.01) and pancreatitis (4.5% vs. 5.2%; P=.008).
Conclusion: The cannulation rate is slightly reduced in the presence of PAD, and this effect is more pronounced and particularly apparent in patients with Type 1 PAD. The safety of ERCP is unaffected by the presence of PAD.

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Disclosure: Nothing to disclose.

PP1442

THE UK NATIONAL ERCP SURVEY: ADHERENCE TO GUIDANCE AND ACCESS TO ACUTE CARE

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is a high-risk procedure. There are multiple clinical guidelines yet practice varies. As part of an on-going BSG Endoscopy Quality Improvement Programme, we aim to describe current ERCP practice in the UK and benchmark this against published guidelines.
Aims & Methods: An anonymised survey link was emailed to all independent ERCP practitioners in the UK and a further survey was sent to all organisations in the UK in which ERCP is carried out. Multiple reminders and individual contacts were used to maximise response rate. Clinical questions covering a range of scenarios were aligned with published guidelines and quality standards including the UK National Institute for Health and Care Excellence (NICE).
Results: 171 organisations providing ERCP were identified with a 100% response rate. 491 ERCP practitioners were identified with 78% (n= 386) response rate. In patients with an intermediate likelihood of common bile duct stones (CBDS), 9% of responders would proceed directly to ERCP, 76% would request MRCP or EUS first and 11% would arrange same session EUS +/- ERCP.
In patients with normal anatomy and large or difficult to extract stones, 68% would perform sphincterotomy followed by sphincteroplasty and further attempts at duct clearance at the index procedure. After two or more inadvertent guidewire into the pancreatic duct (PD), 25% of individual

practitioners always and 51% usually place a PD stent, whereas 19% rarely and 5% never do. In 10% of organisations standard practice is usually not to insert a PD stent.

NICE quality standard in the management of gallstone disease (QS104) stipulate that adults with CBDS causing jaundice have ERCP within 72 hours of diagnosis; 86% of organisations are compliant with this all or most of the time. In patients who need emergency ERCP for CBDS, 66% of organisations are compliant all or most of the time with having an ERCP within 24 hours (QS104).

In 29% of organisations, access to same-day ERCP 5 days a week was not available all/ most of the time. Out of hours ERCP (1800-0800) was not available all or most of the time in 63%, and over weekends it was not available all or most of the time in 59%.ERCP was available out of hours within the hospital in 33% of organisations during weekdays and 36% over the weekends as an unpaid, ad-hoc or goodwill arrangement.

In 26% of organisations there is regular weekly access to a deep sedation / general anaesthetic (DS/GA) list and 60% have access to a DS/GA list on an ad hoc basis or through referral to a different hospital. 55% of ERCPists were aware of the quality of therapeutic intent of any ERCP procedure being affected by suboptimal patient tolerance with endoscopist administered conscious sedation in the past month and 62% would prefer to perform all ERCPs under DS/ GA.

Conclusion: Despite clear guidance, variation in the management of CBDS and placement of pancreatic stents persists. Access to out-of-hours and weekend ERCP is sparse in the UK, and there is a reliance on goodwill to facilitate these cases. The availability of DS/GA is limited and there is a clear desire for improved access to optimise patient tolerance and ERCP outcomes.

Disclosure: Nothing to disclose.

PP1443

ERGONOMIC, WEDGE PILLOW TO REDUCE NECK SPRAIN IN PRONE ERCP; A RANDOMIZED, CONTROLLED STUDY

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Introduction: Prone is a common position for endoscopic retrograde cholangiopancreatography (ERCP). However, patients need to rotate their neck up to 90^{o} to the right along the procedure time, which might cause post-procedure neck sprain. Furthermore, patients with limited neck rotation may have difficulty during intubation of the endoscope. We designed a pillow to have only one elevated corner, this was put under the right shoulder, and the height of the pillow gradually sloped down to the other 3 corners. We hypothesize that the elevation of the right shoulder by the pillow makes thoracic rotation to compensate the cervical rotation and this would reduce neck sprain, from overstretching neck muscle, and facilitate endoscope intubation.

Aims & Methods: This randomized, controlled study aimed to evaluate the efficacy of the ergonomic wedge pillow for patients undergoing prone ERCP. Patients aged between 18-80 years who were indicated for ERCP at King Chulalongkorn Memorial Hospital were recruited. Patients with limited neck rotation less than 30-degree, severe cervical spine diseases, endotracheal intubated, or informed consent could not be obtained were excluded. The patients were randomized to undergo ERCP using pillow (study group) or without pillow (control group), in 1:1 fashion. Neck pain was reported by patients at baseline (before ERCP), and 1 hour, 1 day, and 7 days after ERCP. Scope intubation difficulty was rated by endoscopists. Patients' and endoscopists' satisfaction scores were recorded by using scales of 0-10.

Results: A total of 256 patients (122 women and 134 men) were randomized to study (128 patients), and control (128 patients) groups. The baseline characteristics and base-line neck pain scores were not different between two groups. The pillow group required less assisting shoulder lift during scope intubation (9% vs 22%, respectively) (p = 0.002). The requirement of nasopharyngeal airway insertion was not different between the two groups (13% vs 17%, respectively) (p = 0.385). After ERCP, neck pain was reported at 1 hour, 1 day, and 7 days after ERCP in 25%, 20%, and 0% in study group, and 31%, 31%, and 0% in control group, respectively. The incidence of neck pain at 1 day was significantly lower in pillow group than control group (p = 0.044), especially for moderate to severe neck pain (4% vs 11%, respectively) (p = 0.032). Endoscopists' satisfaction scores were significantly higher in pillow group than control group (9.6 vs 8.9, respectively) (p < 0.001). There was a trend of higher patients' satisfaction scores in pillow than control groups, 9.7 vs 9.5, respectively, however, this did not reach a statistical significance (p = 0.081).

	Pillow (n = 128)	Control (n = 128)	p-value
Age (years)	59.48±15.603	60.82±13.45	0.775
BMI (kg/m^2)	22.99±3.82	22.49±3.81	0.193
Indication			0.566
Biliary Stone	83 (65%)	87 (68%)	
Benign stricture	17 (13%)	17 (13%)	
Malignant stricture	25 (20%)	21 (16%)	
Pancreatic therapy	3 (2%)	3 (2%)	
Maximum active neck rotation to the right (degree)	68.64±14.08	67.23±14.39	0.342
Procedure time (minutes)	40.55±25.05	35.85±18.09	0.152
Sedative medications			
Midazolam (mg)	1.98±2.35	1.86±1.11	0.537
Meperidine (mg)	15.59±13.42	15.39±13.11	0.776
Propofol (mg)	282.82±184.04	275.64±150.21	0.905
Baseline score of neck pain score	0.43±1.25	0.45±1.25	0.816
Neck pain after ERCP (n, %)			
1. 1-hour	32 (25%)	39 (31%)	0.329
2. 1-day	25 (20%)	30 (31%)	0.044
3. 7-day	0 (0%)	0 (0%)	1.000
Assisted shoulder lifting during scope intubation (n, %)	12 (9%)	28 (22%)	0.002

Conclusion: The ergonomic, wedge-shaped pillow reduced the difficulty score of scope intubation and required less assisting shoulder lifting during scope intubation when compared with control. This pillow significantly reduced the incidence of neck sprain, especially for moderate-to-severe pain, at 1 day after prone ERCP. The pillow had a higher endoscopist's satisfaction score and a trend toward higher patients' satisfaction score.

Disclosure: Nothing to disclose.

PP1444

USEFULNESS OF E-LEARNING TO IMPROVE BILIARY CANNULATION TECHNIQUE FOR TRAINEES: A MULTICENTER PROSPECTIVE STUDY

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Introduction: Improving the biliary cannulation technique in endoscopic retrograde cholangiopancreatography (ERCP), especially for native papilla, is challenging for trainees. Several previous studies have shown that improving it required a large caseload, usually 350–400 cases, or a special education program. Therefore, we created an e-learning educational video series system to allow trainees to learn biliary cannulation anywhere with ease and conducted a multicenter prospective study to evaluate it.

Aims & Methods: We created 27 educational videos containing biliary cannulation for native papilla with explanations. Twelve endoscopists with less than 6 years of ERCP experience at two general hospitals in Shizuoka, Japan, participated in this educational program using an e-learning system. First, each participant performed 10 biliary cannulations of native papillae with a preceptor, followed by e-learning and additional 10 biliary cannulations of native papillae. Data from 120 biliary cannulations each for pre-e-learning (PR) and pro-e-learning (PO) were compared according to comprehension score (CS), difficult cannulation (DC), failed biliary cannulation (FB), and adverse events (AE). CS was given by the preceptor-to-trainee oral test before biliary cannulation (maximum of six points). DC was defined as biliary cannulation time >300 sec, >5 biliary cannulation attempts, and ≥2 unintended pancreatic duct cannulation. The correlation between CS and DC was analyzed using the Cochran-Armitage test for trends, and receiver-operating characteristic (ROC) curves were used to determine CS's cut-off value.

Results: There were no significant differences in age, gender, and benign/malignant status of patients undergoing biliary cannulation between PR and PO groups. The outcomes are shown in the table. CS was higher in the PR group than in the PR group; however, no significant differences in DC, FB, and AE rates were observed between the two groups. There was a negative correlation between CS and DC (P<0.01), and the cut-off value and area under the ROC curve for CS for DC were scored 4 and 0.72 (95% confidence interval: 0.66–0.78), respectively. On per-participant comparison, CS≥4 became higher after e-learning (P=0.04); however, there were no significant differences in DC, FB, and AE rates.

		Pre-e-learning group	Pro-e-learning group	P-value
comprehension score	Median [IQR]	4 [3–5]	5 [4–6]	<0.01
difficult cannulation	% [n/N]	54 [65/120]	45 [54/120]	0.20
failed biliary cannulation	% [n/N]	37 [44/120]	28 [34/120]	0.21
adverse events	% [n/N]	9 [11/120]	11 [15/120]	0.53
PEP		5 [6/120]	11 [13/120]	0.15

IQR; interquartile range, PEP; post-endoscopic retrograde cholangiopancreatography pancreatitis

Conclusion: Our e-learning system could help deepen comprehension of papilla but did not significantly reduce DC, UBC, and AEs. E-learning and technical acquisition may be needed to improve biliary cannulation.

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Disclosure: Nothing to disclose.

PP1445

CLINICAL EVALUATION OF 22G NEEDLE WITH NOVEL 0.018-INCH GUIDEWIRE AND NOVEL DILATION DEVICES DURING EUS-GUIDED TRANSHEPATIC BILIARY DRAINAGE

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Introduction: If the diameter of the intrahepatic bile duct is much less dilated, bile duct puncture with a 19G needle can be challenging during EUS-guided transhepatic biliary drainage (EUS-THBD). These characteristics can decrease the difficulty of bile duct puncture, but use of a 22G needle is less feasible because of poor visibility, maneuverability, and stiffness of conventional 0.018-inch guidewire. A novel, improved 0.018-inch guidewire and dilation devices have recently become available.

Aims & Methods: We conducted a prospective study to evaluate the technical feasibility and safety of EUS-BD in patients with insufficient bile duct dilatation using a 22G needle and the new 0.018-inch guidewire. A 22G needle is used as the puncture needle for intrahepatic bile ducts of diameter <1.5 mm, and a 19G needle is selected for diameters ³1.5 mm.

As the primary endpoint of the study, the technical success rate of EUS-THBD using a 22G needle with the novel 0.018-inch guidewire was evaluated in patients with insufficient dilation of the intrahepatic bile duct.

Results: A total of 63 patients who required EUS-THBD were enrolled (22G needle group, n=30; 19G needle group, n=33). Technical success was obtained in all patients in the 19G needle group. In the 22G needle group, technical failure occurred in two patients due to non-identification of the intrahepatic bile duct on EUS (technical success rate, 93.1%), and puncture of the bile duct itself was not performed in these patients. Mean procedure time was similar between the groups. Adverse events were observed in 10.3% (3/30) of patients in the 22G needle group, and in 24.2% (8/33) in the 19G needle group.

Conclusion: In conclusion, use of a 22G needle with a novel 0.018-inch guidewire was comparable to a 19G needle with 0.025-inch guidewire, even in the case of insufficient intrahepatic bile duct dilatation.

Disclosure: None

PP1446

ENDOSCOPIC ULTRASONOGRAPHY–GUIDED RENDEZVOUS TECHNIQUE VERSUS PRECUT METHOD AS A SALVAGE TECHNIQUE FOR DIFFICULT BILIARY CANNULATION IN PATIENTS WITH BILIARY STONES

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Introduction: Endoscopic ultrasonography–guided rendezvous technique (EUS-RV) has been reported to be useful as a salvage method in cases of difficult biliary cannulation during endoscopic retrograde cholangiopancreatography (ERCP). Having said that, needle-knife precut (including transpancreatic sphincterotomy) is often selected over EUS-RV. However, it is associated with adverse events such as retroperitoneal perforation, retroperitonitis, and papillary hemorrhage.

On the other hand, EUS-RV has been reported to afford a higher success rate and lower incidence of adverse events. Nevertheless, few studies have compared the effectiveness of EUS-RV and the precut method.

Aims & Methods: To compare the outcomes of EUS-RV and the precut method in cases of difficult cannulation of the common bile duct due to stones.

From January 2018 to September 2022, 735 patients with a naive papilla with common bile duct stones underwent ERCP excluding post-reconstruction intestinal tract (excluding the Billroth-I method). Forty-three patients underwent salvage cannulation. EUS-RV and the precut method were attempted in 14 and 29 cases, respectively. There was no case in which the precut method and EUS-RV were performed in a single session. All patients received standard post-ERCP pancreatitis prophylaxis, and the success rates of the technique, adverse event rates, and procedure time were documented.

Results: The technical success rates of biliary cannulation via EUS-RV and the precut method were 83% and 79%, respectively. The corresponding adverse event rates were 13% and 28%. The adverse events noted were as follows: two cases of posterior hemorrhage and one of pancreatitis in patients who underwent EUS-RV and three cases of pancreatitis and one of posterior hemorrhage among patients in whom the precut method was performed. The median times from starting the usual cannulation technique to the decision to switch to the salvage method were 17 and 20 min, respectively, among patients in whom EUS-RV and precut method were attempted. The corresponding median times from the decision to switch to the salvage method to successful biliary cannulation (or quitting in cases of failure) were 20 and 26 min (p = 0.02).

Conclusion: EUS-RV tended to have a higher success rate and cause fewer adverse events than the precut method. However, the associated procedure time was significantly longer, partly because it included the time required to replace the endoscope twice. The findings suggest that EUS-RV can be an option in cases in which the usual cannulation technique has failed, because the associated technical success and adverse event rates are similar.

References: Mallery, 2004;
Kim, 2010;
Iwashita, 2012;
Dhir, 2013;
Kawakubo, 2013

Disclosure: Nothing to disclose.

PP1447

IMPACT OF INTRA- OR PERI-DIVERTICULAR PAPILLA LOCATION ON EFFICACY AND COMPLICATIONS OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) IN THE TREATMENT OF COMMON BILE DUCT STONES

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Introduction: Several factors affect the difficulty of endoscopic retrograde cholangiopancreatography (ERCP) (Facciorusso et al.). This study aimed to evaluate whether the intra- and peri-diverticular location of the papilla has an impact on the results of ERCP for common bile duct stones.

Aims & Methods: Retrospective evaluation of patients without previous sphincterotomy undergoing ERCP for common bile duct stones between August 2020 and February 2023. Data on the patient (age, sex, comorbidities), procedure (elective/urgent, location and type of papilla, techniques used, successful cannulation, diagnosis, immediate complications), and outcomes (complications at 3, 30, and 90 days, need for repeating ERCP) were collected.

Results: Of the 769 patients undergoing ERCP during this period, 224 met the inclusion criteria (median age 76 years, 58% female). The papilla had an intra-diverticular location in 20 and a peri-diverticular location in 45, while it was not dependent on the diverticula in the remaining 159. Regarding the endoscopic classification (SADE; Haraldsson et al.), most were type 1 (55%) or type 2 (20%). The cannulation rate was 93%, with precut being used in 18% (fistulotomy/papillotomy n=22; transpancreatic precut n=14). The cannulation rate was significantly lower in patients with intra-diverticular and peri-diverticular papilla (75% and 87%, respectively, versus 97%; p<0.01), being the precut use also higher (20% and 31%, p=0.038). The ability to completely remove stones in the index ERCP (efficacy) was lower in patients with intra- or peri-diverticular papilla (71% and 70% versus 85%, p=0.04).

There were no differences in intraprocedural complications (n=8, p=0.42), at 3 (n=20, p>0.05), 30, and 90 days (n=1). However, the need for repeating ERCP was different between groups (38% peri-diverticular, 25% intra-diverticular, versus 15%; p<0.01).

Conclusion: The intra- or peri-diverticular location of the papilla limits the cannulation rate and efficacy of ERCP, requiring more frequent use of advanced cannulation techniques and repeat procedures. However, it should be noted that no more complications occurred in these locations.

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PP1448

TRENDS IN THE USE OF BIODEGRADABLE PANCREATICOBILIARY STENTS IN LARGE UK HOSPITAL TRUST

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Introduction: Biodegradable pancreaticobiliary stents provide an alternative to conventional stents and avoid the need for a repeat procedure for endoscopic removal. While use is not currently widespread in the United Kingdom, accepted indications for insertion include bile leaks, prophylaxis of post-ERCP pancreatitis and as a bridge to cholecystectomy after bile duct clearance. Evidence from small studies suggest biodegradable stents are safe and cost effective, however there are few prospective studies to guide best practice. Complications of biodegradable stents are also not well understood with limited, if any, data describing issues specific to these types of stent.

In our hospital trust, biodegradable stents have been in use since 2019 and this study aims to describe trends in use including complications and provide a comprehensive summary experience to date.

Aims & Methods: The electronic record of all patients in two hospitals within Manchester foundation trust who underwent insertion of a biodegradable pancreaticobiliary stent were reviewed. The study period was between March 2019 and April 2023. Patient demographics, type of stent, indication for stent insertion, readmissions and repeat ERCP data was collected on review of each patient's record.

Results: During the study period 66 Biodegradable stents were inserted in 63 patients of which 48 were pancreatic and 18 biliary. All pancreatic stents were inserted for post-ERCP pancreatitis prophylaxis, whilst 5 biliary stents were performed for bile leaks and 13 for biliary drainage post-ERCP. A total of 9 patients were readmitted within 6 months for a pancreaticobiliary related complications including cholangitis (n=3), cholecystitis (n=2), post-ERCP pancreatitis (n=2), biliary obstruction (n=1) and persistent bile leak (n=1). In total, 10 patients underwent repat ERCP within 6 months. In one patient, the biodegradable stent was noted at ERCP to be in situ ERCP 5 months after insertion. Over 94% (n=17) of all biliary stents were performed in the first year of study, although the majority of these were inserted in 1 of the 2 study centres.

Conclusion: To our knowledge this is the largest series of patients undergoing biodegradable stent insertion in the United Kingdom. In this study, the most common indication for the insertion of a biodegradable stent was post-ERCP pancreatitis prophylaxis. As the study period progressed pancreatic stents became by far the most commonly inserted stent. In fact, only 1 biliary stent was placed in the final 3 years of the study period, demonstrating a trend towards the use of pancreatic biodegradable stents versus biliary stents. This may represent differences in clinical practice, services provided over time (e.g Spyglass or 'hot' cholecystectomies) or simply endoscopist preference.

The study suggests that biodegradable stents are safe and effective with only 10 patients undergoing a further ERCP in 6 months. Therefore, a significant proportion of patients were able to avoid a second procedure thus providing a benefit in both risk and cost.

Disclosure: Nothing to disclose.

PP1449

DEVELOPMENT OF A BILE DUCT SIMULATOR MODEL USING 3D PRINTER TECHNOLOGY

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Introduction: With the diversification of ERCP procedures, higher torquable guidewire and techniques are required. We developed a bile duct simulator model that enables guidewire manipulation in an environment similar to the human body, and evaluated its usefulness.

Aims & Methods: A bile duct model was created by 3D printing based on real DIC-CT/MRCP image data. Epoxy resin was used as the material, and bile ducts from B2 to B8, excluding B1, were reproduced. By fixing the bile duct section in a water immersion tank, operations can be performed while the duct is filled with water and contrast medium, enabling guidewire operations similar to those in the actual bile duct. As a bench evaluation, three different thicknesses of guidewires (0.018 inch, 0.025, and 0.035 inch) were used for comparison and verification. The time required for the guidewire tip to reach all bile ducts from B2-8 was measured (terminated if not completed within 120 seconds), and a clinical engineer (CE) with more than 500 cases of experience as an ERCP assistant and a physician (DR) with more than 5000 cases of experience as an ERCP assistant made five alternating attempts per 3 different guidewires, 30 times in total. The endpoints were the percentage of complete bile ducts reached and the time required, and comparisons were made by guidewire diameter and job category.

Results: The complete reach rate was 40% for 0.018 inch (DR 60%/CE 20%) and 100% for both 0.025 inch and 0.035 inch. DR 86.7% and CE 73.3%, with no significant difference between job categories. The failure to complete reach the bile ducts was because all of them were difficult to insert into B7, but the other bile ducts were reachable. The median time required for complete reach was 120 (51-120) seconds for 0.018 inch, 56 (24-84) seconds for 0.025 inch, and 40.5 (23-51) seconds for 0.035 inch, with larger diameters requiring significantly shorter access times ($P < 0.01$).

Conclusion: The simulator demonstrated that the torque performance improved as the guidewire diameter increased, and guidewires larger than 0.025 inch could be inserted stably into all bile ducts.

The results of this study suggest that reaching all bile duct branches within 60 seconds can be used as a guideline for product development and training goals.

Disclosure: Nothing to disclose.

PP1450

WEEKEND ERCP HAS SIMILAR OUTCOMES TO WEEKDAY PROCEDURES – DATA ANALYSIS FROM THE HUNGARIAN ERCP REGISTRY

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is essential in the minimally invasive management of biliary and pancreatic disorders. In certain indications, not delaying and carrying out ERCP during the weekend can be important to improve outcomes.

Aims & Methods: We aimed to analyze the outcomes of ERCP performed during weekends and holidays with regular weekday ERCPs. 3260 ERCP cases from 7 tertiary centers were analyzed from the Hungarian ERCP Registry database. 116 ERCPs were performed during weekends or holidays, and 3144 during weekday working hours.

The main outcomes were successful biliary cannulation, difficult biliary cannulation, and adverse event rates. Chi-square and Fisher's exact tests were performed as appropriate. Propensity score matching was also performed and the comparisons were also performed in the matched groups.

Results: Weekend ERCPs were mostly carried out for the indication of acute cholangitis and acute biliary pancreatitis (70% of weekend cases), while in the weekday group, only 32% of cases were done for these indications. No difference was found between weekday and weekend ERCPs in the rate of successful biliary cannulation (2891/3144, 92.0% vs. 106/116, 91.4%), difficult biliary cannulation (32.0% vs. 33.6%), and advanced cannulation method use (26.2% vs. 31.0%) ($p>0.05$).

There was a significantly higher number of ASGE grade 3 difficulty cases when ERCP was carried out urgently (30.3% vs. 56.0%, $p<0.01$), but we found no increase in the number of adverse events (post-ERCP pancreatitis, bleeding, perforations) in the ERCPs carried out during weekends. Additionally, no significant differences were detected between the propensity-matched groups in the outcomes above.

Conclusion: ERCPs carried out during the weekend, no difference was found regarding outcomes compared to weekday ERCPs despite having more difficult procedures.

Disclosure: Nothing to disclose.

PP1451

ENDOBILIARY RADIOFREQUENCY ABLATION IN THE MANAGEMENT OF MALIGNANT BILIARY OBSTRUCTION – SINGLE CENTER EXPERIENCE

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Introduction: Malignant biliary obstruction/MBO/is generally managed by biliary stenting however major following problem is stent patency. Recent studies show the advantages of endoscopic retrograde cholangiopancreatography-guided intraductal radiofrequency ablation/ ERCP ID-RFA/ as adjunctive therapeutic modality.

Aims & Methods: Aims: To evaluate the efficacy and safety of ID-RFA in terms of stent patency,symptom–free survival and adverse events/ AE/.Primary endpoints–evaluating the period of stent patency and survival;secondary endpoints-assessing AE.

Methods: We performed retrospective analysis of a prospective database including all consecutive patients who underwent ID-RFA for the period July 2021 – December 2022.17 procedures in 16 patients who were unresectable or poor surgical candidates were performed followed by stenting in the study period.

Results: Endobiliary RFA/EB-RFA /catheter (ELRA, STARmed, Taewoong Medical) and RF generator system (VIVA combo, STARmed) were used in 15 of the procedures. In two cases ID-RFA was performed with Habib EndoHPB catheter/Boston Scientific.

After passing a guidewire the catheter was positioned at the targeted lesion, followed by 120 s of ablation (target temperature 80°C, 7–10 W,temperature control mode)–in two to three sessions,unilaterally or bilaterally depending on the type and lenght of the stenosis verified by the proceding cholangiogram.

The mean period of stent patency defined as time between the date of the procedure and the last follow up of the patient without signs of stent occlusion was 144,36 ± 89.3 days. In this period all of the patients were symptom–free with good quality of life and without any signs of cholangitis.

The indications were:10 patients with CCA,two patients/n=2-12.5%/ with intraductal extension of papillary adenoma-both poor surgical candidates -one with HGD;one with HGD with intramucosal carcinoma who underwent endoscopic snare papillectomy /ESP/ followed by endoscopic ID-RFA and placement of stents,2 patients with gallbladder cancer, 2 patients with bile duct occlusion due to metastasis.

In 9 of the patients with CCA /90% of patients with CCA ;56,25 % of the total number/chemotherapy with Cisplatina/Gemcitabine followed with no interruption of the courses during the period of treatment; one refused chemotherapy.

In three of the patients/18.75%/ we performed ID RFA in order to prolong stent patency in occluded by tumor ingrowth metal stents. The rate of the AE was 18.75%/n=3/ - 1 patient with self-limited bleeding;1 patient with postprocedural cholangitis and 1 patient with liver abcess – managed percutaneously.

There were no deaths or ICU admissions. We experienced two stent occlusions – in one in patient with papillary adenoma with HGD–on day 169– managed with second session of ID- RFA followed by metal stent placement - asymptomatic up to the last follow up,the second with tumor ingrowth from endobiliary metastasis in previously placed metal stent -the patency after RFA was 116 days – managed with metal stent in stent placement.

Ethiology N = 16	Cholangiocarcinoma N=10/62.5%/	Gallbladder cancer N=2/12,5%/	Ampullary adenoma with intraductal ingrowth N=2/12.5%/	Metastasis from extrahepatic cancer N=2/12.5%/
Stent placed after RFA	Bilaterally metal stents N=6/37,5%/ One metal stent N=4/25%/	Metal stent in stent N=1/6.25%/	Plastic stent in previously placed metal stent N=1/6,25%/	Plastic stents bilaterally N=3/18,75%/ One plastic stent N=1/6,25%/
Type of stenosis	Bismuth type 1 N=1/6.25%/	Bismuth type 3A N=4/25%/ Bismuth type 3B N=1/6,25%/	Bismuth type 4 N=8/50%/	Distal stenosis due to intraductal ingrowth of papillary adenoma N=2/12,5%/
Number of session Total number of procedures N=17	Two sessions N=5/29,41%/	Three sessions N=8/47,06%/	Four sessions N=4/23,53%/	

Conclusion: ID-RFA is a promising new tool which provides improved outcomes in patients with MBO both in stent patency and symptom free survival.It has many advantages – easy delivery of controlled temperature application and good safety profile.Therefore ID-RFA can be proposed as adjunctive treatment in patients with MBO although more randomized studies are needed.

Disclosure: Nothing to disclose.

PP1452

RAMAN SPECTROSCOPY IN THE DIAGNOSIS OF MALIGNANT BILIARY STRICTURE – A FEASIBILITY STUDY

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Introduction: Biliary stricture (BS) diagnosis is challenging with limited diagnostic yields from imaging and tissue sampling. Raman spectroscopy (RS) is an optical method based on analysis of scattered monochromatic light. RS is able to provide tissue molecular "fingerprinting".

Aims & Methods: The aim of this pilot study was to develop a methodology for in vivo RS in patients with BS. During ERCP, a fibre Raman probe (Endoscopic Fiber-Optic Raman Probe Bundle Fiber, Uni-Export Instruments, USA) was introduced transpapillary into the suspected malignant BS using an 8.5 Fr metal sheath. The Raman probe was placed in an adequate position under fluoroscopy control. Spectral BS measurements were performed (without fluoroscopy) 10-20 times for each patient (laser wavelength 785 nm, duration of each measurement 0.001-0.150 s). RS of normal bile duct and duodenal mucosa of each patient was subsequently performed.

The final BS diagnosis was verified using brush cytology. The attained data was saved and analysed by a specialised biophysicist. All patients provided informed consent.

Results: A total of 20 patients (mean age 71, range 38 to 89, 45% males) with suspected malignant biliary stricture indicated for ERCP were measured, of which 11 had a final diagnosis of cholangiocarcinoma (CC). A total of 815 measurements were performed, of which 466 were subsequently analysed. In 5 (25%) cases, transpapillary insertion of an RS probe was not possible. No procedure-related complications were reported and no mechanical damage to the probe was observed.

On visual analysis, the duodenal RS pattern differed from both normal bile duct and CC (Figure 1 and 2).

Nevertheless, further data processing will be required to develop a discernible method to discriminate between CC and normal bile duct with a suitable level of selectivity and specificity.

Conclusion: Transpapillary Raman spectroscopy of biliary stricture is feasible. Although duodenal and biliary RS patterns were different, current data does not allow to fully discriminate between CC and normal bile duct.

Disclosure: The authors declare that there is no conflict of interest.

PP1453

FIRST-LINE HEMOSTASIS STRATEGY FOR ENDOSCOPIC SPHINCTEROTOMY BLEEDING USING A NOVEL SELF-ASSEMBLING PEPTIDE

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Introduction: Recently, a novel self-assembling peptide hemostatic gel has become available in Japan. However, the safety and efficacy of this novel self-assembling peptide hemostatic gel remain unclear for bleeding after EST.

Aims & Methods: The aim of this study was to evaluate the safety and efficacy of a novel self-assembling peptide hemostatic gel for bleeding after EST, and compared to conventional endoscopic hemostasis technique.

This retrospective study was carried out between January 2019 and October 2022. Patients who developed bleeding associated with EST were enrolled. The patients were divided into two groups based on the hemostasis techniqueused: a conventional hemostasis technique (Group A) or a novel self-assembling peptide hemostatic gel hemostasis technique (Group B).

Results: A total of 62 patients (Group A, n=36; Group B, n=26)were included. Endoscopic hemostasis was initially obtained in 72.2% (26/32) of patients in Group A and in 88.4% (23/26) of patients in Group B, with no significant difference (P=0.1211).

However, the procedure time was significantly shorter in Group B (mean, 9.38 min) compared with Group A (mean, 15.4 min) (P=0.0103).There were no significant differences in the severity of bleeding between the two groups (P=0.4468). post-EST bleeding was observed in 6 patients (Group A, n=4; Group B, n=2). although there was no significant difference (P=0.6532), adverse events were more frequently observed in Group A (n=12) than in Group B (n=1).

Conclusion: PuraStat application for EST bleeding might be safe and effective, and comparable to the conventional endoscopichemostasis technique, although further prospectiverandomized trial is needed.

Disclosure: Nothing to disclose.

PP1454

ENDOSCOPIC TRANSPAPILLARY GALLBLADDER DRAINAGE FOR ACUTE CHOLECYSTITIS: TECHNICAL RECOMMENDATIONS FOR DIFFICULT INTUBATION OF THE CHOLECYSTIC DUCT

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Introduction: Endoscopic transpapillary gallbladder drainage (ETGBD) for acute cholecystitis has been effective for patients with ascites and bleeding tendencies. However, the success rate of ETGBD is lower than that of other endoscopic retrograde cholangiopancreatography-related procedures, and it is often difficult to complete the procedure.

Aims & Methods: This study aimed to investigate the outcomes of ETGBD in the management of acute cholecystitis at our hospital while offering some technical recommendations for the procedure. This was a retrospective study of 41 patients who had undergone ETGBD for acute cholecystitis at our hospital between January 2015 and July 2021.

Results: There were 28 males and 13 females, with a median age of 80 years (range, 58–91). Of these patients, 27 (65.9%) had mild ETGBD, 13 (31.7%) had moderate ETGBD, and one (2.4%) had severe ETGBD. The cases of intra-gallbladder, cholecystic duct, and common bile duct stones were found in 30 (73.2%), 13 (31.7%), and 16 (39.0%) patients, respectively. The types of cystic duct branching were merging of the upper (n = 36) and lower sides (n = 5), toward the head (n = 35) and foot sides (n = 6), and merging of the right (n = 34) and left sides (n = 7). The technical success rate was 95.1% (39 out of 41) (endoscopic nasobiliary stenting [n = 34] and endoscopic nasobiliary gallbladder drainage [n = 5]), and the clinical success rate was 100% (n = 39). The median treatment time was 30 minutes (range, 11–72).

In the present study, difficult intubation was defined as failure to intubate the gallbladder using conventional devices. Among the 12 patients who experienced intrabiliary intubation difficulties, seven of them were able to be cannulated into the gallbladder with the SwingTip™ cannula (Olympus, Tokyo, Japan), which features a controllable catheter tip angle. In two patients whose bile duct stenosis was still difficult even with the SwingTip™ cannula, the long-tapered cannula (StarTipV™, Olympus) was used to break through the stenosis. In one patient whose cholecystogram could not be obtained, a retrieval balloon for the above contrast was used to obtain a cholecystogram, and endoscopic transpapillary balloon sphincteroplasty was finally performed.

Regarding factors influencing the difficulty of intubation of the gallbladder, multivariate analysis showed that “dilation of the common bile ducts (>10 mm)” was a significantly difficult factor.

Conclusion: Even though ETGBD is difficult in patients with dilated common bile ducts (≥10 mm), it could be performed relatively safely and effectively by using dedicated devices.

Disclosure: Nothing to disclose.

PP1455

PREDICTIVE FACTORS OF POST-ENDOSCOPIC RETROGRADE CHOLANGIO-PANCREATOGRAPHY PANCREATITIS FOR BILIARY COMPLICATIONS IN LIVING-DONOR LIVER TRANSPLANTATION RECIPIENTS

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Introduction: Endoscopic retro-grade cholangiopancreatography (ERCP) has shown great safety and efficacy in the management of post- living-donor liver transplantation (LDLT) biliary complications. Pancreatitis is the commonest and the most feared complication after ERCP.

Aims & Methods: We reviewed the data of liver transplant recipients who underwent ERCP for biliary complications after LDLT between 2011 & 2022.

Results: 63 patients underwent ERCP after LDLT. They were targeted to 134 set of ERCP. Pancreatitis occurred in 52 sets (38.8%). We subclassified the patients into 2 groups, Without Pancreatitis: 31 patients (49.2%) and With Pancreatitis 32 patients (50.8%).

Higher incidence of pancreatitis was noticed with the first ERCP set (p = 0.04). Biliary strictures were more noted in Pancreatitis group (p = 0.025). Difficult cannulation requiring precut was more observed in pancreatitis group (p = 0.007). Also, more frequent sphincterotomy was observed in pancreatitis group (p = 0.003). Longer hospital stay, more fever, abdominal pain and vomiting were noted in Pancreatitis group (p = 0.001). Higher post-ERCP serum amylase (p = 0.001) and creatinine (p = 0.021), while lower serum calcium (p = 0.21) were noticed in pancreatitis group.

On multivariate analysis, preoperative diabetes mellitus, number of biliary anastomoses (single/multiple), and difficult cannulation requiring precut were significant predictors of post-ERCP pancreatitis.

Conclusion: Patient-related bedside procedure-related risk factors play essential role in the development of pancreatitis after ERCP for LDLT recipients. Endoscopists should be mindful by those high-risk patients during ERCP to apply appropriate techniques to prevent the development of this serious complication.

Disclosure: Nothing to disclose.

PP1456

ENDOSCOPIC PAPILLECTOMY FOR THE SUBMUCOSAL LESIONS OF THE MAJOR DUODENAL PAPILLA

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Introduction: Endoscopic papillectomy (EP) has been established for the management of epithelial tumors such as adenomas and T1a carcinomas in the papilla of Vater. However, the indications and techniques for EP of submucosal lesions have not been established, and determining the appropriate treatment strategy can be challenging. Therefore, we present our experience with EP for submucosal lesions of the duodenum in this report.

Aims & Methods: The subjects were five cases of submucosal tumors of the major duodenal papilla and two cases of papillary bile duct cysts with repeated pancreatitis, out of 130 cases who underwent endoscopic papillectomy (EP) at each related facility between January 2000 and September 2019. In all cases, endoscopic ultrasonography (EUS) and intraductal ultrasound examination (IDUS) were performed to confirm that there was no invasion into the duodenal muscularis propria or progression into the bile duct or pancreatic duct, and that the size of the lesion was basically 1 cm or less for enhancing lesions. Lymph node metastasis was also ruled out before performing the resection. There were four male cases, with a median age of 72 (39-77) years, and a median tumor size of 11 (9-30) mm. The observation period was 1251 (54-2385) days.

Results: In the solid lesions, the histopathological examination showed four cases of NET-G1 and one case of paraganglioma. Complete resection was possible in all cases, with four cases having undergone complete resection and one case with unclear margins. In the cystic lesions, no clear tumor lesions were found in the resected specimens, and there was no recurrence of pancreatitis after resection. No metastasis, recurrence, or serious complications have been observed in the above cases.

Conclusion: Duodenal NETs are known to frequently occur in the duodenal papilla, and the current standard treatment is pancreaticoduodenectomy, which is a highly invasive procedure. For duodenal NETs measuring 1 cm or less, which are indicated for endoscopic resection according to the pancreatic and gastrointestinal neuroendocrine tumor guidelines, EP may be a safe and effective diagnostic treatment. EP may also be effective as a symptomatic treatment for papillary bile duct cysts with repeated pancreatitis, and further studies are necessary to accumulate cases and investigate the complete resection rate, risk of metastasis or recurrence, and risk of complications.

Disclosure: Nothing to disclose.

PP1457

ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY BY CONVENTIONAL DUODENOSCOPE WITH COLONOSCOPY-ASSISTED PRE-PLACEMENT OF A LONG GUIDE TUBE IN PATIENTS WITH COMPLEX SURGICALLY ALTERED ANATOMY

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Introduction: The success rate of endoscopic retrograde cholangiopancreatography (ERCP) is suboptimal in patients with complex surgically altered anatomy (e.g. Roux-en-Y anastomosis, pancreaticoduodenectomy) due to difficulty in advancement of scope to the target site and selective biliopancreatic duct cannulation. Although balloon-assisted enteroscopy can achieve a higher rate of intubation, its clinical application is limited by its small working channel and few compatible accessories.

Aims & Methods: We aimed to explore the feasibility and effectiveness of a novel endoscopic approach in patients with complex surgically altered anatomy.

This is a retrospective study of patients who underwent ERCP with complex surgically altered anatomy at our center with an annual ERCP volume of approximately 3000, between January 2018 and November 2022. The endoscopic procedures were performed by three senior endoscopists who had ERCP experience for at least 5 years. Long colonoscopy (measuring 168cm)-assisted ERCP was adopted as a first-line intervention, and selective biliopancreatic duct cannulation was performed after the target site (native papilla or the surgical anastomosis) was reached.

For patients with failed cannulation, a plastic guide tube measuring 250 cm was inserted via the working channel of the colonoscope and its distal end was placed near the target site. The colonoscope was then withdrawn while the guide tube was left in-situ. By following the guide tube, a conventional side-viewing duodenoscope was cautiously advanced to the target site and biliopancreatic duct cannulation re-attempted.

Results: A total of 58 patients were recruited (mean age:56.7 years [standard deviation [SD]:14.4; male:36 [62.1%]]. The reconstruction methods were as follows – Roux-en-Y hepaticojejunostomy:32 (55.2%), Billroth-II gastrectomy with Braun anastomosis:11 (19.0%), pancreaticoduodenectomy:10 (17.2%) and Roux-en Y gastrectomy:5 (8.6%). Common bile duct stone was the most common indication for ERCP (n=30; 51.7%), followed by bilioenteric anastomotic stenosis (n=15; 25.9%), pancreaticojejunal anastomotic stenosis (n=7; 12.1%) and chronic pancreatitis (n=6; 10.3%). 55 (94.8%) of 58 had successful intubation by long colonoscope with a mean procedure time of 57.7minutes (SD:23.4). The mean time to reach target site was 19.1minutes (SD:9.0). The target site could not be identified in two patients and intestinal perforation occurred during endoscopic intubation in one patient.

Among those with successful endoscopic intubation, biliopancreatic duct cannulation was achieved in 35 (63.6%) patients. For the remaining 20 patients with initial failure of biliopancreatic duct cannulation, intubation rate by duodenoscope was 100% by tracing the guide tube to target site. The success rate of biliopancreatic duct cannulation by duodenoscope was 85% (17/20) with a mean procedure time of 83.5 minutes (SD:21.1). The mean time to reach target site was 17.0minutes (SD:6.1). Notably, 90% (18/20) had either native papilla or pancreaticojejunostomy, in which selective biliopancreatic duct cannulation is known to be technically difficult with any type of forward-viewing scope due to unfavorable cannulation trajectory. For those with failed cannulation, two had anatomical stricture and one had impacted pancreatic stone.

Conclusion: ERCP by conventional duodenoscope with colonoscopy-assisted pre-placement of guide tube is a feasible, effective and safe alternative for patients with complex surgically altered anatomy in experienced endoscopists.

Disclosure: Nothing to disclose.

PP1458

DEVELOPMENT AND CLINICAL APPLICATION OF A NOVEL CATHETER WITH A STEERABLE TIP USING ARTIFICIAL BLOOD VESSEL MATERIAL FOR ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) techniques have advanced exponentially in recent years. However, ERCP is often challenging to complete, and one factor is the difficulty of the selective approach to the bile ducts, including the cystic duct, biliary stenosis, or postoperative anastomosis. We newly developed and commercialized a wire-driven bidirectional steerable catheter using artificial blood vessel material for ERCP, including these difficult cases.

In this study, we evaluated its usefulness and safety in approaching the biliary tract using a desktop phantom in patients with surgically altered anatomy of Roux-en-Y hepaticojejunostomy.

Aims & Methods: The developed novel catheter uses a seamless tube that comprises a body part with polytetrafluoroethylene (PTFE) and a 15mm long distal part with porous expanded PTFE. The minimum tube diameter is 2.1 mm, and the distal tip diameter is 1.4 mm. Two loop-formed control wires are installed into the tube for bidirectional bending. A desktop experiment compared the bending performance via a balloon-assist enteroscopy and the trackability with a conventional catheter with a steerable tip.

In addition, we clinically evaluated the success rate and duration of selective cannulation for the biliary branch and the frequency of complications in the four patients who underwent intestinal tract reconstruction by Roux-en-Y cholangiojejunostomy and required endoscopic treatment for symptoms such as acute cholangitis.

Results: The developed steerable catheter could bend over 90 degrees in both directions, and the minimum bending radius was about 4 mm, approximately five times smaller than the conventional steerable catheter.

The desktop phantom trackability tests showed that using the developed steerable catheter and a guidewire enabled physicians to select bile duct branches with complex and steep angles easily and quickly. In the clinical evaluation, the insertion of the guide wire and the developed steerable catheter was swiftly completed in the bile ducts bilaterally in the patients, which was impossible with the conventional steerable catheter.

The mean time required for guide wire insertion in the unilateral bile duct was 18.8 ± 10.1 seconds with the steerable catheter and 94.1± 42.1 seconds with the conventional catheter ($p < 0.05$). No catheter-related complications occurred.

Conclusion: The newly developed catheter with a steerable tip showed high bending performance compared to the conventional catheter. It was applied to complex diversion of the biliary branch for ERCP, especially in patients with surgically altered anatomy.
Disclosure: Nothing to disclose.

PP1459

DOES WIRE-GUIDED CYSTOTOME DILATION FOR DIFFICULT BENIGN BILIO-PANCREATIC STRICTURES GUARANTEE LONG-TERM PATENCY?

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Introduction: Difficult benign biliary and pancreatic strictures are generally managed by Soehendra screw or cystotome. Many studies described the techniques without information even of mid -term follow-up.
Aims & Methods: The main aim of the study is to verify the long-term patency of the dilated strictures after the use of cystotome. Data were retrospectively collected from October 2018 to September 2021 and all consecutive patients affected by difficult biliary or pancreatic strictures treated using cystotome were included.
Technical success was considered the ability to overpass the stricture.
Clinical success was defined as drainage of biliary or pancreatic strictures and symptoms resolution. Patients were evaluated at median follow-up of 28 months since the index procedure.
Results: Of the 13 patients included in the study (5 males, 8 females; mean age: 53 years old), 8 had biliary and 5 pancreatic strictures. Technical success was obtained in 12 patients. Only minor adverse events were reported in three patients. At follow-up, 7 patients presented stable resolution of the stricture, 4 recurrence of stricture and 2 showed persistence of the stricture.
Conclusion: The use of a cystotome can be considered an alternative method for dilation of difficult pancreatic and biliary strictures, after the failure of conventional modalities. According to follow-up, this alternative approach allows 54% of long-term stricture resolution.
Disclosure: Nothing to disclose.

PP1460

PERFORMANCE OF THE EXALT MODEL D SINGLE-USE DUODENOSCOPE IN A SELECTED CONSECUTIVE SERIES

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Introduction: Endoscopic Retrograde Cholangiopancreatography (ERCP) is performed with reusable duodenoscopes and, infections due to colonization of the endoscope are an increasing problem. The single-use EXALT Model D duodenoscope (Boston Scientific Corporation, USA) has been recently developed to avoid the risk of cross-transmission and the need for endoscope reprocessing.
The aim of this study is to report the experience of a high-volume endoscopy center in the use of this new device.
Aims & Methods: This is a retrospective observational study performed at a single high-volume endoscopy center. All consecutive patients undergoing ERCP performed with EXALT single-use duodenoscope by expert endoscopists from April 2010 to November 2022 were reviewed from a prospectively maintained ERCP database. Demographic and technical data, indications, AEs, and ERCP success rate were recorded. Statistical analysis was performed with SPSS 20 software. Descriptive data are reported as mean/median ± standard deviation/range, or percentage.
Results: Nineteen patients were included (4 children with an age of 7, 7, 11, 17). Patients' characteristics are summarized in Table 1. Post-Liver transplantation immunodeficiency was the most common indication for the use of disposable duodenoscope (9, 47.3%), followed by SARS-CoV2 infection (6, 31.5%) (cases performed during the weekend with difficult access to reprocessing) and immunodeficiency (4, 21%). Twelve native papillae were recorded (63.1%) undergoing biliary sphincterotomy in 10 cases (52.6%) and pancreatic sphincterotomy in 1 case (5.2%). In 1 case (5.2%) precut was needed after cross-over to reusable duodenoscope. Seven cases of non-native papilla were recorded (36.8%). ERCP was completed with the single use duodenoscope in 17 cases (87.4%).
In two cases a cross-over to standard duodenoscope was needed for technical failure of the insufflation valve and for the impossibility to achieve a long-route position in the second case, to approach a papilla at the inferior duodenal genu. One case of delayed bleeding (5.2%) managed endoscopically, and 1 case of post-ERCP pancreatitis (5.2%) managed conservatively, were recorded.

Demographics:	
No. of patients, *n*	19
Age (years), *mean ± SD (range)*	49.2 ± 23.9 (7-84)
Sex (men), *n (%)*	13 (68.4)
Indication for disposable scope use:	
LT related immunodeficiency, *n (%)*	9 (47.3)
SARS-CoV2 infection, *n (%)*	6 (31.5)
Congenital immunodeficiency, *n (%)*	2 (10.5)
Acquired immunodeficiency, *n (%)*	2 (10.5)
Technical data:	
Native papillas, *n (%)*	12 (63.1)
Biliary sphincterotomy, *n (%)*	11 (57.8)
Pancreatic sphincterotomy, *n (%)*	1 (5.2)
Precut, *n (%)*	1 (5.2)
Biliary plastic stent placement, *n (%)*	10 (52.6)
Biliary metal stent placement, *n (%)*	1 (5.2)
Pancreatic stent placement, *n (%)*	3 (15.7)
Naso-biliary drainage, *n (%)*	4 (21)
Cholangioscopy, *n (%)*	2 (10.5)
AEs:	
Bleeding, *n (%)*	2 (5.2)
Perforation, *n (%)*	0
PEP, *n (%)*	1 (5.26)

Table 1: Patients characteristics (n: number, LT: liver transplantation, AEs: adverse events).

Conclusion: EXALT single use duodenoscope resulted efficient and safe in the management of bilio-pancreatic diseases, also in children. However, the scope leads to some difficulties when used in non-standard anatomical scenarios. The real advantages of disposable duodenoscope and the environmental/cost impact are still controversial issues, and more studies are need for conclusive data.
Disclosure: Nothing to disclose.

PP1461

CONTRIBUTION OF MACRODILATATION OF THE SPHINCTER OF ODDI IN THE TREATMENT OF LARGE BILE DUCT STONES

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Introduction: Endoscopic retrograde cholangiopancreatography is the treatment of choice for common bile duct stones. Nevertheless, it turns out to be difficult when it comes to a large bile duct stones. The macrodilatation of the sphincter of Oddi was developed in order to face this problem, it consists of a hydrostatic dilation of the sphincter of Oddi, after the endoscopic sphincterotomy.

Aims & Methods: The objective is to evaluate the effectiveness of sphincteroplasty and to analyze the factors associated with the success of this technique in patients with large bile duct stones.

This is a descriptive and analytical retrospective study conducted in our department between April 2002 and April 2023, including 52 patients who underwent sphincteroplasty for the extraction of a large bile duct stone. The success of the endoscopic treatment was defined by the complete emptiness of the common bile duct at the end of the procedure. Statistical analysis was performed using SPSS version 24.0 software. The study of the factors associated with the success of endoscopic treatment was carried out using a logistic regression model.

Results: The average age of our patients was 65.37+/-17.46 years with a female predominance of 56.9%. The mean common bile duct diameter was 16mm+/-2.97 [8-24mm]. 16.51% of patients were cholecystectomized, 2% of patients had acute pancreatitis, on the other hand acute cholangitis was objectified in 9.8% of patients. 7.8% of patients had biliary stenosis and only one patient had periampullary diverticulum. The success rate of sphincteroplasty was 96.1% with no notable complications. In univariate and multivariate analysis and adjusting for the factors studied (age, sex, history, presence of acute pancreatitis or acute cholangitis, main bile duct diameter, presence of periampullary diverticula, presence of main bile duct stenosis), no of these factors appeared to be associated with the success or failure of sphincteroplasty.

Conclusion: Macrodilation of the sphincter of oddi is a safe and effective technique in the treatment of large bile duct stones. In our study, the success rate was 96.1%, however none of the factors studied was associated with the success or failure of sphincteroplasty.

Disclosure: No conflict of interest.

PP1462

COMPARISON OF DIFFERENT ERCP TECHNIQUES FOLLOWING ROUX-EN-Y GASTRIC BYPASS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Performing endoscopic retrograde cholangiopancreatography (ERCP) in patients with Roux-en-Y gastric bypass (RYGB) anatomy represents a real challenge for endoscopists. The most widely used options for ERCP in these cases are enteroscopy-assisted ERCP (EA-ERCP), laparoscopy-assisted ERCP (LA-ERCP), and endoscopic ultrasound-directed ERCP (EDGE).

Aims & Methods: Our aim is to compare EA-ERCP, LA-ERCP, and EDGE in terms of safety and efficacy by performing a systematic review and meta-analysis. The protocol was registered beforehand with PROSPERO (ID: CRD42022368788). We systematically searched three medical databases, namely MEDLINE (via PubMed), Embase, and Cochrane CENTRAL, to look for studies investigating EA-ERCP, LA-ERCP, or EDGE.

We performed indirect comparison to compare the interventions based on comparative and single-arm studies. Proportions were calculated by pooling together event rates with 95% confidence intervals (CI). Differences between interventions were considered significant if $p<0.05$. Random-effect model was used to pool effect sizes.

Results: In total, 67 studies were included (2,714 patients). The technical success rate was 78% (CI: 0.71-0.83) for EA-ERCP, 93% (CI: 0.9-0.95) for LA-ERCP, and 96% (CI: 0.92-0.98) for EDGE with total heterogeneity (I^2) 0%. Subgroup differences were significant between EA-ERCP and EDGE or LA-ERCP groups, $p < 0.05$.

The clinical success rate was 65% (CI: 0.58-0.73) for EA-ERCP, 92% (CI: 0.89-0.94) for LA-ERCP, and 93% (CI: 0.88-0.97) for EDGE, I^2: 18%, $p< 0.05$. Overall adverse event rates were 12% (CI: 0.7-0.21), 19% (CI: 0.14-0.24), and 20% (CI: 0.12-0.31), respectively with I^2: 60%, $p= 0.343$.

Conclusion: EA-ERCP performed poorly compared to LA-ERCP and EDGE regarding technical and clinical success rates, with no significant difference in adverse event rates. Our results question he role of EA-ERCP in the RYGB population.

Disclosure: Nothing to disclose.

PP1463

EFFICACY AND SAFETY OF EMERGENT ENDOSCOPIC GALLBLADDER DRAINAGE

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Introduction: Endoscopic transpapillary gallbladder drainage (ETGBD) is recommended for patients with acute cholecystitis at high risk of surgery/percutaneous drainage. Endoscopic ultrasound-guided gallbladder drain-

age (EUS-GBD) has a higher success rate than ETGBD but has a higher mortality rate as well. Therefore, the more appropriate procedure as emergent endoscopic drainage remains controversial.

Aims & Methods: This study aimed to evaluate the efficacy of endoscopic gallbladder drainage (EGBD); ETGBD and EUS-GBD for patients with technical failure of ETGBD in the same session.

Patients with moderate/severe acute cholecystitis at high risk of surgery who underwent ETGBD alone or EGBD were enrolled. In the EGBD group, patients underwent EUS-GBD after technical failure of ETGBD in the same session. The primary outcome was technical/clinical success rate and procedure-related adverse events by comparing ETGBD and EGBD.

Results: We enrolled 40 ETGBD and 41 EGBD patients. The overall technical success rate was significantly higher in the EGBD group than in the ETGBD group (97.6% vs. 82.5%, P=0.023). No significant difference was in clinical success rates and adverse event rates between both groups (P=0.858 and 0.665, respectively). The length of hospitalization was significantly shorter in the EGBD group (6.5 vs. 10.1 days, P<0.001).

Conclusion: EGBD contributed to higher technical/clinical success rate, and shorter length of hospitalization, with similar incidence rate of adverse events, than ETGBD alone. Thus, this rescue strategy of ETGBD with EUS-GBD having a higher global success rate may be ideal for emergency endoscopic gallbladder drainage.

Disclosure: Nothing to disclose.

PP1464

REMIMAZOLAM VERSUS PROPOFOL FOR SEDATION IN ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY: A NON-INFERIORITY STUDY

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is a frequently employed procedure for diagnosing and treating pancreaticobiliary diseases. The selection of an appropriate sedative agent is crucial for ensuring patient comfort and procedural success. An optimal sedative should offer a predictable duration of action and a high safety profile. This study aimed to compare the efficacy and safety of remimazolam and propofol in patients undergoing ERCP procedures.

Aims & Methods: A randomized, single-blind, single center study was conducted comparing remimazolam and propofol for inpatient ERCP sedation. The study medications were administered under the supervision of the endoscopist. A total of 110 patients scheduled for ERCP were randomly assigned to receive either remimazolam or propofol.

The primary endpoint was a composite of successful procedure completion and no requirement for rescue medication.

Secondary endpoints included sedation efficacy, recovery time, and adverse events.

Results: Of the 110 patients randomized, 108 underwent sedation and ERCP (53 received remimazolam, 55 propofol). The primary endpoint was achieved for 100% of patients in both groups. The incidence and frequency of treatment-emergent adverse events, including desaturation, were comparable between the two groups. ERCP initiation occurred sooner in the propofol group (mean, 63.18 ± 16.56 seconds) compared to the remimazolam group (75.23 ± 32.27 seconds; p-value=0.02). Additionally, the time to full alertness after ERCP completion was significantly shorter in the propofol group than the remimazolam group (304.18 ± 146.25 vs. 448.34 ± 224.09 seconds; p-value<0.001).

Conclusion: This trial demonstrated non-inferiority of remimazolam to propofol in achieving the primary endpoint of successful ERCP completion without the need for rescue medication. The incidence and frequency of adverse events were comparable between the two groups. However, our study also revealed that propofol had a faster onset and recovery time compared to remimazolam. Although this difference may not be clinically significant, it could have practical implications in certain cases. Consequently, remimazolam can be considered a safe and effective alternative to propofol for ERCP sedation, potentially expanding clinicians' options and improving patient outcomes. Further research is warranted to determine the optimal choice of sedative agents for various patient populations and procedures.

Disclosure: Nothing to disclose.

PP1465

COMMON BILE DUCT LITHIASIS: PREDICTORS OF STONE EXTRACTION FAILURE

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Introduction: Endoscopic retrograde cholangiopancreatography is the treatment for choice of lithiasis of the common bile duct . It allows the extraction of calculations either by the use of standard maneuvers in particular the biliary extraction balloon or the basket of Dormia, or if necessary by additional maneuvers.

Aims & Methods: Our objective is to study the predictive factors of failure of the vacuity rate primary of common bile duct during endoscopic retrograde cholangiopancreatography in lithiasic pathology. This is a descriptive and analytical retrospective study including all patients with benefited from an Endoscopic retrograde cholangiopancreatography for lithiasic pathology, between September 2003 and August 2022. All patients underwent Endoscopic retrograde cholangiopancreatography with endoscopic biliary sphincterotomy and extraction of stones by standard maneuvers (Biliary extraction balloon or Dormia basket). The factors associated with the failure of the primary vacuity rate of common bile duct have been studied by the logistic regression. Statistical analysis was performed using Jamovi software.

Results: Among 1080 patients who underwent endoscopic retrograde cholangiopancreatography for lithiasis pathology, 606 (54.2%) had simple lithiasis, 315 (29.2%) had bile duct stones and 179 (16.6%) had large stones. The average age of the patients was 58.9 +/- 14.4 years with extremes ranging from 19 to 98 years. The sex ratio (M/F) was 0.67 with a female predominance in 59.5%. 18.2% of patients had acute cholangitis and 9.2% had acute pancreatitis.

355 patients were cholecystectomized (32.9%), 67 patients had an antecedent of endoscopic biliary sphincterotomy (6.2%) and 5 patients had an history of common bile duct surgery (0.4%). Periampullary diverticulum was found in 9.1% of cases (n=98). The mean common bile duct diameter was 13.4 mm +/- 4.31.

Common bile duct stenosis was present in 6.3% of patients (n=68). The primary vacuity rate was 75.1%. Additional maneuvers were used in 22.7% of cases.

After univariate analysis, the predictors of failure after using the standard maneuvers were: age (OR: 0.9; 95% CI: [-0.03- -0.01]; p<0.001); gender (OR: 0.7; 95% CI: [-0.5- -0.02]; p=0.036); history of cholecystectomy (OR: 1.3, 95% CI: [0.02-0.6]; p=0.035); the presence of cholangitis (OR: 0.4; 95% CI: [-1.1- -0.4]; p<0.001); significant dilation of the common bile duct >15mm

(OR: 0.8, 95% CI: [-0.2- -0.1]; p<;0.001), common bile duct stenosis (OR: 0.3; 95% CI: [-1.7- -0.7]; p<;0.001) and the presence of stone formation and/ or large calculus (OR: 0.1; 95% CI: [-2--1]; p<;0.001).

After multivariate analysis, and adjusting for the factors studied, only the presence of cholangitis (OR: 1.9; 95% CI: [0.2-1]; p=0.001), stone formation and/or large stones (OR: 2.5; 95% CI: [0.5-1.3]; p<0.001), significant dilation of the common bile ducte > 15mm (OR: 0.88; 95% CI: [-0.17- -0.07]; p<0.001), and common bile duct stenosis (OR: 2.9; 95% CI: [0.4-1 .7]; p=0.002) were significantly associated with failure of the primary vacuity rate of the common bile duct.

The overall vacuity rate after using the additional maneuvers was 92.4%.

Conclusion: In our study, the primary common bile duct vacuity rate was 75.1%. The predictors of failure of the primary vacuity rate of common bile duct were the presence cholangitis, stones and/or large stones, significant dilation of the common bile duct (>15mm) and common bile duct stenosis.

Disclosure: Nothing to disclose.

PP1466

COMPARISON OF EFFICACY AND SAFETY BETWEEN ERCP AND PTGBD AS PRIMARY DRAINAGE IN ELDERLY PATIENTS WITH ACUTE CHOLANGITIS: A SINGLE-CENTER OBSERVATIONAL STUDY

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Introduction: Early drainage of the biliary tract is significant in managing patients with acute cholangitis. In cases where endoscopic retrograde cholangiopancreatography (ERCP) is not feasible, percutaneous transhepatic gallbladder drainage (PTGBD) is considered as an alternative treatment.

Several studies indicate that PTGBD is a well-established treatment as well as ERCP, however there is limited literature of evaluation and comparison of these procedures in elderly people.

Aims & Methods: This study aimed to compare the clinical outcomes of ERCP and PTGBD in elderly patients with acute cholangitis. We retrospectively compared patients aged 70 years or older who underwent ERCP or PTGBD between 2019 and 2022.

Results: Among 129 cases of acute cholangitis, 101 patients underwent ERCP, while 28 patients underwent PTGBD. Benign and malignant biliary obstruction were present in 76% (98/129) and 24% (31/129), respectively. The mean age was 84.2 years in ERCP and 84.5 years in PTGBD. Main reasons for performing PTGBD were postoperative stomach in 21% (6/28), unstable vital signs in 46% (13/28), full-stomach in 25% (7/28), and failure to perform ERCP in 14% (4/28).

The overall technical success rate was 91% (92/101) in ERCP and 100% (28/28) in PTGBD. Senior residents performed the entire PTGBD procedure, while only 63% (64/101) of ERCP cases were performed by senior residents. Both ERCP and PTGBD showed improvement in jaundice (T-Bil -0.72 vs. -0.45, P>0.05), liver dysfunction (AST -178.7 vs. -206.6, P>0.05; ALT -57.4 vs. -77.4, P>0.05), and inflammatory response (white blood cell count -5.4x103 vs. -7.4x103, P>0.05) in blood tests after the procedure. However, acute pancreatitis occurred in 5% (5/101) after ERCP, leading to mortality in 2% (2/101).

Other complications were observed in 19% (19/101), including bleeding after endoscopic sphincterotomy (EST) in 4% (4/101). In contrast, PTGBD caused no major complications or drainage failure, although tube dislocation occurred in 18% (5/28). The median length of stay was longer in PTGBD (25 days) compared to ERCP (15.2 days).

Conclusion: Both ERCP and PTGBD are effective treatments for acute cholangitis in elderly patients. Besides, PTGBD has an advantage of a higher technical success rate and fewer procedure-related complications compared to ERCP.

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Disclosure: Nothing to disclose.

PP1467

UTILITY OF A NEW ENDOSCOPIC SCRAPER FOR BILIARY STRICTURES

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Introduction: The endoscopic transpapillary bile duct brushing cytology and biliary forceps biopsy with endoscopic retrograde cholangiopancreatography are generally performed for pathological diagnosis of biliary strictures. The sensitivity of the conventional cytology and biopsy was reported to be 30% to 81%. The diagnosis of biliary strictures may not be reached, especially of those caused by pancreatic cancer.

Aims & Methods: The Trefle (Piolax Medical Devices, Yokohama, Japan) is a new device that consists of looped metallic wires to scrape and aspirate the tissue along with bile juice.

The aim of the study was to compare the diagnostic performance of the new device with that of conventional cytology and biopsy. A total of 264 cases with biliary stricture underwent transpapillary biopsy and cytology between 2012 and 2021, of which 124 were diagnosed using the new device. We retrospectively analyzed the diagnostic utility of the new device compared with that of conventional cytology and biopsy.

Results: The locations of biliary strictures were perihilar in 73 cases and distal in 191 cases. Of the 264 cases, 195 were diagnosed with a malignant stricture. 122 cases had biliary cancer, whereas 72 had pancreatic cancer. The sensitivity of the new device and the conventional cytology and biopsy was 61% and 55%, respectively. Adding a biopsy to the new device increases the sensitivity to 89%. In the cases with biliary strictures caused by pancreatic cancer, the sensitivity of the new device and the conventional cytology and biopsy was 49% and 39%, respectively.

Conclusion: Our study suggests that the new device was more useful than conventional cytology and biopsy for the pathological diagnosis of biliary strictures, especially those caused by pancreatic cancer. Adding a biopsy to the new device to the new device is expected to increase sensitivity.

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Disclosure: No COI.

PP1468

MOTORIZED SPIRAL ENTEROSCOPY-ASSISTED THERAPEUTIC ERCP IN PATIENTS WITH ROUX-EN-Y BILIOENTERIC RESCONSTRUCTION

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Introduction: Postsurgical upper gastrointestinal anatomy impedes access to the biliary system in case an appropriate intervention is needed. Motorized spiral enteroscopy (MSE) was shown feasible in patients with altered anatomy and has the advantage that standard ERCP instruments can be used.

Therefore, MSE-ERCP appears to be the optimal solution for postsurgical patients, especially with long limb anatomy.

Aims & Methods: We retrospectively analyzed all MSE-ERCP procedures performed in patients with Roux-en-Y reconstruction between September 2021 and October 2022 in our hospital.

Results: We identified 18 MSE-ERCP procedures (9 in long afferent limb situation – e.g. after gastrectomy or hepaticojejunostomy; 9 in very long limb situation – e.g. gastric bypass) in a total of 14 patients. In 14/18 MSE-ERCPs (78%) the papilla/hepatico-jejunostomy was reached and in 12/14 MSE-ERCPs (86%) the intended "standard" ERCP-interventions (e.g. cholangiography, endoscopic papillotomy, biopsy, balloon-dilation, stone-removal, plastic as well as fully covered metal stent-insertion) were successfully performed.

Success of reaching the biliary entry was lower in very long limb-situations (66% vs 89%), success of interventions was comparable in both limb situations. Observed complications were caused either by enteroscopy in one patient or by the biliary intervention inanother patient. Mean procedure time for successful interventions was 93 minutes. In 60% of patients MSE-ERCP was carried out on an outpatient basis.

Conclusion: MSE-ERCP is a promising technique for patients with Roux-en-Y reconstructions with good success and acceptable complication rates. Prolonged examination times have to be taken into account and outpatient application is possible in the majority of cases.

Disclosure: Speakers honoria for Olympus, Janssen Pharmaceuticals, Medtronic Ag.

PP1469

LONG-TERM OUTCOMES OF A LONG, PARTIALLY COVERED METAL STENT FOR EUS-GUIDED HEPATICOGASTROSTOMY IN PATIENTS WITH MALIGNANT BILIARY OBSTRUCTION

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Introduction: The first line treatment for biliary obstruction is endoscopic retrograde cholangiopancreatography (ERCP). However, in some situations such as duodenal obstruction or hilar obstruction or surgically altered anatomy, conventional endoscopic management fail. Hepaticogastristomy drainage (HGS) through endoscopic ultrasound has emerged as a new technique for biliary decompression in case of ERCP failure. We hereby aim to evaluate long-term efficacy of EUS-HGS.

Aims & Methods: One hundred ninety-eight patients undergoing EUS-HGS using long partially covered metallic stent in 3 academic centers from January 2010 to January 2022 were retrospectively studied. Technical and functional success, adverse events, recurrent biliary obstruction (RBO), and reinterventions were evaluated.

Results: The principal cause of malignant biliary obstruction was pancreatic cancer in 47,6 %. Patients were metastatic at the time of HGS in 65,2% of cases. Patients were male in 53,8% with mean bilirubin of 58.74 mg/dL. The main reason for HGS was duodenal obstruction (30,9%) followed by failed biliary cannulation (30,4%). The median overall survival rate was 3.1 months [IC 95%; 2.2 - 3.97]. In the entire cohort 35 patients / 198 had recurrent biliary obstruction (17,7%) with median stent patency of 448 days.

On multivariate analysis, age was associated with lower chance of stent dysfunction (HR = 0.97 [0.95-0.99], p=0.028). Stent type, stent diameter, stent size, size of puncture, ascites and cause of malignant obstruction were not associated with stent patency. Reintervention through the EUS-HGS route was technically possible in most cases.

Conclusion: EUS-HGS using for unresectable malignant biliary obstruction was safe and effective on the long term with low rate of stent dysfunction and recurrent biliary obstruction. Patient's prognosis was primarily determined by the underlying disease.

Disclosure: Nothing to disclose.

PP1470

CHOLANGIOSCOPY-ASSISTED INTRADUCTAL LITHOTRIPSY: LONG TERM FOLLOW-UP DATA IS IT WHAT WE EXPECTED?

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Introduction: Cholangioscopy-assisted intraductal lithotripsy is a first-line option in the treatment of complex gallstones. Its effectiveness and safety are demonstrated in the literature by multiple studies published after 2017.

However, there are no published studies about the long-term recurrence of choledocholithiasis in patients treated by these techniques.

With this study we intend to answer this question, evaluating the long-term recurrence of choledocholithiasis in patients with complex choledocholithiasis treated with intraductal lithotripsy techniques.

Aims & Methods: Retrospective cohort study of 62 consecutive patients who underwent cholangioscopy-guided intraductal lithotripsy between 2017 and 2022 at our center. Data were collected from a dedicated prospectively maintained database.

Primary outcome: recurrence of choledocholithiasis.

Follow-up time: 5 years.

Survival analysis was performed using Kaplan-Meyer curves and Cox regression (Statistical software STATA 17 (StataCorp, TEXAS).

Results: Of the 62 patients, 35 (56.5%) were women, mean age 72 years (min. 28, max. 96), 20 of whom had previously undergone cholecystectomy and with a mean follow-up time after lithotripsy of 28.21 months. 88.7% of patients achieved complete stone removal in the 1st session, with a rate of 100% at the second procedure. The mean number of stones was 2.02 with a size of 18.74mm. There was recurrence of choledocholithiasis in 9 patients, of which 77.8% had cholangitis, with a mean time of

13.33 months after lithotripsy. In patients with recurrence of choledocholithiasis, 22.2% had gallbladder. None of the patients required surgery to explore the biliary tract.

Conclusion: Cholangioscopy-guided lithotripsy is associated with a high success rate in difficult gallstones, with a safety profile similar to conventional techniques and lower rates of choledocholithiasis during follow-up.

Disclosure: Nothing to disclose.

PP1471

EXPERIENCE WITH THE USE OF SINGLE USE DUODENOSCOPY FOR ERCP IN A TERTIARY CARE CENTER

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Introduction: Infection related morbidity and mortality is still a major hazard associated with the standard re-usable duodenoscopes used for endoscopic retrograde cholangiopancreatography (ERCP). The single use duodenoscope (SUD) has been developed as a potential disposable instrument for preventing cross-transmission of infections via contaminated devices in high-risk patients. However, data for the use of SUD in real-world practice is very scarce.

Aims & Methods: In this study we aimed to assess our single centre experience with SUDs in patients underwent ERCPs, in terms of performance and safety. We included all the patients who underwent ERCP with the use SUD (Boston Scientific designed EXALT Model D) between October 2020 and February 2023 at Cambridge University Hospitals. Based on the retrospective review of procedure notes, outcomes were analysed with regards to procedure indication, success rate for the intended clinical indication, interventions performed, and adverse events. The SUD was used when prespecified institutional criteria (immunocompromised patient, multi drug resistant infection or failed procedure with standard re-usable duodenoscopes) were met or when there was no reusable duodenoscopes available at the time of procedure.

Results: The SUD was used in total of 34 patients during the study period. Baseline patient characteristics and procedure details are shown in Table 1. 59% of the patients were females. The median age was 64.5 years. Nineteen patients (56%) had a native papilla. The most common indication for the ERCP was choledocholithiasis (12, 35%) followed by benign biliary stricture (11,32%), head of pancreas tumor (6, 18%) and cholangiocarcinoma (4,12%).

28 out of 34 (82%) procedures achieved technical success. 20 procedures (59%) had the SUD used as the primary endoscope and 19 were successful (95%). In the other 14 cases (41%) SUD was used after the standard re-usable duodenoscopes due to anatomical problems encountered preventing progression of the procedure and of these 9 (64%) were completed successfully. In 5 of these (83%), failure occurred due to distorted duodenal anatomy which did not allow the scope to reach a favorable position.

Regarding the post procedure adverse events, 5 patients (15%) developed post procedure pancreatitis, two (5%) developed cholangitis and one patient (2%) had post sphincterotomy bleeding .

Conclusion: The SUD may be an effective tool in patients with distorted gastro-duodenal anatomy with failure when using a re-usable duodenoscopes. The reason for this may be due to the diameter and stiffness of the SUD. It was observed that SUDs are associated with comparably higher rates of adverse events in this study group due to the technical difficulty of the procedures. In addition to the fact that SUD eliminates the risk of device-related infection transmission, it appears to represent a reliable and effective alternative to standard re-usable duodenoscopes for a variety of indications and levels of difficulty.

	ERCP with SUDs
Age (Median, Range)	64.5 (28-84)
Gender- Female	20 (59%)
Native papilla	19 (56%)
Indication for the ERCP	
-Choledocholithiasis	12 (35%)
-Benign biliary stricture	11 (32%)
-Head of pancreas tumor	06 (18%)
-Cholangiocarcinoma	04(12%)
-Others	01 (3%)
Indication for SUD use	
-Immunosuppression	05 (15%)
-Failed procedure with standard re-usable scope	14 (41%)
-Unavailability of the re-usable standard scope at the time of the procedure	15 (44%)
Maneuverers performed using SUD (can be >one per case)	
-Successful biliary cannulation	29(85%)
-Sphincterotomy	21(62%)
-Sphincteroplasty	05(15%)
-Balloon trawl	16(47%)
-Controlled radial expansion(CRE) balloon dilatation of the biliary stricture	04(12%)
-Mechanical lithotripsy	02(6%)
-Brushings for cytology	06(18%)
-Biliary stent removal	02(6%)
-Biliary (plastic) stent placement	02(6%)
-Biliary(metal) stent placement	11(32%)
-Spy glass	02(6%)
Completion of ERCP for intended clinical reasons	28(82%)
Reasons for failure with SUD	
-Distorted gastro-duodenal anatomy	05(15%)
-Unstable patient	01(3%)
Adverse events	
-Pancreatitis	05(15%)
-Cholangitis	02(6%)
-Post sphincterotomy bleeding	01(3%)

Table 1. Patient characteristics and procedure details.

Disclosure: Dr Corbett received honorarium from Boston Scientific previously.

PP1472

INTRABILIARY RUPTURE OF HEPATIC HYDATID CYSTS: HOW EFFECTIVE IS THE ENDOSCOPIC MANAGEMENT?

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Introduction: Hydatid cyst of the liver is a parasitic disease caused by the development of the taenia Echinococcus Granulosus. Fistulization in the bile duct is one of the most frequent complications. Endoscopic treatment is necessary because of the risks associated with surgery.

Aims & Methods: Aims: To evaluate the impact of endoscopic ERCP in the diagnosis and Therapeutic management of ruptured liver hydatid cysts in the bile ducts.

Methods: 60 patients with a hydatid cyst fistulized in the bile ducts were included retrospectively over a period of 20 years, from January 2002 to September 2022. Overall success was defined by definitive vacuity of the main bile duct.

The results were analysed by JAMOVI 2.0

Results: Among the ERCPs performed in our department during the study period, 4.6%(n=60) were for a hepatic hydatid cyst communicating with the bile ducts.

Median age of our patients was 46.1±14.8 with a sex ratio of 2.

ERCP was indicated for acute cholangitis in 44.9% and persistent external biliary fistula in 34%. Median bile duct diameter was 10[7-14]mm and median cyst diameter was 35[27-47]. Sphincterotomy was performed in 96% of patients allowing extraction of hydatid fluid by balloon or Dormia in 87.8%.

Nevertheless, 24% required naso-biliary drainage and 8% benefited from biliary prosthesis placement. Overall success rate was 93,3% (n=56) while 4 patients (6,7%) developed some complications.

This technique helped with the disappearance of jaundice after 5 to 10 days.

Conclusion: Our study confirms that endoscopic treatment of ruptured hydatid cyst in the bile ducts is an effective therapeutic alternative, with a low rate of immediate complications and a good long-term evolution.

Disclosure: Nothing to disclose.

PP1473

EARLY NEEDLE KNIFE FISTULOTOMY IS SAFE AND EFFECTIVE

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is an endoscopic procedure that carries risks of post ERCP pancreatitis (PEP), perforation and bleeding. Extensive studies have been carried out in a bid to reduce these risks and to modify procedural related risk factors to minimise the risk of PEP. One of these methods is utilising the needle knife fistulotomy (NKF) early into gaining biliary access.

Aims & Methods: We aim to study the effectiveness and safety of utilising NKF early in ERCP, both as a primary means of gaining biliary access and a salvage method in difficult biliary cannulation. Papillary morphology which has been thought to contribute to its effectiveness and safety is also studied. All the cases with NKF, either early NKF or primary, during ERCP by a single operator over a ten year period from 2013 to 2022 were identified. Early NKF has been defined as proceeding to the technique within 5 minutes of attempting biliary cannulation, less than 5 contacts with the papilla or after one pancreatic duct (PD) cannulation.

Primary NKF has been defined as NKF prior to attempted cannulation. The notes and endoscopy reports of these patients who had undergone the procedure were reviewed for:

1. Success rate on first ERCP and the follow up managements for unsuccessful cases.
2. Success rate on reattempt ERCP cases following an unsuccessful first ERCP after NKF.
3. Success rate with various papillary morphology (classified according to the Haraldsson classification).
4. Complication rate of ERCP where NKF was attempted.
5. The rate of PD cannulation, PD stent insertion and its associated rate of PEP.
6. The rate of biliary cannulation and complications in patient who had undergone primary NKF.

Results: There were 289 cases of ERCP that had early NKF by a single operator. The biliary cannulation rate was 88.9% (n=257) on first attempt ERCP. For the failed first attempt ERCPs, 15 patients were brought back for re-attempt at ERCP and the success rate was 93.3% (n=14). Cumulatively, the successful biliary cannulation is 93.8% (n=271).

Successful cannulation was 95% in protruding papillas (Haraldsson Type 3), 89% for creased or ridge papillas (Haraldsson Type 4), 81.3% in the regular papilla (Haraldsson Type 1) and 66.7% in papillas within a diverticulum. The overall complication rate for early NKF was 3.1% (n=9). The mortality rate in this study was 0.3% (n=1) from severe pancreatitis.

The rate of post-procedure bleeding was at 0.3% (n=1). There was a rate of 0.3% (n=1) for perforation caused by needle knife incision, which was managed with endoscopic clipping intraprocedurally. The rate of pancreatitis was 2.4% (n=7). There were 38 patients who underwent PD cannulation, of which 5.3% (n=2) suffered from PEP and did not have a PD stent inserted.

Out of 38 patients, there were 5 patients who had PD stent inserted and none had pancreatitis. For the 251 patients who had not undergone PD cannulation, 2% (n=5) had PEP. There were 16 cases of primary NKF and 100% was successful with biliary cannulation. There were no complications.

Conclusion: Early NKF is an effective method of gaining biliary access in ERCP in experienced hands. In our experience, primary NKF has been highly successful with no complications.

Additionally, a second attempt at ERCP should be considered ahead of more invasive interventions such as percutaneous transhepatic cholangiogram (PTC) if the clinical situation allows after an initial failed attempt at ERCP with NKF. Early NKF is also safe in experienced hands, as evidenced by low rates of complications.

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Disclosure: Nothing to disclose.

PP1474

EFFICACY OF COMBINED PER-ORAL CHOLANGIOSCOPY-TARGETED BIOPSIES WITH FROZEN SECTIONS IN THE DIAGNOSIS OF PATIENTS WITH BILE DUCT NODULAR TUMORS

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Introduction: Per-oral cholangioscopy (POC)-targeted biopsies, potential to overcome the problems associated with inadequate tissue sampling and increase the diagnostic sensitivity of bile duct nodular tumors.

The utility of frozen section analysis, able to detect malignancy immediately and allows the early surgery in patients with invasive carcinoma.

Aims & Methods: To evaluate the diagnostic yield and efficiency of POC-targeted biopsies combined with frozen section histopathology.

From Oct. 2017 to Dec. 2021, consecutive patients with biliary nodular tumors were included in this study. The cholangioscope (SpyGlass DS, Boston Scientific Co., Natick, MA, USA) was advanced through a standard therapeutic duodenoscope (Olympus). All procedures were performed under moderate sedation or general anesthesia. Before POC, a standard endoscopic retrograde cholangiogram (ERC) with biliary sphincterotomy was performed to localize the bile duct nodular tumor and to facilitate ductal access and therapy. The cholangioscope was introduced into the bile duct through a guidewire via the working channel. The biliary trees were inspected, and suspicious lesions are biopsied. No more than nine biopsies per lesion were taken for histological examination. The specimens of endoscopic biopsies were then sent to the frozen section laboratory for freezing and staining. The slides were read immediately, and a preliminary report was conveyed to the clinician. The pathologist would then assess for the presence or absence of dysplasia or invasive cancer in the specimen.

Results: A total of 8 patients (7 male and 1 female; mean age 65 years) with bile duct nodular tumors undergoing cholangioscopy-targeted biopsies with frozen sections were included. The clinical presentations of

the patients were obstructive jaundice 2, abdominal pain 2, and imaging findings 4. Seven of the 8 patients had undergone ERC and ductal biopsies without definite diagnosis. The nodular tumors in the bile ducts, average size 1.5 cm (range 0.8-2.0), were located in proximal (4), middle (1) and distal (3) extrahepatic duct respectively. Among 8 patients with biopsy-proved malignancy, 3.5 times (range 2-9) biopsies were needed to be taken. All except one frozen section histopathology (adenocarcinoma in situ) was not compatible with surgical pathology (high grade dysplasia). Hilar invasion was observed in one patient during cholangioscopy, and subsequently surgery was not performed. One patient developed severe complication associated with acute cholangitis.

Conclusion: In this case series study, combined POC-targeted biopsies with frozen section histopathology provides an immediate and efficient diagnosis and allows an early surgery for patients with bile duct tumors. More patients are need to be included in the further study.

Disclosure: Nothing to disclose.

PP1475

A MULTICENTER STUDY OF FACTORS INFLUENCING THE DIFFICULTY OF SELECTIVE BILIARY CANNULATION USING NEW TEXTURE AND COLOR ENHANCEMENT IMAGING (TXI)

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Introduction: In endoscopic retrograde cholangiopancreatography (ERCP)-related procedures, selective biliary cannulation is the most basic procedure and the most difficult to master. The device to improve the success rate of selective biliary cannulation is one of the most awaited innovations in the field of biliopancreatic diseases.

Texture and Color Enhanced Imaging (TXI) is a novel imaging technique that can create enhanced endoscopy images. TXI mode optimizes image structure, brightness, and tonality, the factors that construct and delineate mucosal surface images.

In this study, we aimed to reveal the factors using TXI influencing the difficulty of selective biliary cannulation.

Aims & Methods: This was a multicenter, retrospective study conducted at Kindai University Faculty of Medicine and Saitama International Medical Center.

Patients with naïve papilla for whom selective biliary cannulation was attempted between June and October 2022 were included in this study. A duodenoscope (TJF290V, Olympus Medical Systems, Tokyo, Japan) and EVIS X1 system (Olympus Corporation) were used for ERCP.

Papillary morphology evaluation was performed first with white light imaging (WLI) and then with TXI in all cases, and each evaluation was documented. TXI and WLI were used alternately in each case as the imaging mode during biliary cannulation.

The primary endpoint was the success rate of selective biliary cannulation.

Secondary endpoints included the ability to assess the morphological classification of the papilla, the time required for selective biliary cannulation, and the rate of first-touch cannulation (FTC).

For the morphological classification of the papilla, the agreement rate between the gold standard, as judged by three experienced endoscopists after ERCP, and the evaluation with WLI alone and with TXI were analyzed, respectively.

For the time required for selective biliary cannulation, it was defined as the time from the time the catheter was removed from the scope to the time of successful biliary cannulation. FTC was defined as the first attempt that led to successful biliary cannulation.

Results: Between the two groups of 57 patients in the TXI group and 56 patients in the WLI group, the concordance rate for the morphological classification of the papilla was 0.87 for TXI, better than 0.71 for WLI.

There was no difference between the two groups (TXI vs. WLI) in either the success rate of biliary cannulation (98.3 vs. 98.2%) or time required for biliary cannulation (median) (7.5 vs. 7.0 min), but the rate of FTC tended to be higher in TXI (42.1 vs. 25.0%).

Multivariate analysis (OR (95%CI), p-value) revealed the following characteristics: non-separate type papilla (0.25 (012-0.49), 0.0002), smaller papilla (0.43 (0.18-1.02), 0.083), longer oral protrusion (0.51 (0.35-0.80), 0.0024), and the presence of diverticula (0.52 (0.31-0.86), 0.0071) were factors contributing to a longer time required for biliary cannulation.

In trainee-specific analysis, the overall success rate of biliary cannulation was 69.7% (62/89), whereas the factors contributing to biliary cannulation failure were a long oral protrusion (0.21 (0.07-0.58), 0.0024) and the presence of a diverticulum (0.31 (0.09-1.02), 0.054) in multivariate analysis.

Conclusion: The factors affecting the difficulty of selective biliary cannulation were the non-separate type of papilla, the longer oral protrusion, and the presence of a diverticulum. TXI is expected to contribute to selective biliary cannulation by allowing the endoscopist to more accurately determine whether the papilla is a separate type or not than WLI.

Disclosure: There is no conflict of interest regarding this study.

PP1476

TOTALLY RETROGRADE ENDOSCOPIC THERAPY TO TREAT STRASBERG TYPE C BILE LEAKS: A RETROSPECTIVE SINGLE CENTER EXPERIENCE

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Introduction: Endoscopic therapy is the treatment of choice for most external biliary fistulas except for those originating from isolated/disconnected ducts as in Strasberg type C lesions after laparoscopic cholecystectomy. The failure in opacifying during cholangiography and in accessing the isolated duct with the usual endoscopic methods made the endoscopic intervention not an available treatment option.

We propose a totally retrograde endoscopic access to treat Strasberg type C bile leaks.

Aims & Methods: The aim of this study is to evaluate technical and clinical success of totally retrograde endoscopic access to treat Strasberg type C bile leaks.

The proposed endoscopic intervention consists in cannulating the isolated duct by passing from the cystic duct or from the bile duct stump/leak using a hydrophilic guidewire and subsequent placing fully covered self-expandable metal stents (fc-SEMS) or plastic stents across the level of transection.

Before stenting, a mechanical or pneumatic dilation is performed using a 4 mm balloon or a 7/8,5 Fr Soehendra boogie. If cannulating the isolated duct is not technically possible ("single-step direct cannulation"), a "step-up approach" is used: a fc-SEMS or a plastic stent is placed with the distal edge in the subhepatic intrabdominal space as nearest as possible to the transected duct and the proximal edge transpapillary into the duodenum, by-passing the residual biliary tree.

After 4-6 weeks, a second ERCP is performed to directly stent the transected duct searching the path with a hydrophilic 0.035 angled guidewire. A plastic or fc-SEMS is placed to drain the biliary tree in all the cases.
This is a retrospective study of consecutive patients who underwent endoscopic treatment from March 2012 to March 2023
Results: Twenty-eight consecutive patients (12 M, 16 F; mean age: 55.4 y.o.) were retrospectively enrolled.
The access to the transected biliary radicle was obtained by opening the cystic stump using a 0.035 hydrophilic guidewire in 21 cases and from a common bile duct stump in 7 cases, passing through the intraperitoneal cavity.
In 19 cases, we performed direct cannulation of the isolated cut duct, while in 9 cases we performed an endoscopic step-up approach.
Technical success rate was 100%. Clinical success was obtained in 26 patients (93%): in one case, four days after the endoscopic procedure the patient underwent partial right hepatectomy due to an infected hepatic iatrogenic hematoma; in the other patient, a successful treatment of the biliary leak was not possible since the stent and the isolated duct were not in the same anatomical line, hence the patients underwent liver resection. Mean time of fistula's closure was 36 hours.
No major adverse events were reported. In two cases we observed a stent displacement, that in one case led to recurrence; in both cases, the patient was re-treated endoscopically. Acute cholangitis requiring endoscopic treatment was observed in one case.
Conclusion: The proposed endoscopic treatment is innovative, safe, and effective, but is applicable in tertiary level endoscopic centres and requires considerable expertise. This minimally invasive procedure can increase the rate of fistula healing and will eventually decrease the need for more aggressive and risky operative procedures.
Disclosure: Nothing to disclose.

PP1477

SAFETY AND EFFICACY OF ENDO- BILIARY RADIOFREQUENCY ABLATION FOR STENT OCCLUSION: A CASE SERIES

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Introduction: Endo-biliary radiofrequency ablation (RFA) is a novel minimally invasive intervention to treat stent occlusion in malignant biliary strictures1. Advances in oncological therapies have improved survival and tumour ingrowth into uncovered self-expanding metal stents (UcSEMS) is common and strategies to manage this are limited2.
We aimed to determine the clinical outcomes of endo-biliary RFA using ELRATM probe (Taewoong) in patients with UcSEMS occlusion.
Aims & Methods: Retrospective data was collected from February 2020 to March 2023 at St Thomas' Hospital.
Results: 28 endo-biliary RFA's were performed in 12 patients for occluded UcSEMS over this period, delivered by 3 operators. Demographics are shown in table 1.
Excluding two recent cases, 60% required multiple RFA interventions. The median number of RFA's was 2, with one patient requiring 9 sessions. One patient was excluded as there was significant parenchymal disease in addition to UcSEMS occlusion and despite RFA, there was progression in liver metastasis. For patients with bilirubin monitoring post RFA, 11 (100%) procedures resulted in a reduction in bilirubin between 1-4 weeks.
The average reduction in bilirubin was 61.4% (6/11 patients) at week 1 and 77.4% (9/11 patients) at week 2-4. Excluding 2 recent cases, survival was 90 % at 30 days post procedure, and 70% at 90 days. Survival was 100% at 90 days for cholangiocarcinoma. The patient requiring 9 sessions (not on chemotherapy), survived for 18 months with significantly improved quality of life. There were no recorded complications. Technical difficulties were encountered in 2 cases due to impedance in bilobar stents with a Y configuration due to contact of the probe with metal at the hilum.

M:F	7:5
Mean age	71
Performance status	0-2
Malignancy Cholangiocarcinoma	5
Pancreatic cancer	4
gall bladder	1
Hepatocellular carcinoma	1
metastatic breast cancer	1

Table 1: Demographics

Conclusion: Endo-biliary RFA had good technical and clinical success with measurable reduction in bilirubin in patients with UcSEMS occlusion without any complications in our cohort. It is difficult to say if survival is purely due to biliary drainage or if there is an anti-tumour effect with RFA, especially given the 100% survival at 3 months in patients with cholangiocarcinoma. Additional data from randomised controlled trials is required to assess the role of RFA in malignant strictures.
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Disclosure: Nothing to disclose.

PP1478

PREDICTING DIFFICULT BILIARY CANNULATION IN ERCP – DEVELOPMENT OF AN INNOVATIVE MODEL

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Introduction: Biliary cannulation is a key parameter in any training program and is pivotal in post-ERCP pancreatitis (PEP). The development of a simple and reliable model to predict a difficult cannulation ex-ante would allow us to develop better training programs and potentially decrease PEP, by matching difficult cases with more experienced endoscopists. However, there is no model published that allows to predict a difficult biliary cannulation (DBC).
Aims & Methods: We aimed to develop of a model to predict a DBC - defined as:
i. Taking longer than 5 minutes,
ii. With at least 5 attempts for BC or;
iii. With at least one pancreatic duct cannulation -, but before biliary cannulation.
A prospective cohort study was carried out in a large volume center for ERCP between January 2021 and March 2022. All patients with naïve papilla for biliary ERCP were enrolled (n=278). Two explained variables were evaluated:
i. Time to achieve biliary cannulation and;
ii. DBC.
Several predictors were evaluated including Viana's classification of the papilla and a new 5 dimensions framework for assessing the maneuverability of the scope by the endoscopist in the duodenum. A linear regression model and a qualitative response probit model were developed.

Results: Among the 278 patients, 196 (43.4%) were male, with a mean age of 73 years (range 19-107). The most frequent indication was biochemical/imaging suggested biliary disease without jaundice (45.2%; n=122). Three expert endoscopists supervised and performed all ERCPs; in 30.9% of the cases (n=85) a trainee began the procedure. The rate of successful cannulation was 100%. Standard methods alone were used in 66.4% (n=178) and needle-knife fistulotomy was performed in 29.9% (n=80) as a rescue technique. The median overall duration of ERCP was 18 minutes and 47 seconds; biliary cannulation was achieved with a median of 3 minutes and 38 seconds. Eighty patients (28.8%) had the a prominent tubular non-pleated papilla, followed by flat type (20.1%, n=56) and prominent tubular (19.8%, n=55). Regarding cannulation time, when a trainee started ERCP, the cannulation time lasts on average 4 more minutes compared with no presence of trainee (p<0.000) and when the endoscopist could not move duodenoscope to the desired position in D2, cannulation time was 3 minutes and 36 seconds longer than when the scope could be moved to the desired position in D2 (p=0.004).

When the endoscopist cannot get the papilla in the desired position for cannulation, the probability of having a DBC is 21.63 percentage points higher (p=0.015). Additionally, if the endoscopist cannot move the duodenoscope in the desired position, the probability of having a DBC is 24.05 percentage points higher (p=0.002). If a short position is not possible to achieve, the probability of having a DBC is 53.81 percentage points higher (p=0.018).

Furthermore, for each millimeter longer increase of the longitudinal axis of the papilla, the probability of having a DBC increases by 1.63 percentage points (p=0.020). When a trainee starts an ERCP, the probability of the cannulation to be difficult is 22.87 percentage points higher compared with an ERCP without the participation of a trainee (p<0.000).

Conclusion: We have demonstrated that it is possible for an endoscopist to predict a DBC prior to attempting it. This may possibly be useful for the future design of new training programs in ERCP and the development of measures to decrease the rate of PEP.

Reference: Canena, J., Lopes, L., Fernandes, J. et al. Influence of a novel classification of the papilla of Vater on the outcome of needle-knife fistulotomy for biliary cannulation. BMC Gastroenterol **21**, 147 (2021). https://doi.org/10.1186/s12876-021-01735-3

Disclosure: Nothing to disclose.

PP1479

THE EFFICACY OF DISPOSABLE ELEVATOR CAP DUODENOSCOPE IN PREVENTION OF INFECTION TRANSMISSION: PILOT STUDY

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Introduction: Insufficient disinfection of duodenoscopes, particularly the elevator site, can cause ERCP-related infections and serve as a significant source of multidrug-resistant (MDR) infection. To address this issue, a disposable elevator cap (DEC) was developed, and a recent randomized clinical trial demonstrated its effectiveness in reducing contamination following high-level disinfection. However, there is limited evidence in actual clinical practice to reduce cholangitis caused by MDR pathogens.

This study aimed to compare the efficacy of the novel DEC duodenoscope with the standard duodenoscope in preventing infection transmission.

Aims & Methods: We conducted a prospective non-randomized cohort study in a single institution comparing baseline characteristics, technical performance, and incidence of acute cholangitis, including MDR pathogen, in 95 patients using a standard duodenoscope and 101 patients using a DEC duodenoscope.

Results: Age, sex, comorbidities, and indication for ERCP were similar between the two groups. However, the standard duodenoscope group had a higher proportion of naïve papilla (51% vs. 34%, p = 0.04), while the technical success rate was slightly higher in the DEC duodenoscope group (95% vs. 85%, p = 0.15). The rates of procedure-related adverse events were similar between the two groups (16% for DEC vs. 15% for standard). The incidence of post-ERCP cholangitis was also similar (10% for DEC vs. 11% for standard, p = 0.90). The proportion of post-ERCP cholangitis caused by MDR pathogens was similar in the two groups (1% for DEC vs. 2% for standard, p = 0.39).

Conclusion: This study suggests that the technical performance of the DEC duodenoscope is similar to that of the standard duodenoscope. However, more clinical data are needed to confirm the efficacy of the DEC duodenoscope in preventing ERCP-related infection transmission.

Disclosure: Research grant from PENTAX MEDICAL

PP1480

DUODENAL MAJOR PAPILLA MORPHOLOGY CAN PREDICT ERCP PROCEDURAL OUTCOMES AND ADVERSE EVENTS, A PROSPECTIVE STUDY

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Introduction: The morphology of the major papilla could be a risk factor for failure of selective biliary cannulation (SBC) and post endoscopic retrograde cholangiography and pancreatography (ERCP) complications. We aimed to assess whether papillary morphology predicts ERCP procedural outcomes and adverse events.

Aims & Methods: We aimed to assess whether papillary morphology predicts ERCP procedural outcomes and adverse events.

A prospective analysis was performed of patients undergoing ERCP for biliary indications. Patients were included if they received therapeutic ERCP and had naïve major duodenal papilla.

We used Haraldsson's classification for papilla morphology, as follows: Regular (Type 1), Small (Type 2), Protruding or Pendulous (Type 3) and Creased or Ridged (Type 4).

The primary outcome was failing SBC and post-ERCP pancreatitis (PEP), with secondary outcomes including other adverse events and procedural outcomes such as inadvertent pancreatic duct cannulation, cannulation time, and attempts.

Results: A total of 246 cases were included. Age, gender, indications and therapeutic procedures were not different among the four types of papillae. The failure rates of SBC with Type 3 papilla and Type 4 papilla were 9.61% and 5.25%, respectively. In the multivariate analysis, Type 2 papilla (odd ratio 6.78, p = 0.031) and Type 3 papilla (odd ratio 6.84, p = 0.016) were associated with greater SBC failure compared with Type 1 papilla. Malignant obstruction compared to stone (odds ratio 6.35, p = 0.011) and age (odd ratio = 2.11, p = 0.021) were also risk factors for cannulation failure. Type 2 papilla was correlated with a higher rate of post-ERCP pancreatitis (20%, p = 0.012) compared to the other types of papilla However, papilla morphology was not a significant risk factor for any complications in the multivariate analysis.

Conclusion: Small papilla and protruding or pendulous papilla are more difficult to cannulate compared to regular papilla. Small papilla is associated with a higher rate of post-ERCP pancreatitis. Understanding this is key for managing intraprocedural approaches and minimizing adverse events.

Disclosure: Nothing to disclose.

PP1481

NEEDLE KNIFE PAPILLOTOMY AND FISTULOTOMY IN SUPER-ELDERLY (> 90 YEARS OF AGE): SAFETY AND OUTCOMES

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Introduction: Needle knife papillotomy (NKP) and needle knife fistulotomy (NKF) are often used to facilitate biliary access in failed standard biliary cannulation and are associated with post-ERCP complications. However, data specifically evaluating NKP and NKF in patients older than 90 years is lacking.

Aims & Methods: The main objective of this study was to access the safety and efficacy of NKP and NKF in patients 90 years of age and older. Medical records of 249 patients with difficult biliary cannulation who underwent NKP and NKF from September 2000 and February 2023 were enrolled in this study. Patients were divided into two groups: 90 years age and older (Group A: n=34, 8 men, 26 women; mean age, 92.8 years; range 90-101 years) and less than 90 years old (Group B: n=215, 102 men, 113 women; mean age, 75.7 years; range 41-89 years). Patient characteristics, indications for ERCP, technical success and complications were retrospectively evaluated. Success was defined as deep placement of a catheter into the common bile duct. A diagnosis and severity of ERCP complications was made according to ASGE classification.

Results: Choledocholithiasis (57.0%) was the most frequent indication followed by malignant biliary obstruction (36.9%). Periampullary diverticulum was found 10 patients (29.4%) in Group A and 49 (22.7%) in Group B. The number of patients with American Society of Anesthesiologists (ASA) physical status class ≥ 3 was significantly larger in Group A than in Group B (47.1% vs 27.9%, P=0.029). Twelve patients (35.3%) in Group A and 89 (41.3%) in Group B underwent prior placement of a pancreatic stent.

There was no significant difference in the success rates of cannulation in the first session (67.6% vs 69.3%, P=0.844) and in the final session (97.1% vs 97.2%, P>0.999) between the two groups. Mean time to NKP/NKF and mean procedure durations were not significant between the two groups. Four complications (11.8%) occurred in Group A (pancreatitis 1, perforation 1, cholecystitis 2) and 35 (16.3%) in Group B (pancreatitis 19, bleeding 7, perforation 3, cholecystitis 6).

Complication rates was not significantly different. The use of a pancreatic stent was not related to complication rate. Early mortality rate was significantly higher in Group A than in Group B (17.2% vs 2.8%, P=0.009). There were no procedure-related deaths.

Conclusion: With adequate timing and experience, NKP and NKF are considered as safe and effective procedures in super-elderly.

Disclosure: Nothing to disclose.

PP1482

ENDOSCOPIC PAPILLOTOMY IN PATIENTS WITH BENIGN PAPILLARY IS ASSOCIATED TO AN INCREASED MORTALITY

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Introduction: The benign papillary stenosis (BPS) leads to obstruction of the outflow of bile. The importance as an incidental finding has been insufficiently characterised. In particular, it is unclear whether endoscopic retrograde cholangiopancreatography (ERCP) with endoscopic papillotomy (EPT) and the resulting risk of adverse events should be performed in asymptomatic BPS.

Aims & Methods: Hence, the primary objectives were to evaluate the risk of adverse events (i.e. overall, bleeding, perforation, cholangitis, post-ERCP-pancreatitis, and death) after endoscopic retrograde cholangiopankreaticography (ERCP) with endoscopic papillotomy (EPT) in patients with benign papillary stenosis (BPS) and the course after EPT in comparison to patients with EPT for other reasons than BPS.

Secondary objectives included the characterisation of clinical features of BPS and the evaluation of particular risk factors for adverse events in this group.

In a retrospective case-control study 92 BPS patients (age: 77.0 (68.3; 83.8) years, women: 64 (69.6 %)) who had undergone ERCP with EPT from 2010 to 2019 were assigned to a control group matched for gender, age and year of procedure that had undergone ERCP with EPT for other reasons than BPS. Statistics were realised using analysis of variance (ANOVA), Pearson's chi-squared test, Fisher's exact test, paired t-test and Mann-Whitney-U-test. Within the BPS group risk factor analysis was accomplished via binary logistic regression.

Results: Jaundice before ERCP with EPT occurred less frequently in patients with BPS (14,4% vs. 33,0%, p = 0,003). The laboratory tests before the intervention showed that both the cholestasis parameters (AP [U/l]: 118.0 (80.0; 213.0) vs. 244.0 (119.0; 395.0), p < .001; gamma-GT [U/l]: 249.0 (68.8; 626.8) vs. 508.0 (290.0; 820.0), p < .001; total bilirubin [mg/dl]: 1.3 (0.7; 3,5) vs. 2.8 (1.3; 6.5), p < .001) and the transaminases (ALT [U/l]: 58.0 (24.0; 150.0) vs. 158.5 (76.5; 275.3), p < 0.001; AST [U/l]: 55.0 (22.5; 202.5) vs. 129.0 (61.5; 275.8), p = .002) were significantly lower in patients with BPS. The bile duct as measured by ultrasound before the EPT was nominally wider in patients with BPS (11.0 (9.0; 14.0) mm vs. 9.5 (7.0; 13.0) mm, p = 0.055). The ERCP revealed that BPS was moderate in 29.8 % and high in 70.2 %; the median length was 4.0 mm (IQR 3.0; 5.0). The EPT successfully drained the bile drainage in the majority of cases in both groups (100 % and 97.8 %, p = .497).

After the intervention the size of the bile duct decreased tendentially more in the BPS group (-6.5 (-9.7; -3.2) mm vs. -3.5 (-6.7; 0.0) mm, p = .381 and -50.0 (-59.5; -24.7) % vs. -38.7 (-53.4; 0.0) %), p = .198). The overall rate of adverse events tended to be higher in patients with BPS (20.7 % vs. 10.9 %, p = .069). The applied for both bleeding (12.0 % vs. 5.4 %, p = .116) and post-ERCP-pancreatitis (10.1 % vs. 4.4 %, p = .144).

Significantly more patients with BPS died after ERCP with EPT (9.8% vs. 2.2%, p = .030); the deceased presented a reduced state of health (ASA 3: 22.2 % or ASA 4: 77.8 %). Two out of nine BPS patients died from direct complications of ERCP with EPT. Within the BPS group no risk factors for adverse events or death could be detected.

Conclusion: The EPT in BPS is associated to an increased risk of adverse events, in particular increased deaths, although the majority of patients did not die from procedural adverse events. Further studies on the natural course of BPS and the effect of elective EPT in this patient group are mandatory.

Disclosure: Nothing to disclose.

PP1483

FULLY COVERED SELF-EXPANDABLE METAL STENTS FOR THE TREATMENT OF POST-SPHINCTEROTOMY BLEEDING: SYSTEMATIC LITERATURE REVIEW AND META ANALYSIS

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Introduction: Self-expandable metallic stents are increasingly being considered when managing patients with post-endoscopic sphincterotomy (post-ES) bleeding, either as a primary intervention or in cases where other interventions fail to achieve hemostasis. However, safety and efficacy data is still scarce.

This study evaluates the literature on using fully covered self-expandable metallic stents (FCSEMS) for managing post-ES bleeding and describes their safety and efficacy.

Aims & Methods: A systematic literature search was conducted on Wiley Online Library and PubMed databases covering the period of 2010 to 2022 to identify relevant studies. Data were extracted, and hemostasis success, rebleeding, and complication rates were defined as outcomes of interest.

The summarized data were combined using the DerSimonian-Laird model with a Freeman-Tukey double arcsine transformation. Because of the heterogeneity of the data, we used a random-effects model. The chi-squared (Chi2) and I-squared statistic (I2) was used to assess the level of heterogeneity. All analysis was performed in Stata version 18.0

Results: We included ten studies in the meta-analysis (201 patients). The FCSEMS was deployed successfully in 100% of the patients. The hemostasis success rate was 95%, polled in all the studies (95% CI 86-100), while the rebleeding rate was 9% (95% CI 3-18). No death was reported in any of the ten studies related to the insertion of FCSEMS.

The complication rate was 10% (95% CI 5-16, I2= 26%), with stent migration being the most typical complication at 56% (95% CI 32-78) of all complications.

Conclusion: Fully covered self-expandable metal stents are effective and generally safe for managing post-ES hemorrhage, with a high initial hemostasis success rate, low rebleeding rates, and acceptable complications rate. FCSEMS can also be deployed with a high technical success rate.

Thus, FCSEMS can be part of the primary mitigation measures for post-ES bleeding.

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Disclosure: Nothing to disclose.

PP1484

PRE-OPERATIVE DIGITAL SINGLE-OPERATOR CHOLANGIOSCOPY IN PERIHILAR CHOLANGIOCARCINOMA: ROLE IN THE EVALUATION OF PROXIMAL DUCTAL EXTENSION

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Introduction: The evaluation of intraductal extension of perihilar cholangiocarcinoma (pCCA) is extremely challenging and affects the resectability of the disease. Digital Single-Operator Cholangioscopy (D-SOC) and D-SOC-guided biopsies are frequently used for diagnostic assessment of indeterminate biliary strictures.

Aims & Methods: In this study, we evaluated the role of D-SOC and D-SOC-guided biopsies in the pre-operative evaluation of intraductal extension of pCCA. We retrospectively analysed pCCA patients who underwent D-SOC and D-SOC-guided biopsies to assess the intraductal extension of the tumor prior to surgery for potentially resectable disease in our center between 2017 and 2021.

The accuracy of endoscopic appearance and histological sampling were compared to surgical samples obtained at surgery.

Results: Among 48 patients who underwent surgery for pCCA, after multidisciplinary discussion, D-SOC and D-SOC-guided biopsies were performed for proximal biliary staging in 6 patients (M:F 5:1, mean age at diagnosis 67 y.o.), which had an unclear ductal extension. A total of 12 D-SOC -guided biopsies were performed (7 from common duct, 2 from right duct and 3 from left duct). Concordance between CS-guided biopsies and surgical samples histological evaluation was 83% (10/12), with 6/6 true positives, 4/6 true negatives and 2/6 false negatives.

Among the histological false negatives, the first case had a cholangioscopic appearance compatible with CCA extension, thus the result of D-SOC-guided biopsies did not influence the therapeutic choice. In the second histological false negative, the evaluation of the surgical specimen showed perineural invasion and periductal tumor development. Radical surgery was achieved in all 6 patients.

Conclusion: Despite limited sample size, our preliminary data suggest a very high specificity of D-SOC and D-SOC -guided biopsies in the pre-operative evaluation of intraductal extension of potentially resectable pCCA patients.

A multidisciplinary approach and an accurate pre-operative assessment of pCCA remain of paramount importance to correctly diagnose and stage the disease before surgery.

Disclosure: Nothing to disclose.

PP1485

TRAINING AND VALIDATION OF DEEP LEARNING FOR THE DETECTION OF MALIGNANT BILE DUCT STENOSIS IN FLUOROSCOPY IMAGES OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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Introduction: Accurate distinction between benign and malignant biliary strictures (BS) is challenging. The use of bile duct biopsies and brush cytology via endoscopic retrograde cholangiopancreatography (ERCP) remains suboptimal. Single-operator cholangioscopy increases the diagnostic yield in BS but has limited availability and high costs. Convolutional neural network (CNN)-based systems have the potential to assist in the diagnostic process and improve reproducibility. Thus, we assessed the feasibility of using deep learning to differentiate BS out of fluoroscopy images during ERCP.

Aims & Methods: We conducted a retrospective review of adult patients (n=251) from three university centers in Germany (Leipzig, Dresden, Halle) who underwent an ERCP. We developed and evaluated a deep learning-based model (DenseNet) by means of fluoroscopy images. We measured the area under the receiver operating characteristic curve (AUROC) to evaluate the performance of the classifier and used saliency maps analyses to understand the decision-making process of the model.

Results: In cross-validation (Leipzig cohort), malignant BS were detected with a mean AUROC of 0.88 ± 0.02. On two independent external validation cohorts (Dresden, Halle), the of the deep learned based classifier reached a mean AUROC of 0.71 ± 0.04 and 0.74 ± 0.07, respectively. The artificial intelligence model's predictions identify plausible characteristics within the fluoroscopy images.

Conclusion: By using a deep learning model, we were able to discriminate malignant BS from benign biliary conditions. Artificial intelligence improves the diagnostic yield of malignant BS and needs to be validated in prospective design.

Disclosure: Nothing to disclose.

PP1486

MICROBIOLOGICAL ASSESSMENT OF BILE IN PATIENTS UNDERGONE TO ENDOSCOPIC RETROGRADE CHOLANGIOGRAPHY: THE "MICROBILE" REGISTRY

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Introduction: The biliary tree has traditionally been considered sterile under normal conditions[1].

Recent evidence has revealed rich microbial communities in the biliary tract of patients affected by biliary tract disorders, supposing that biliary microbiota could play a significant role in the development of several biliary diseases, namely gallstones, autoimmune cholangiopathies, and cancer[2,3].

However, while possible connections between gut micro-organisms and biliary diseases has been studied more extensively, to date few evidences are available on how the microbiological composition may change disease's progression[4].

Not least it is still unclear how the modification of Oddi's sphincter function after endoscopic sphincterotomy performed during an endoscopic retrograde cholangiopancreatography (ERCP) may represent a favorable environment for ascending bacterial colonization[5,6].

Aims & Methods: We performed a prospective observational study aimed to evaluate the prevalence of biliary pathogens of the bile in various disorders and to identify a microbial fingerprint for each disease. 162 consecutive patients with native papilla undergoing to ERCP for any indication were prospectively enrolled from July 2022 to April 2023.

One bile sampling was performed after bile duct cannulation, before contrast injection and sphincterotomy, while a second one was done at the end of the procedure. Pre procedural clinical data, bile cultures and clinical follow-up were collected and analyzed.

Results: Biliary culture was obtained in 100% of patients. 52% of bile cultures were positive for at least 1 bacterium. No differences were found in microbial community before and after sphincterotomy. Out of 78 patients with positive bile cultures, 46 (59%) had cholangitis, all of them were under antibiotic therapy. Patients treated with immunomodulant agents did not have an increased risk of positive bile cultures.

Multidrug-resistant bacteria were detected in pre-sphincterotomy bile cultures in 9 (5%) patients, of which 7 were extended-spectrum beta-lactamase (ESBL),1 Methicillin-resistant Staphylococcus aureus (MRSA) and 1 Vancomycin-Resistant Enterococci (VRE).

No significant correlations were found between the presence of multidrug-resistant bacteria and underlying diseases, systemic cholangitis or immunomodulant exposure.

Characteristic	N	%
Patients	162	
Age (mean)	71 (27-97)	
Gender		
Male	82	51
Female	80	49
Indications		
Choledocolithiasis	95	58.6
PDAC	28	17.3
CCA	6	3.7
Acute cholangitis	23	14.3
PSC	1	0.6
Papillary tumours	6	3.7
Others	3	1.8
Drug-induced immunosuppression	11	6
Proton pump inhibitors	102	63
Antibiotic therapy over last 3 months	29	18

Table 1. Baseline characteristics of our population study. PDAC: Pancreatic Ductal Adenocarcinoma. CCA: Cholangiocarcinoma. PSC: Primary sclerosing cholangitis.

Conclusion: Our preliminary results showed how the biliary tree in patients with biliary diseases may not be sterile, even when Oddi' s sphincter is intact. The presence of neoplastic diseases or immunosuppression therapy does not seem to correlate with an increase in positive bile cultures nor in multidrug resistant bacteria. Further analysis may be needed to assess the correlation between bile cultures and long-term outcomes.

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PP1487

EUS PRIOR TO ERCP IN CASES WITH DILATED CBD ON OTHER IMAGING WITH NORMAL OR BORDERLINE DERANGED LFT- IS IT REALLY WORTH?

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Introduction: Dilated CBD on non-invasive imaging with normal or borderline derangement of LFT and unremarkable physical signs has been always a diagnostic dilemma. In the clinical setting, however, to determine the presence of ductal calculi or importantly a tumor remains a significant dilemma; a balance must be struck between invasive ERCP, associated complications and potential inaccurate diagnosis. We made a protocol to do EUS prior to ERCP in all such cases, where the previous investigations did not give a conclusive evidence of the pathology. We studied the efficacy of EUS in such cases for reaching a conclusive diagnosis and avoid unnecessary ERCP and its incipient complications.

Aims & Methods: To evaluate the efficacy of EUS prior to ERCP for patients with dilated CBD and other inconclusive imaging with normal or borderline derangement of LFT.

A total of 900 patients were referred for ERCP in last 6 years with inconclusive imaging study for dilated CBD and normal to borderline deranged LFT's.

Results: 482 - CBD stones
08 - Pancreatic Malignancy
12 - Distal Cholangiocarcinoma
04 - CBD Sludge
34 - Ampullary Tumor
30 - Impacted Stone at ampulla
12 - Distal CBD polyps
06 - WON Compression
12 - Chronic Pancreatitis Related Stricture
86 - Presumed Spontaneous passage of stones,
44 - Type 1 Choledochal cyst,
60 - Periampullary diverticulum,
40 - Stones in Hartman's pouch,
34 - Small ampullary adenoma,
16 - Duodenal ulcers with scarring
20 - Post cholecystectomy dilatation

ERCP was performed in 557 cases (61.9%) and avoided in 38.1%).
In the cases of pancreatic malignancy, distal cholangiocarcinoma, ampullary tumors, FNA was done and patients without cholangitis were not offered ERCP but subjected to surgery. Two patients with CBD sludge had cholangitis so ERC was done. Distal CBD polyps were removed at ERCP and two had intraductal ductal extensions so surgery was offered. Only two patients each with choledochal cyst and post duodenal ulcer scarring underwent ERC as they had cholangitis.

Conclusion: EUS has remarkable diagnostic yield in detecting etiology of dilated CBD and avoids unnecessary ERCP's in patients with unidentified cause on other imaging modality.

Disclosure: The authors have nothing to disclose.

PP1488

THE CLINICAL UTILITY OF ENDOSCOPIC ULTRASOUND IN INVESTIGATING BILIARY PAIN

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Introduction: Biliary pain is a common cause of morbidity both before and after cholecystectomy. Endoscopic ultrasonography (EUS) is sensitive for the diagnosis of biliary pathology and can identify disease that is occult on other imaging modalities. The aim of this study is to determine the diagnostic yield of EUS when performed for biliary pain.

Aims & Methods: This was a retrospective service evaluation of EUS referrals to a regional referral centre in the UK. All local patients who were referred for EUS for suspected biliary pain between January 2015 to December 2019 were included. Demographics, symptoms, liver function tests (LFTs), non-invasive imaging, EUS reports and clinical outcomes were reviewed. Biliary dilatation was defined as greater than 7mm pre-cholecystectomy and greater than 10 mm post-cholecystectomy. A EUS was considered as diagnostic for a cause of biliary pain if findings were identi-

fied which explained symptoms. Symptom resolution was defined as no further investigation, review or imaging performed for biliary symptoms in secondary care during the follow-up period. Statistical significance for proportions was calculated using chi-squared tests.

Results: 565 patients were included in the study. The median age of the cohort was 55 (range 17-89) years. 161 (28%) patients were male. 241 (43%) patients had previously had a cholecystectomy. The study participants had been extensively investigated with previous imaging which was non-diagnostic; in total the patients had 500 trans-abdominal ultrasound scans, 316 CT scans, 315 MRCPs and 77 previous EUS.

334 (59%) EUS were considered diagnostic. Patients who had previously had a cholecystectomy were less likely to have a diagnostic EUS compared to those who had a gallbladder ((99/241 (41%) vs 235/324 (73%); p<0.01). The diagnostic yield of EUS was higher in patients with abnormal LFTs or a dilated biliary tree and in those with both abnormal LFTs and biliary tree dilatation (table 1).

	Normal LFTs, non-dilated biliary tree	Abnormal LFTs, non-dilated biliary tree	Normal LFT, dilated biliary tree	Abnormal LFTs, dilated biliary tree	Total
Diagnostic EUS/ Total number of patients. N (%)	69/150 (46)	161/270 (60) (p<0.01)	38/60 (63) (p=0.02)	66/85 (78) (p<0.01)	335/565 (59)
Previous cholecystectomy. Diagnostic EUS/ Total number of patients. N (%)	25/74 (32)	49/121 (39) (p=0.35)	9/21 (43) (p=0.44)	16/25 (60) (p<0.01)	99/241 (41)

Table 1.

Positive findings included gallstones (n=92), gallbladder microlithiasis/ sludge (n=181), bile duct stones (n=85), bile duct microlithiasis/sludge (n=108), chronic pancreatitis (n=21) and mass lesions (n=4) which were later diagnosed as metastatic renal cell cancer, pancreatic cancer and two ampullary adenomas.

311 patients had a diagnostic EUS with a biliary aetiology for their pain which was amenable to treatment. Symptom resolution occurred in 85/136 (63%) who had ERCP, 21/24 (83%) who had both cholecystectomy and ERCP, 63/94 (67%) who had a cholecystectomy and in 19/57 (33%) who were managed conservatively. Patients with a diagnostic EUS were more likely to have resolution of their symptoms compared to those with no cause identified ((207/334 (62%) vs 81/231 (35%); p<0.05). Median duration of follow-up was 54 months (range 32-81 months).

Conclusion:

In our cohort of patients with biliary pain who have been previously investigated, EUS is associated with a high diagnostic yield across all groups, although this yield increases in patients with abnormal LFTs, a dilated biliary tree, or both. A diagnostic EUS leads to biliary intervention in a high proportion of patients, and patients who have EUS-guided intervention appear have a greater chance of becoming symptom free than those without a diagnostic EUS. This supports investigation of patients with suspected biliary pain with EUS, regardless of whether their liver blood tests are abnormal or their bile ducts are dilated.

Disclosure: Nothing to disclose.

PP1489

TRAINING OF EUS-HGS AND PFC DRAINAGE PROCEDURE WITH NEWLY DEVELOPED MODEL

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Introduction: Endoscopic ultrasonography-guided fine-needle aspiration (EUS-FNA) has become an indispensable examination in the clinical fields. Recently therapeutic EUS such as pseudocyst drainage, EUS-biliary drainage, and EUS-pancreatic duct drainage, etc. have become popular. In order to become a good endosonographer, it has been believed that the learning of EUS-FNA takes long time and certain number of case experiences are essential. And it is also difficult to learn EUS/EUS-FNA without instructors.

Furthermore, clinical cases are not enough for training young endosonographer. Then hands-on training with models are able to reduce the number of performing clinical Therapeutic EUS on training program.

Aims & Methods: Therefore, we have developed newly designed model for training therapeutic EUS procedure such as EUS-HGS and PFC drainage, conducted the trial of these models with trainees, and investigated its usefulness and limitations.

We have collaborated with Olympus Co. and made model for EUS-HGS by special plastic material (Century medical Co., Tokyo) and pseudocyst model by non-rupture-balloon (SB Kawasumi Co., Tokyo) which is 8cm in diameter. This balloon is filled by lubricant, and these models are put into water tank. We have tried this model at Kitasato Train-The-Trainer (TTT) and Changhai TTT with 26 trainees (11 for HGS and 15 for PFC). We have investigated whether all trainees can complete HGS and PFC drainage procedure (each 5 steps; identify target, needle puncture), GW insertion, dilation, and stenting) and measured these procedure step times. At first each trainee tried these models after simple explanation and they tried it as 2ndtime after teaching tips and tricks. We have employed UCT-260 (Olympus Co., Tokyo) ,19G EUS-FNA needles and 7Fr plastic stent as a drainage tube.

Results: Concerning about PFC drainage, trainees completed the procedure 11/15(73%) at first try and 11/15(73%) at second time. At first try, 3 trainees completed up to 3rd step, not to 4th, 5thsteps, and at second try, 1 trainee still completed up to 3rd step, but 3 up to 4th step. Averaged time of 1st try and 2nd try is 780s vs 594s (p<0.001), respectively.

Concerning about HGS model, trainees completed the procedure 11/11(100%) at first try and 11/11(100%) at second time. Averaged time of 1st try and 2nd try is 712s vs 490s (p<0.001), respectively.

According to their impression, resistance of puncture and putting in a stent is less, compared with clinical cases, even though this model has resistance to pass through the gastric wall, PFC wall, and hepatic parenchyma. Trainees with less experience improved apparently, compared with trainees with more experience. However, it is very useful to understand the procedure of EUS-HGS and EUS-guided PFC drainage for the biggner of therapeutic EUS.

Conclusion: We concluded that newly designed EUS-HGS and pseudocyst model is useful to train the beginner, in order to understand the procedure. Furthermore, using these models, we can brush up their skill by repeating hands-on training.

Disclosure: Nothing to disclose.

PP1490

APPLICATION OF QUANTITATIVE CONTRAST-ENHANCED HARMONIC EUS ON DIFFERENTIAL DIAGNOSIS OF GALLBLADDER POLYPOID LESIONS

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Introduction: Contrast-enhanced harmonic endoscopic ultrasound (CEH-EUS) can demonstrate microvascularization of the tumors. However, most images acquired from CEH-EUS are interpreted subjectively without quantification by time-intensity curves (TICs) analysis. The role of quantitative CEH-EUS through time-intensity curve (TIC) has not been explored in differential diagnosis of gallbladder(GB) polypoid lesions.

Aims & Methods: In this study, we used a handcrafted software to quantify TIC curve of CEH-EUS images to differentiate malignant gallbladder polypoid lesions from benign ones.

We analyzed the videos of CEH-EUS for GB polypoid lesions from the patients in National Taiwan University Hospital. The convex-type echoendoscope (GF-UCT260; Olympus, Tokyo, Japan) equipped with ultrasound (US) systems (EU-ME2) was used for the procedures. The second generation of US contrast agent with Sonazoid (GE Healthcare, Oslo, Norway), which contains perfluorobutane microbubbles with a median diameter of 2–3 μm, was administered bolus and intravenously with a dosage of 0.015 ml encapsulated gas per kilogram body weight. The videos were recorded in AVI formats with 30 frames/second.

The algorithm for getting TICs includes the following steps:

1. Circling the region of interest(ROI) in the B-mode
2. Performing speckle tracking of the ROI in the B-mode
3. Simultaneously obtaining the intensity of ROI (the mean pixel values in the ROI) in the corresponding contrast-enhanced harmonic image
4. Outputting TICs after subtracting the baseline intensity (for eliminating the different baseline intensities caused by other settings).
5. Outputting histogram of pixel values and excel file containing all pixel values from the frame with the highest mean pixel value automatically.
6. Calculating the standard variance of (5) to represent the heterogeneity inside the ROI.

The speckling tracking composes of searching and matching processes. We used full search for the searching process and normalization cross-correlation for the matching process. By using the hardware of CPU with Intel i7-8750H and GPU with Nvidia GTX 1050 Ti, the computation time was 0.7 ms/frame. Based on this algorithm, we designed a graphical user interface of this model.

Results: A total of 30 eligible videos were enrolled for analysis. Fourteen lesions were pathologically proven of malignancies (including 11 adenocarcinomas, two neuroendocrine tumors, one B-cell lymphoma) and the other 16 lesions were benign cases. Among 16 benign lesions, 6 were chronic cholecystitis, 4 were adenomyoma, 2 were intracholecystic papillary neoplasm, one was xanthogranulomatous cholecystitis, one was cholesterol polyps, one was hyperplastic polyp and one was Mycobacterium tuberculosis. The lesion size ranged from 8.1 to 90mm in malignant group and from 4.4 to 29mm in benign group. The mean peak intensity was 46.36 dB (SD=31.77) in malignant group and 55.94 dB (SD=44.59) in benign group respectively (p=.509). The mean time to peak was 30.14 s (SD=10.00) in malignant group and 20.50 s (SD=6.70) in benign group respectively (p=.004).

Conclusion: This preliminary report of using TIC of CEH-EUS images for differential diagnosis of GB polypoid lesions showed significant difference in time to peak between malignant group and benign group. Further large scale of studies are needed for comfirming the application of this novel technique.

Disclosure: Nothing to disclose.

PP1491

A NOVEL DRILL AS THE TRACT DILATION TECHNIQUE DURING EUS-GUIDED BILIARY DRAINAGE BY NON-EXPERT HANDS (WITH VIDEO)

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Introduction: In the case that tract dilation fails using the initially selected dilation device during EUS-guided hepaticogastrostomy (HGS), it should be re-attempted using another device. However, switching the device has the disadvantages of prolonged procedure time and sudden loss of the correct axis, and it is therefore highly desirable that the initial tract dilation is successful. Recently, a novel drill dilator has recently become available in Japan. However, comparison study between this device and other has been not reported as initial dilation technique. Here we describe the technical feasibility of this device for use during EUS-HGS, and compared with balloon catheter.

Aims & Methods: This retrospective study included patients who underwent EUS-HGS using SEMS between October 2021 and October 2022. Patients who developed bleeding associated with EST were enrolled. Excluded from the study were patients who underwent EUS-HGS using a plastic stent or stent deployment without tract dilation.

Results: A total of 49 patients were enrolled, of whom 19 underwent EUS-HGS using the drill dilator and 30 underwent EUS-HGS using a balloon catheter. EUS-HGS using the drill dilator initially was performed mainly by non-expert hands (n=19), whereas non-expert hands performed few procedures in the balloon catheter group (n=2) (P<0.0001). The initial tract dilation was successful in all patients in the drill dilator group (19/19, 100%) and in 29/30 (97%) in the balloon catheter group (P=0.4214). However, to insert stent delivery system, additional tract dilation was needed in 73.7% (14/19) of the drill dilator group.

On the other hand, stent delivery system insertion was successful in all patients of the balloon catheter group.

Conclusion: The novel drill dilator shows promise for initial dilation during EUS-BD. However, balloon dilation technique should be attempted first when deploying a dedicated metal stent using an 8.5Fr stent delivery system.

Disclosure: Nothing to disclose.

PP1492

TRANSLUMINAL ANTEGRADE PIECEMEAL DILATION TECHNIQUE FOR HEPATICOJEJUNOSTOMY STRICTURE WITH CHOLANGIOSCOPIC EVALUATION

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Introduction: Balloon dilation and plastic stent deployment have been performed as hepaticojejunostomy stricture (HJS) treatment techniques by PTBD or under DB-ERCP guidance. Although these techniques have shown favorable clinical results, the treatment period can be long because stent deployment is required.

In addition, HJS may recur even after treatment because the scar tissue itself remains. To overcome these challenges, we developed an transluminal antegrade piecemeal dilation technique (TAPD) for treating HJS.

The aim of this study was to evaluate the technical feasibility and safety of this technique in terms of the pre- and post-cholangioscopic findings.

Aims & Methods: This retrospective study included consecutive patients who were complicated with symptomatic HJS between November and February 2022. The primary outcome of this study was the technical success rate of TAPD using a drill dilator. Technical success was defined as resolution of the HJS, based on the cholangioscopic findings. The secondary outcome was adverse events associated with TAPD such as bleeding or perforation.

Results: TAPD was attempted at around 11 days after EUS-HGS in 19 patients. Among the 19 patients, passage of the guidewire across the HJS into the intestine was unsuccessful in 4 patients, and the technical success rate of this procedure was 78.9%. TAPD was successful in all 15 patients in whom passage of the guidewire was achieved. After TAPD, cholangioscopy identified no bleeding or perforation in any patient. During the follow-up period, no recurrence of HJS was observed in any patient who underwent TAPD.

Conclusion: In conclusion, TAPD appears to be technically feasible and safe. Although it is necessary to conduct a randomized trial in comparison with other methods, with long-term follow up, TAPD may be a useful option for the treatment of HJS.

Disclosure: Nothing to disclose.

PP1493

MACROSCOPIC ON-SITE EVALUATION OF ENDOSCOPIC ULTRASOUND-GUIDED FINE-NEEDLE ASPIRATION/BIOPSY: PRELIMINARY RESULTS OF A MULTICENTRIC PROSPECTIVE STUDY

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Introduction: The concept of Macroscopic on-site evaluation (MOSE) was introduced in 2015 when the endoscopist observed better diagnostic yield when the macroscopically visible core on MOSE was superior to 4 mm.

Few studies have assessed the adequacy of histologic cores in MOSE during endoscopic ultrasound-guided fine-needle aspiration/biopsy (EUS-FNA/FNB). Recently, some classifications were published.

Aims & Methods: Our study aimed to evaluate the MOSE of EUS-FNA/FNB using 2 classifications to determine the adequacy of the histologic core specimens.

This multicentric prospective study conducted in 5 centers in 2 countries (Egypt and Morocco) included 312 patients with pancreatic, biliary, or gastrointestinal pathology who were referred for EUS examination. Data from patients with MOSE evaluation of the specimen were collected.

Results: The mean age of the 312 patients was 60 ± 12 years and 172 patients (55%) were males. The mean lesion size was 38.2 ± 18.7 mm. 323 lesions were biopsied, of which 213 were pancreatic lesions (62%). Needle types used were Franseen (Acquire) (n=258, 82.7%) and Procore (n=6, 2%) needles for EUS-FNB and Expect (n=28, 9%) and Echotip (n=20, 6.4%) needles for EUS-FNA. The needle sizes used during the procedures were 22G (95.8%), 20G (2%), and 19G (2.2%).

The median number of needle passes was 1.76 [1, 4]. 305 of 312 samples (97.8%) were considered adequate for histological evaluation by the endoscopist. 3 patients presented small blood collection (1%).

The overall diagnostic yield of cytopathology was 95%. The cytological examination confirmed the diagnosis of adenocarcinoma in 147 patients (64.2%).

Conclusion: MOSE in EUS-FNA/FNB sampling showed high diagnostic yield and accuracy using different needle sizes. In our study, MOSE helped the endoscopist to improve the quality of the core and, if necessary, to multiply the needle passes. This resulted in a high diagnostic yield for cytopathology.

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Disclosure: Nothing to disclose.

PP1494

USE OF 3F DILATOR IN ENDOSCOPIC ULTRASOUND-GUIDED BILIARY DRAINAGE WITH A 22-GAUGE NEEDLE

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Introduction: Recently, in endoscopic ultrasound-guided biliary drainage (EUS-BD), combinations of a 22-gauge (G) needle and a 0.018-inch guidewire (GW) has been used for small diameter duct. However, the 0.018-inch GW has low stiffness, which sometimes makes subsequent procedures difficult.

Aims & Methods: The aim of this study was to investigate the efficacy of a new 3F dilator in EUS-BD with a 22-G needle. Between December 2021 and March 2023, the 3F dilator was used in five patients, who underwent EUS-BD with a 22-G needle at our institution. EUS-rendezvous technique was used in four patients, and the puncture site was the extrahepatic bile duct via the second portion of the duodenum in pull position in 1 patient, the extrahepatic bile duct via the first portion of the duodenum in push position in 1 patient, and the left intrahepatic duct via stomach in 2 patients. In one patient, EUS-hepaticogastrostomy was performed. The purpose of the use and its success or failure were examined.

Results: In four patients with EUS-rendezvous technique, a 0.018-inch GW could not pass through the papilla due to low stiffness of the GW, and insertion of a 3F dilator was attempted to reinforce the GW stiffness. The 3F dilator was successfully inserted and it required dilation of puncture route by repeated needle pass under GW placement. Of four patients, insertion of the 3F dilator increased the stiffness of the GW and resulted in successful passage of the papilla in 3 patients; one patient required replacement with a 0.025-inch GW. No biliary peritonitis from puncture route was observed. In one patient with EUS-hepaticogastrostomy, insertion of the 3F dilator to replace a 0.025-inch GW failed to pass through the rigid bile duct wall despite repeated needle pass of bile duct under GW placement. After dilation with a spiral dilater, a 3F dilater could be inserted and successfully replaced with a 0.025-inch GW.

Conclusion: In EUS-BD with a 22-G needle, a 3F dilator is effective for reinforcement of a 0.018-inch GW stiffness and replacement with a 0.025-inch GW.

Disclosure: Nothing to disclose.

PP1495

OUTCOMES PREDICTORS IN ENDOSCOPIC ULTRASOUND-GUIDED CHOLEDOCHODUODENOSTOMY WITH LUMEN-APPOSING METAL STENT: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: EUS-guided choledochoduodenostomy (EUS-CDS) is a minimally invasive procedure used to treat malignant biliary obstruction (MBO) by the transduodenal placement of a lumen-apposing metal stent (LAMS) into the extrahepatic bile duct. In order to identify the factors that contribute to safe and effective EUS-CDS procedures using LAMS we performed a systematic review of the literature with meta-analysis.

Aims & Methods: The methodology of our analysis was based on PRISMA recommendations. Electronic databases (Medline, Scopus, EMBASE) were searched up to November 2022. Full articles including patients with distal malignant biliary obstruction who underwent EUS-CDS using LAMS after failed ERCP were eligible. Technical success, clinical success, and adverse events were pooled by means of a random model. Multivariate meta-regression and subgroup analysis were performed to assess the correlation between outcomes and different variables.

Results: Twelve studies with 845 patients were included in the meta-analysis. Pooled technical and clinical success rates were 96% (95%CI: 94%-98%; I2=52.29%) and 96% (95%CI: 95%-98%), respectively, with no significant association with baseline characteristics, such are sex, age, common bile duct (CBD) diameter and stent size. The pooled AE rate was 12% (95%CI: 8%-16%; I2=71.62%). The AE rate was significantly lower when using an 8x8mm stent as compared to a 6x8 mm LAMS (OR 0.59, 0.35-0.99; p=0.04), with no evidence of heterogeneity (I2=0%).

Conclusion: EUS-CDS with LAMS is confirmed to be a safe and effective option for relief of MBO. The selection of appropriate stent size is crucial for achieving optimal outcomes.

Disclosure: Nothing to disclose.

PP1496

ENDOSCOPIC ULTRASOUND IN COMMON BILE DUCT DILATION: A REAL ADVANTAGE

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Introduction: Endoscopic ultrasound (EUS) is an important tool for the evaluation of patients with common bile duct (CBD) dilation without obvious identified aetiology after ultrasonography (US), computed tomography (CT) and/or magnetic resonance cholangiopancreatography (MRCP).
Aims & Methods: The aim of this study was to evaluate the diagnostic performance of EUS for CBD dilation in patients with a negative initial study.
Retrospective, unicentric and cohort study including patients who underwent EUS for CBD dilation (diameter ≥7mm if intact anatomy or ≥10mm if prior cholecystectomy) in the absence of obvious pathology on prior imaging, including US, CT and/or MRCP, from January 2016 until June 2022. All EUS procedures were performed with a linear echoendoscope.
Results: Totally, 109 patients were included, 50 patients without symptoms or altered liver biochemistry (45.9%). Among the 41 patients with positive EUS, 33 patients had choledocholithiasis (30.3%), 6 chronic pancreatitis (5.5%) and 2 had ampullary cancer (1.8%). Older age was associated with positive EUS (median 79 vs 71 years, p=0.030). Patients with jaundice, cholelithiasis and altered liver biochemistry were 16.2 (p=0.002), 3.1 (p=0.024) and 2.9 (p=0.009) times more likely to have positive EUS, respectively.
A total of 53 patients underwent MRCP with a negative result (48.6%). In this group, 12 patients had a positive EUS, 10 had choledocholithiasis (18.9%) and 2 had chronic pancreatitis (3.8%). Of those, patients with abdominal pain and jaundice were 15.4 (p<0.001) and 20.0 (p=0.007) times more likely to have positive EUS, respectively. CBD diameter in MRCP was not associated with finding a causative lesion (p=0.473).
Considering only asymptomatic patients without altered liver biochemistry, CBD diameter ≥8.5mm, evaluated by CT, had a sensibility of 100% and specificity of 75% in predicting a positive EUS (AUC 0.734, p=0.048).
Conclusion: EUS is a useful diagnostic method for patients with unexplained CBD dilation, with a higher yield, even in patients with negative MRCP, and especially in patients with older age, symptoms such as abdominal pain and jaundice, cholelithiasis and/or altered liver biochemistry. CBD diameter evaluated by CT had a moderate discriminative ability in predicting a positive EUS in asymptomatic patients without altered liver biochemistry.
Disclosure: Nothing to disclose.

PP1497

ELECTIVE ENDOSCOPIC GALLBLADDER TREATMENT (EEGBT) IN HIGH SURGICAL RISK PATIENTS WITH BENIGN DISEASES: A LARGE RETROSPECTIVE STUDY

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Introduction: EUS-guided gallbladder drainage (EUS-GBD) is superior to the percutaneous route for patients at high surgical risk with acute cholecystitis, but no data is available outside the acute setting. Our aim was to evaluate safety and effectiveness of elective endoscopic gallbladder treatment (EEGBT) in patients at high surgical risk with benign gallbladder diseases.
Aims & Methods: We retrospectively analyzed consecutive cases of EEGBT performed with EC-LAMS in 9 tertiary care centers over 24-months, in patients indicated for cholecystectomy with benign gallbladder diseases at high surgical risk. Study outcomes were adverse event(AE) rates, technical and clinical success rate and need for additional intracholecystic procedures.
Results: Overall, 44 patients were included in the study. Mean age was 76.4±12.3 (years, SD), male/female ratio 21/23, Charlson Comorbidity Index ≥5 in 68% of patients. The most frequent indication to EEGBT was gallstone related biliary cholic (43.2%). Technical and clinical success were both obtained in 100% of cases. EUS-guided LAMS implantation was achieved more frequently from the duodenum (72.7%), and the Hot-Axios was the preferred utilized stent (77.3%). AEs were observed in 3/44 patients (6.8%). No EEGBT-related deaths were observed. Intracholecystic litothripsy was required in 6 patients (13.9%). Mean hospital stay was 5 days (SD±12).
Conclusion: EEGBT has high technical and clinical success rates and a high safety profile. Prospective studies to standardize procedural protocol are needed.
Disclosure: Nothing to disclose.

PP1498

IS THE ANESTHESIOLOGIST STILL NEEDED FOR ENDOSCOPIC ULTRASOUND-GUIDED GALLBLADDER DRAINAGE?

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Introduction: Endoscopic ultrasound-guided gallbladder drainage is usually reserved for high surgical risk patients. The procedure was usually performed under deep sedation to ensure the best tolerability for the patient and facilitate the endoscopist's performance.
However, many of them showed a high-risk even for deep sedation.

Aims & Methods: Our aim was to evaluate the safety and efficacy of EUS-GBD under conscious sedation (CS).

All consecutive EUS-GBD under CS performed in our hospital were prospectively enrolled from January 2020 to December 2022.

Patient characteristics, type and dosage of anesthetic drug administered (Fentanyl (FNT), Pethidine (PTD) or Benzodiazepine (BZD)), size of lumen-apposing-metal-stent (LAMS), gallbladder (GB) access, technical success, clinical success, early and late adverse events (AEs) rate were evaluated. Safety was defined as AEs occurrence. The efficacy of EUS-GBD was expressed as technical and clinical success. We defined as "conscious sedation" a drug-induced depression of consciousness during which patients respond to verbal commands or react to touch. Breathing remains intact and no support is needed.

Results: A total of 49 patients (41.7% male, mean age 82,9±10 years-old) underwent EUS-GBD under in our Unit. Among all the 49 EUS-GBD in CS, 47 (95.9%) were indicated as treatment for acute cholecystitis in high-surgical-risk patients and 2 (4.1%) as rescue-strategy after ERCP fail.

In 45 (91.8%) EUS-GBD a 10x10mm LAMS was deployed, in 3 (6.2%) procedures a 15x10mm and in 1 (2%) an 8x8mm LAMS. GB was accessed from the duodenum in 68.8% of cases.

A combination of PTD+BZD was administered in 29 (59.2%) EUS-GBD, while 18 (36.7%) procedures were performed under FNT+BZD. Only 2 (4.1%) EUS-GBD were performed only under BZD.

Mean FNT, PTD, BZD dose were 50(±11.5) mcg, 38.4(±25.6) mg and 4(±1.5) mg, respectively.

Technical success of EUS-GBD under CS was 97.9%. In one procedure the distal flange of the LAMS did not open due to LAMS malfunction. The clinical success of EUS-GBD under CS was 97.9% since in one procedure there was not a decrease of inflammatory, cytolysis and cholestasis indices. Only in 1 (2%) EUS-GBD an early AE was reported. No late AEs were described.

The statistical analysis showed that the administration of a combination of fentanyl and benzodiazepine or a combination of pethidine and benzodiazepines or the administration of only benzodiazepines affected neither technical nor clinical success, nor AEs rate (Table 1).

	PTD+BZD	FNT+BZD	BZD
Technical success	*p*=0.4014	*p*=0.4413	*p*=0.8349
Clinical success	*p*=0.3930	*p*=0.4337	*p*=0.8331
Adverse events	*p*= 0.2237	*p*=0.1846	*p*=0.8349

Conclusion: EUS-GBD under CS was a safe procedure with a low AEs rate. The administration of FNT+BZD, PTD+BZD or BZD alone did not affect procedure outcome.

Disclosure: Nothing to disclose.

PP1499

ABDOMINAL COMPUTED TOMOGRAPHY PREDICTORS OF TECHNICAL SUCCESS OF ENDOSCOPIC ULTRASOUND-GUIDED GALLBLADDER DRAINAGE

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Introduction: Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) was not always technically feasible. The distance between the gallbladder (GB) and the gastrointestinal wall and the GB distension were some of the limiting factors to the EUS-GBD.

Aims & Methods: Our study aim was to evaluate abdomen computed tomography (CT) predictors of EUS-GBD technical success (TS).

The CT images of all consecutive patients that underwent EUS-GBD from January 2020 to December 2022 in our hospital were retrospectively evaluated.

CT data collected were: artifacts presence, days between CT and EUS-GBD, slice thickness, region of interest (ROI) density, GB morphology, GB long and short axis, sludge, stones presence, size, location and density, distance between GB and antrum or duodenal bulb, GB wall thickness and peri-GB fluid presence.

EUS-GBD data evaluated were: type and size of stent, TS and clinical success.

Results: We evaluated 45 abdomen CTs of patients that underwent EUS-GBD (male 60%, mean age 81.3±10.5 years old).

The mean time between CT and EUS-GBD was 4±4 days. EUS-GBD was performed via duodenal bulb in 29 (64.4%) cases.

Mean GB short and long axis length were 42.1±11.4 and 103.4±28.7 mm, respectively.

Mean CT distance between GB and stomach or duodenal bulb were 14.8±12.9 and 10.8±10.6 mm, respectively. Stones were found in 22 (48.9%) GB with mean size of 14.9±4.5 mm. Sludge was described in 23 (51.1%) cases. On univariate analysis, CT distance between GB and duodenal bulb, GB wall thickness and GB short axis length were significantly related to EUS-GB TS, but only CT distance between GB and duodenal bulb and GB wall thickness were an independent predictor of EUS-GBD TS at multivariate analysis.

	UNIVARIATE ANALYSIS			MULTIVARIATE ANALYSIS		
	Odds Ratio	95% CI	P value	Odds Ratio	95% CI	P value
Min distance gastric antrum-GB (mm)	0.94	0.88-1.00	0.089	-	-	-
Min distance duodenal bulb-GB (mm)	0.83	0.70-0.97	0.027	0.70	0.49-0.99	0.046
GB wall thickness (mm)	0.67	0.44-1.02	0.048	0.28	0.09-0.86	0.027
GB long axis (mm)	1.03	0.98-1.08	0.122			
GB short axis (mm)	1.12	0.99-1.28	0.069	1.38	0.97-1.96	0.070
Duodenal access vs gastric (n)	9.45	0.94-94.48	0.055	-	-	-
Stones presence (n)	3.78	0.38-37.2	0.253	-	-	-
Perivisceral fluid (n)	1.14	0.17-7.66	0.890	-	-	-

Conclusion: Pre-EUS-GBD CT may be a useful tool to predict EUS-GBD TS, especially the TC measurement of the distance between the GB and the duodenal bulb and GB wall thickness.

Disclosure: Nothing to disclose.

PP1500

USEFULNESS OF DIFFUSION-WEIGHTED MAGNETIC RESONANCE IMAGING FOR DIAGNOSING GALLBLADDER MALIGNANCY

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Introduction: Ultrasonography (US), computed tomography (CT), magnetic resonance imaging (MRI), endoscopic ultrasonography (EUS), and fluorine-18 fluorodeoxyglucose positron emission tomography (FDG-PET) are widely used to evaluate gallbladder disease.

However, there are some cases difficult to diagnose even with those modalities. In recent years, the image quality of diffusion-weighted imaging (DWI) has improved with the development of MRI systems. The usefulness of DWI for gallbladder disease has been reported in several studies. PET has some limitations, such as high cost, radiation exposure, and influence by blood glucose levels. The purpose of this study was to compare the usefulness of DWI with PET in the diagnosis of gallbladder disease.

Aims & Methods: Forty-two patients who underwent preoperative DWI and PET for gallbladder disease were included. The final diagnosis was made histologically on excised specimens. Of the 42 patients, 24 had malignant conditions (23 had gallbladder cancer, and 1 had neuroendocrine cancer), and 18 had benign conditions (9 had chronic cholecystitis, 3 had adenomyomatosis, 4 had polyps, 1 had gallbladder adenoma, and 1 had xanthogranulomatous cholecystitis). We evaluated the accuracy of DWI and the apparent diffusion coefficient (ADC) value of each disease.

Results: The sensitivity of DWI and PET was 88% vs 88% ($p = 1.0$), the specificity was 61% vs 56% ($p = 0.56$), and the accuracy was 76% vs 74% ($p = 0.56$), showing no significant difference. The mean ADC value of malignant diseases was (1.71±0.29) × 10-3mm2/s, and that of benign diseases was (2.33±0.36) × 10-3mm2/s ($p < 0.001$). The mean ADC value of malignant diseases was significantly lower than that of benign diseases.

Conclusion: In this study, DWI had a similar accuracy compared to PET. DWI compensates for the limitations of PET and can be performed in a more noninvasive manner. The combined use of DWI and ADC was suggested to contribute to the improvement of the diagnostic capability for gallbladder diseases.

References:

Disclosure: Nothing to disclose.

PP1501

EFFICACY OF A NOVEL INTEGRATED BILIARY STENT AND NASOBILIARY CATHETER SYSTEM FOR ACCIDENTAL TUBE DEVIATION IN BILIARY DRAINAGE

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Introduction: Endoscopic nasobiliary drainage is accompanied by a risk of accidental removal of the nasobiliary drainage (NBD) tube, especially through self-removal in elderly patients. UMIDAS NB stent (Olympus, Tokyo, Japan), hereafter referred to as UMIDAS, is an integrated plastic stent (PS) and NBD catheter system. In UMIDAS, the PS stays in the same place to maintain biliary drainage when the NBD tube is removed. Thus, UMIDAS has been developed to reduce endoscopic procedures following biliary drainage.

We speculated that UMIDAS can be a safety net in accidental NBD tube deviation for acute cholangitis and obstructive jaundice. Therefore, we prospectively observed and reported the efficacy and disadvantages of UMIDAS (UMIN000047515).

Aims & Methods: From April to November 2022, we placed a UMIDAS NB stent in 30 patients with acute cholangitis or obstructive jaundice. We evaluated the plastic stent (PS) position at the time of accidental stent removal and before the planned endoscopic procedure. In addition, we studied the ratio of successful biliary drainage and complications based on the usage of UMIDAS.

Results: In this study, 19 planned NBD tube removals and 11 accidental removals were included. Among the 11 accidental removals, 4 were self-removal, 2 were accidental deviation to the intestine, and 5 were long period to next procedure. All 11 patients with accidental NBD tube removal showed a correct PS position after NBD tube removal.

Of the 19 patients with planned NBD tube removal, 15 had a correct PS position, 2 had complete migrations into the common bile duct (Figure 5a), and 2 had incomplete migrations (the migration of the duodenal side flap only) before NBD tube removal.

After removal, 13 patients had a correct PS position, 3 had complete migration of PS, and 3 had incomplete migration of PS. Of the 30 patients with UMIDAS, 24 (80%) had a correct PS position after NBD tube removal (27 (90%) if including incomplete migration). All patients with UMIDAS had successful biliary drainage, including patients with accidental removal of NBD, and had no complications.

Conclusion: The UMIDAS NB stent might be useful for biliary drainage in patients with a high risk of NBD tube self-removal.

Disclosure: Nothing to disclose.

PP1502

SAFETY AND EFFICACY OF ANTIMIGRATION FULLY COVERED METAL STENT IN DIFFICULT COMMON BILE DUCT STONE: A RETROSPECTIVE STUDY

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Introduction: The endoscopic retrograde cholnagio-pancreatography (ERCP) with endoscopic sphincterotomy results in a complete bile duct stones (CBDSs) clearance in about 80-90%. However, in case of incomplete CBDSs clearance, an endoprosthesis could be placed. A plastic stent is commonly used, with a success rate after a previous ERCP, ranging from 44% to 96%.

However, there are no comparative studies between plastic and metal stent. Moreover, data concerning the safety and efficacy of antimigration Fully covered Metal stents – flare type (aFCMS) are lacking.

Aims & Methods: In this single-center retrospective study we collected data concerning all patients who underwent ERCP with antimigration metal stent placement for incomplete removal of CBDSs between January 2021 to January 2023. All patients were contacted in order to program stent remotion within 3-6 months (considering their general clinical condition) or to evaluate their clinical status. We aim to estimate the incidence of migration rate, and adverse events, and complete biliary clearance after 3-6 months from the index ERCP.

Results: Out of 34 patients included patients, 20 underwent a second ERCP after a median of 164 (±78) days. The reasons for the lack of a second ERCP evaluation are reported in the table. In 11/20 (55%) a distal migration occurred.

Only one proximal migration was reported. Among the 34 included patients only one presented a clinical recurrence linked to the proximal migration of aFCMS. 19/20 patients achieved a complete clearance after the second ERCP. No serious adverse events were reported.

Conclusion: The aFCMS represents an effective and safe therapeutic chance in case of incomplete CBDSc clearance in particular in case of difficult CBDSs. Moreover, the very low incidence of stent proximal migration makes this device particularly useful in the case of this clinical condition.

Disclosure: None

PP1503

PROPENSITY SCORE MATCHING ANALYSIS FOR CLINICAL IMPACT OF BRAIDED- VERSUS LASER-CUT-TYPE COVERED SELF-EXPANDABLE METAL STENTS FOR EUS-GUIDED HEPATICOGASTROSTOMY

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Introduction: To prevent stent migration during EUS-HGS, intra-scope channel release technique is important, but are unfamiliar to non-expert hands. The self-expandable metal stent (SEMS) is an additional factor to prevent stent migration. However, no comparative studies of laser-cut and braided types during EUS-HGS have been reported.

Aims & Methods: The aim of this study was to compare the distance between the intrahepatic bile duct and stomach wall after EUS-HGS among laser-cut- and braided-type SEMS. To evaluate stent anchoring function, we measured the distance between the hepatic parenchyma and stomach wall before EUS-HGS, one day after EUS-HGS, and 7 days after EUS-HGS. Also, propensity score matching was performed to create a propensity score for using Laser cut type group and Braided group with a logistic regression model.

Results: A total 144 patients were enrolled in this study. Among them, 24 patients underwent EUS-HGS using a laser-cut-type SEMS, and 118 patients underwent EUS-HGS using a braided-type SEMS. EUS-HGS using the laser-cut-type SEMS was mainly performed by non-expert endoscopists (n=21).

However, EUS-HGS using braided-type SEMS was mainly performed by expert endoscopists (n=98), showing a significant difference. The distance after 1 day was significantly shorter with the laser-cut-type group (2.91 ± 1.88 mm) compared with the braided-type group (8.19 ± 6.07 mm). In addition, this distance remained significantly shorter in the laser-cut type group compared with the braided-type group after 7 days.

Although these results were similar after propensity score matching analysis, the distance between hepatic parenchyma and stomach after 7 days was increased 4mm compared with the distance after 1 day in Braided group. On the other hand, in Laser cut type group, the distance after 1 day and 7 days was almost same.

Conclusion: In conclusion, EUS-HGS using a laser-cut-type SEMS may be safe to prevent stent migration, even in non-expert hands, compared with a braided-type SEMS, although a randomized trial is warranted.

Disclosure: None

PP1504

PALLIATIVE TREATMENT WITH STENTS IN PATIENTS WITH UNRESECTABLE TYPE III AND IV MALIGNANT HILAR BILIARY OBSTRUCTION: A PERCUTANEOUS VERSUS ENDOSCOPIC APPROACH

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Introduction: Various types of cancer can cause malignant hilar biliary obstruction(MHBO) by direct infiltration or external compression of the biliary tract, mainly including cholangiocarcinoma, hepatocellular carcinoma, pancreatic carcinoma et.al. At the time of the onset of clinical performance, only 10%-20 % are suitable candidates for surgical resection or liver transplant. For inoperable cases complicated with jaundice, biliary drainage has been accepted as the preferred palliative modality. Endoscopic biliary drainage may be more suitable for bismuth type I and II (tumour below or confined to the hilum) MHBO based on its less invasive than percutaneous approach. However, for bismuth type III and IV (tumour extension into the right and left hepatic) tumours, the preferred approach remains uncertain.

Although most existing observational data indicated that percutaneous drainage might be easier to achieve effective drainage outcome without increasing procedure-related complications, an RCT compared the above two approaches in perihilar CCA was terminated due to higher mortality in the percutaneous group. A recent RCT also failed to compare the two approaches as the primary intervention in patients with MHBO. This fundamental question remains uncertain in clinical practice. Most of the existing studies included type II hilar stricture cases. Studies mainly focusing on type III and type IV cases are rare. Thus, the purpose of the current study was to compare these two approaches in terms of the short and long-term clinical outcomes of biliary decompression in unresectable cancer patients with type III and IV MHBO.

Aims & Methods: A comprehensive search was conducted in our database between January 1, 2014, and October 31, 2021. A total of 365 inoperable cancer patients with biliary obstruction who received biliary stent implan-

tation percutaneously or via endoscopic retrograde cholangiopancreatography (ERCP) as primary biliary intervention were reviewed. Eventually, Sixty-six unresectable cancer patients with bismuth type III and IV MHBO were retrospectively included in this study. The clinical outcomes of the included patients were compared concerning their effective drainage and complications. Both clinical and treatment factors that affect median overall survival (mOS) were analyzed.

Results: Successful biliary drainage was achieved in 44 patients (66.7%), and the successful drainage rate was significantly higher in the percutaneous group than in the endoscopic group (80% vs 55.5%, respectively, p = 0.036). Patients who received successful biliary drainage had a longer mOS than those who received unsuccessful biliary drainage (8.9 months vs. 2.3 months, p =0.025). Patients who received sequential anticancer therapy had a longer mOS than those who only received the best supportive care (11.6 months vs. 2.3 months, p <0.001). In the multivariate analysis, successful biliary drainage (p =0.023), and anticancer treatment (p <0.001) were significant favorable prognostic factors that affected patients' survival.

Conclusion: In summary, for inoperable cancer patients with bismuth III or IV MHBO, the percutaneous method seemed safe and effective in decreasing bilirubin in this study, although it might be hard to conclude that percutaneous stent implantation should be recommended as the first intervention in cancer patients with type III and IV MHBO cases. Effective drainage may create chances for unresectable cancer patients to receive anticancer treatment which may help to prolong survival. More well-designed randomized controlled trials are needed to verify our results.

Disclosure: All authors declared that they do not have anything to disclose regarding the conflict of interest concerning this manuscript.

PP1505

THE ROLE OF ENDOSCOPIC HEMOSTASIS FOR HEMOBILIA FROM ABOVE PAPILLA DURING ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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Introduction: Hemobilia can be caused by various reasons and can cause lethality in case of unsuccessful hemostasis. The management of hemobilia is often cumbersome and there were few effective treatment modalities for hemobilia from above papilla.

Recently, endoscopic hemostasis showed promising efficacy with the advent of hemostatic modalities including self-expandable metal stent (SEMS).

Aims & Methods: In this study, we tried to evaluate the association between successful endoscopic hemostasis for hemobilia from above papilla and other clinical factors. Patients who underwent CT angiography, diagnostic or therapeutic angiography in addition to ERCP in Seoul National University Hospital from July 2008 to May 2022 were included. Patients with extra-biliary origin bleeding and post-endoscopic sphincterotomy bleeding were excluded. The primary outcome was successful endoscopic hemostasis, and the secondary outcome were delayed bleeding, 28-day mortality, amount of blood transfusion and hypovolemic shock.

Results: A total of 28 patients were include. A total of 21 patients received endoscopic hemostasis procedure as initial hemostasis, 7 patients received arterial embolization as initial hemostasis. In initial endoscopic hemostasis group, plastic stent, fully covered SEMS, and uncovered SEMS were used in 11, 8, and 2 patients, respectively. The overall success rate of primary endoscopic hemostasis was 85.7% (18 of 21).

The success rate of endoscopic hemostasis were 80% (8 of 10) for SEMS, 90.9% (10 of 11) for plastic stent. Among 3 patients who failed endoscopic hemostasis, 2 patients had become hemodynamically unstable in endoscopy room and underwent successful rescue transarterial embolization without delay. In initial arterial embolization group, the success rate of hemostasis was 100% (7 of 7).

	Overall (n=28)	Endoscopic Hemostasis (n=21)	Embolization (n=7)	P value
1st Hemostasis success	25 (89.3%)	18 (85.7%)	7 (100%)	0.551
1st Hemostasis method	-	fc-SEMS : 8 uc-SEMS: 2 Plastic stent : 11	Coil and glue : 2 Glue and PVA : 1 Coil : 2 Glue : 1 PVA : 1	-
Delyed bleeding	9 (32.1%)	7/18 (38.9%)	1/7 (14.3%)	0.362
RBC transfusion (Pack, mean, SD)	4.86 (4.704)	4.19 (4.045)	6.86 (6.230)	0.199
Hypovolemic shock (Vasoactive drugs)	8 (28.6%)	5 (23.8%)	3 (42.9%)	0.371

fc-SEMS: fully covered-Self expandable metal stent, uc-SEMS: uncovered-Self expandable metal stent , PVA: Polyvinyl alcohol
SD: standard deviation

Conclusion: Endoscopic hemostasis using SEMS may allow patients with hemobilia from above papilla to receive transarterial embolization under more stable status while ensuring a certain level of successful hemostasis for selected patients and by experienced endoscopists.

Disclosure: Nothing to disclose.

PP1506

OUTCOMES OF ENDOSCOPIC GALLBLADDER DRAINAGE IN HIGH-RISK PATIENTS WITH ACUTE CHOLECYSTITIS: ENDOSCOPIC GALLBLADDER STENTING VERSUS ENDOSCOPIC ULTRASOUND-GUIDED GALLBLADDER DRAINAGE

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Introduction: Emergent cholecystectomy is recommended for acute cholecystitis (AC). However, cholecystectomy is occasionally difficult in high-risk surgical patients with any comorbidities. Therefore, endoscopic gallbladder drainage is a promising alternative to cholecystostomy. There are two methods for endoscopic gallbladder drainage as follows: endoscopic gallbladder stenting (EGBS) and endoscopic ultrasound-guided gallbladder drainage (EUS-GBD). However, there are limited data comparing the clinical outcomes of treatment with EGBS and EUS-GBD.

Aims & Methods: This study aims to compare the efficacy and safety of EGBS and EUS-GBD in high-risk surgical patients with AC. We retrospectively reviewed high-risk surgical patients with AC who underwent EGBS or EUS-GBD between April 2012 and March 2022 at two centers. 41 patients (22 men and 19 women; mean age, 82±8 years) underwent EGBS, and 13 patients (6 men and 7 women; mean age, 83±8 years) underwent EUS-GBD.

The primary endpoints were technical and clinical success for both methods of endoscopic gallbladder drainage. The secondary endpoints were the rate of recurrent cholecystitis and adverse events (AEs).

Results: The technical success rates in the EGBS group and the EUS-GBD group were 93% (38/41) and 100% (13/13), respectively (p = 0.32). The conversion of EGBS to percutaneous transhepatic gallbladder drainage or EUS-GBD was performed in three patients.

The clinical success rates in the EGBS group and the EUS-GBD group were 100% (38/38) and 92% (12/13), respectively (p = 0.08). The median stent patency durations in clinically successful cases in the EGBS group and the EUS-GBD group were 597 days (range, 28-2251 days) and 345 days (range, 36-907 days), respectively (p = 0.377).

The recurrence rate in the EGBS group was 21% (8/41; cholecystitis in 3 cases and cholangitis in 5 cases) with the successful management of these eight cases by endoscopic re-intervention, while the recurrence rate in the EUS-GBD group was 0% (0/13). AEs in the EGBS group and the EUS-GBD group were 10% (4/41; mild pancreatitis in 3 cases and cystic duct injury in 1 case) and 8% (1/13; suffocation due to aspiration), respectively (p = 0.82).

Conclusion: Both EGBS and EUS-GBD were useful as permanent drainage in high-risk surgical patients with AC, although there was a tendency that patients treated with EGBS had a higher recurrence rate of cholecystitis than those treated with EUS-GBD.

Disclosure: All authors declare that they have no conflict of interest.

PP1507

PORTAL VEIN FLOW BY DOPPLER ULTRASONOGRAPHY AS A PREDICTOR FOR SUCCESSFUL ENDOSCOPIC BILIARY DRAINAGE IN MALIGNANT

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Introduction: Hilar cholangiocarcinoma patients often require biliary drainage, but objective tools for assessing the effectiveness of endoscopic biliary drainage are unsatisfactory. Studies have shown that biliary obstruction can reduce hepatic blood flow.

Aims & Methods: The aim of this study was to analyze changes in portal vein flow after endoscopic biliary drainage and evaluate the correlation between portal vein flow and liver function.

A prospective study enrolled 14 patients who underwent endoscopic stenting for hilar cholangiocarcinoma between September 2021 and June 2022. Portal vein velocity (Vmax) by Doppler ultrasonography and bilirubin level were assessed on all patients before and on the 1st, 3rd, and 14th days after endoscopic drainage. The patients were divided into two groups based on the success of drainage, with 11 patients in Group A (successful) and 3 in Group B (unsuccessful).

Results: The mean Vmax was 14.3 ± 2.5 cm/s before endoscopic drainage and 16.4 ± 3.3 cm/s, 18.0 ± 3.6 cm/s, and 20.8 ± 5.5 cm/s on the 1st, 3rd, and 14th day after drainage, respectively. The Vmax was significantly higher on each day following drainage compared to before (p<0.001). The rate of increase in Vmax was significantly higher in Group A than Group B on the 14th day (1.6 ± 0.48 vs 1.1 ± 0.13, P=0.03). The rate of increased Vmax correlated significantly with the rate of decreased serum bilirubin levels (r^2 = 0.407, P < 0.001).

Conclusion: Successful endoscopic biliary drainage in hilar cholangiocarcinoma significantly increased portal vein velocity (Vmax). Vmax assessment by Doppler ultrasonography may be a useful tool for evaluating the effectiveness of endoscopic biliary drainage in malignant hilar biliary obstruction.

Disclosure: Nothing to disclose.

PP1508

PERFORMANCE OF PREDICTIVE SCORES FOR SUCCESSFUL BILIARY DRAINAGE AFTER ERCP-GUIDED STENTING IN UNRESECTABLE MALIGNANT BILIARY OBSTRUCTION – A MULTICENTRE COHORT STUDY

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Introduction: Stent placement by endoscopic retrograde cholangiopancreatography (ERCP) is one of the preferred methods for biliary drainage in unresectable malignant biliary obstruction. Nevertheless, clinical success of palliative drainage is not easy to predict, especially at the time of ERCP.

Aims & Methods: We conducted a multicentre retrospective cohort study in 3 centres in Portugal, involving patients with unresectable malignant biliary obstruction (UMBO) submitted to palliative ERCP-guided biliary stenting between 2015 and 2022.

This study aimed to evaluate clinical success of biliary drainage in our population, as well as to evaluate the performance of two recently developed and internally validated risk scores for predicting successful biliary drainage after ERCP-guided endobiliary stenting in UMBO, created by the group of Pausawasdi N. et al.

This group developed a first score for predicting early clinical success of biliary drainage (decrease ≥50% in total bilirubin (TB) levels within 2 weeks after stenting), using as variables the presence/absence of extrahepatic biliary obstruction, peritoneal carcinomatosis, the type of biliary stent (plastic or metallic) and pre-endoscopic alkaline phosphatase level.

The second score was developed to predict complete clinical success of biliary drainage (normalization of TB levels within 6 weeks after stenting) including pre-endoscopic TB levels, presence/absence of extrahepatic biliary obstruction and type of stent as variables. We included 217 patients for this study.

However, due to the limitations of a retrospective analysis, we could not evaluate the performance of these scores for all the patients of our cohort. Statistical analysis was performed using SPSS v.29.

Results: In our cohort, a decrease in total bilirubin (TB) levels ≥50% within 2 weeks after biliary stenting was reached in 81.9%(N=113) of the patients of a subpopulation of 138 patients in which these TB levels were available. TB normalization in 6 weeks after stenting occurred in 55%(N=72) of the cases from a subpopulation of 131 patients in which this TB level was measured. In our population, the predictive scores for early and complete clinical success had an AUROC of 0.597 (95% CI, 0.471-0.723; p = 0.13) and of 0.737 (95% CI, 0.650-0.825; p <0.001), respectively.

Conclusion: In our cohort, the predictive score for complete clinical success of biliary stenting in UMBO (at 6 weeks) had a good accuracy (AUROC 0.74), similar to the AUROC reported by this study group (AUROC 0.76 in the validation cohort).

The main advantage of this score relies on the fact that it can be applied before ERCP, since its variables can all be determined pre-endoscopically or, at the most, by the time of ERCP (type of stent), possibly allowing the definition of a better strategy for the management and follow-up of these patients.

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Disclosure: Nothing to disclose.

PP1509

EFFICACY OF DIFFERENT STENTS ON POST-LIVER TRANSPLANT ANASTOMOTIC BILIARY STRICTURES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Anastomotic biliary strictures represent a significant burden after orthotopic liver transplantation, with challenging endoscopic treatment. The selection of the optimal approach regarding type of stents remains controversial due to the absence of strong evidence. The European Society of Gastrointestinal Endoscopy recommends stricture remodeling using multiple plastic stents (MPS),[1] whereas the American College of Gastroenterology supports the use of fully covered self-expandable metal stents (FC-SEMS),[2] as for every benign biliary stricture.

In the absence of cumulative comparisons and considering the development of intraductal SEMS (ID-SEMS), which are promising for this type of strictures, this systematic review with meta-analysis aimed to evaluate the potential differences in the performance of the available stents in post-transplant anastomotic biliary strictures management.

Aims & Methods: The systematic research was performed in MEDLINE, Cochrane, and Scopus databases until April 2023 for comparative studies evaluating the successful stricture management using MPS and SEMS, including FC-SEMS and ID-SEMS.

The primary outcome was stricture resolution after completion of therapy, documented by cholangiogram or cross-sectional imaging. Secondary outcomes included stricture recurrence (clinical and biochemical relapse with imaging confirmation) during the follow-up period, stent migration and adverse events.

Quality assessment was based on the Newcastle-Ottawa scale. Meta-analyses were based on random effects model and the results were reported as odds ratios (OR), with 95% Confidence Intervals (95%CI). Subgroup analyses by type of metal stent were performed to explore the diversity among the results of different studies.

Results: Nine studies with an overall number of 687 patients were included in our analysis, with three of them being randomized controlled trials. Metal stents were placed in 251 cases (82 ID-SEMS and 169 FC-SEMS) and MPS in 436. Considering the primary outcome, metal and plastic stents did not differ significantly in stricture resolution with OR: 0.99 (95%CI: 0.48-2.01; I^2=35%). Stricture recurrence and migration rates were also comparable between the two arms [OR: 1.71 (95%CI: 0.87-3.38; I^2=55%) and OR: 0.73 (95%CI: 0.32-1.68; I^2=56%) respectively].

All of these outcomes presented with moderate heterogeneity. Finally, the difference between adverse events rates was non-significant [OR: 1.47 (95%CI: 0.89-2.43; I^2=24%)]. Interestingly, in the subgroup analysis ID-SEMS provided significantly higher complete resolution rates with low heterogeneity compared to the MPS [OR: 3.48 (95%CI: 0.89-13.62; I^2=5%)], whereas the comparison between FC-SEMS and MPS did not reach significance [OR: 0.76 (95%CI: 0.42-1.39; I^2=11%)]. Relative recurrence rates did not differ between subgroups [for ID-SEMS vs MPS, OR: 1.01 (95%CI: 0.51-2.03; I^2=0%; for FC-SEMS vs MPS, OR:2.39 (95%CI: 0.87-6.56; I^2=66%)]. On the other hand, migration rates were significantly lower for ID-SEMS compared to MPS, with OR: 0.28 (95%CI: 0.11-0.70; I^2=0%), and equivalent for FC-SEMS and MPS [OR: 1.25 (95%CI: 0.54-2.88; I^2=40%)]. Complication rates were similar for ID-SEMS and MPS [OR: 0.90 (90%CI: 0.28-2.84; I^2=47%)], but their prevalence after FC-SEMS were significantly higher compared to MPS [OR: 1.76 (95%CI: 1.06-2.93; I^2=0%)].

Conclusion: The comparison between metal stents and MPS did not result to significant differences in any outcome. However, ID-SEMS appeared superior to MPS in stricture resolution and migration rates, whereas FC-SEMS provided comparable outcomes to MPS.

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PP1510

USE OF FULLY COVERED SELF-EXPANDABLE METAL STENTS AS PRIMARY THERAPY FOR IMMEDIATE POST-SPHINCTEROTOMY BLEEDING

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Introduction: Post-endoscopic sphincterotomy bleeding is an adverse event of endoscopic retrograde cholangiopancreatography (ERCP). In some patients, the hemorrhage can be severe, occurring during ERCP, and difficult to resolve by standard endoscopic techniques (e.g., injection, thermals or clips). Fully covered self-expandable metal stents (FC-SEMS) have been used to treat this complication. However, the studies are scarce, mostly with few patients, evaluating the efficacy and safety of these stents as a primary technique.

Aims & Methods: We aimed to evaluate the technical, clinical and safety success of using FCSEMS in the treatment of post-endoscopic sphincterotomy bleeding.

This was a retrospective cohort study, between September/2016 and April/2023, including all consecutive patients undergoing ERCP in which intra-procedural post-sphincterotomy bleeding occurred at our center. In all consecutive patients in whom active bleeding occurred FCSEMS were placed as primary therapy.

Outcomes:

1. Ttechnical success;
2. Clinical success (bleeding control);
3. Recurrence of bleeding (up to 7 days);
4. Adverse events. Descriptive and inferential exploratory analysis.

Results: FCSEMS were placed in 52 patients (38.5% male; median age 73 years (minimum 41-maximum 104), in a total of 3483 ERCP performed (2189 biliary sphincterotomy). Of the patients with bleeding, 21.2% (n= 11) were taking anticoagulants and 23.1% (n=12) were taking antiplatelet agents. The main indication for ERCP was lithiasis in 80.8% (n=42). Technical success and clinical success were 100%.

In 4 patients there was recurrence of bleeding after ERCP (7.7%); new ERCP was performed in 3 of these, and a new FCSEMS was placed in 1 patient. No patient died or required surgical or interventional radiology treatment. In 13 patients it was found that FCSEMS had migrated (25%) at the time of scheduled removal.

Conclusion: The placement of fully covered self-expandable metal stents during ERCP is an effective and safe treatment for the control of post-sphincterotomy bleeding, with a low recurrence rate.

Disclosure: Nothing to disclose.

PP1511

PERCUTANEOUS CHOLECYSTOSTOMY AS A DEFINITIVE TREATMENT VERSUS BRIDGING TREATMENT BEFORE CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS: A RETROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Percutaneous Cholecystostomy (PC) is an effective treatment option for patients with acute cholecystitis (AC) who are too unwell, or too comorbid for surgery. However, guidelines and evidence for drain management and outcomes following PC insertion are limited. The aim of this study is to investigate the efficacy and mortality of PC in treating AC as a definitive treatment versus a bridging treatment before laparoscopic cholecystectomy (LC).

The study also aims to assess if certain patient factors including background comorbidity and presenting signs of organ dysfunction are predictive of PC outcomes at a district general hospital.

Aims & Methods: We retrospectively reviewed all patients that had been treated with PC for AC from February 2019 to November 2022. Data collected included patient demographics, Charlson comorbidity index (CCI), American Society of Anaesthesiology (ASA) score, liver function blood tests, admission respiratory rate and oxygen saturations, progression to LC, 30-day, 3 month, and 12 month mortality, as well as the recurrence rate of AC, and PC complication rate.

Results: 50 Patients underwent PC for AC in Torbay Hospital between 2019 and 2022, with 48 patients having long-term data for suitable review. In this cohort, 68.8% of the patients were male, with a mean age of 76 ± 9. The overall mean CCI was 4.96 ± 1.12, and the average ASA was 2.83 ± 0.36. 6 patients (12.5%) had recurrence of AC with a mean of 57 ± 56 days onset after PC insertion. 12 patients (25%) had PC complications; 11 (23%) were minor with pain/dislodged tube and 1 (2%) major with a subhepatic abscess.

22 patients (46%) progressed to LC following PC, and 26 patients (54%) had PC as definitive treatment. The LC progression cohort had a 30-day and 12-month mortality of 0%, whilst the definitive PC cohort had a 30-day mortality of 30.8% (8 patients), and 12-month mortality of 46.1% (12 patients) (fig 1). The LC progression cohort compared to the definitive PC cohort had a significantly lower CCI (4.39 vs 5.57 p<0.05), and a significantly lower ASA (2.61 vs 3.04 p<0.05) (fig 2).

The 12-month survival cohort compared to the 30-day mortality cohort had significantly lower ASA (2.71 vs 3.25 p<0.05), a non-significantly lower CCI (4.66 vs 5.86 p=0.094), and a lower rate of respiratory dysfunction (9.4% vs 31.3%), but no significant difference in the presence of raised bilirubin > 34µmol/L (17.5% vs 12.5%).

Conclusion: Our results demonstrate PC as an effective and safe technique to use in critically ill and comorbid patients suffering from AC. In addition, we show that PC is a highly effective treatment option for bridging a select cohort of patients to receive a delayed LC.

Furthermore, the data suggest ASA and CCI scoring can be used as adjuncts to assess whether bridging patients from PC to LC is appropriate. Finally, ASA and respiratory dysfunction can also be used as significant negative predictors of post-PC mortality.

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Disclosure: Nothing to disclose.

PP1512

SILENT GALLBLADDER STONE IN KIDNEY TRANSPLANTATION RECIPIENTS: SHOULD IT BE TREATED PREVENTIVELY?

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Introduction: Treatment and follow-up strategies for silent gallbladder (GB) stones in patients prior to kidney transplantation (KT) have not been established.

Aims & Methods: We performed a retrospective cohort analysis comparing the risk of gallstone-related biliary complications and complications after cholecystectomy in KT recipients. By obtaining this information, we expected to evaluate the role of prophylactic cholecystectomy in KT recipients. A total of 2,295 KT recipients at Seoul National University Hospital from January 2005 to July 2022 were evaluated. Silent gallstones were identified from abdominal images (US, CT or MRI) 3 years before and 1

year after KT. The main outcome was the incidence of biliary complication and post-cholecystectomy complications and their severity in KT recipients.

Secondary outcomes included death-censored graft failure (DCGF), graft failure (GF), and all-cause mortality. The Fisher exact test was used to assess the significance of the incidence of postoperative complications. The Kaplan-Meier (KM) curve was plotted for biliary complication-free survival in the observation group. The Cox proportional hazards model was used to identify risk factors associated with biliary complications in the observation group. A P<0.05 was considered indicative of statistical significance. All analyses were performed using the IBM SPSS Statistics 27.

Results: A total of 230 patients with gallstones were enrolled in this study. Among them, 16 underwent cholecystectomy prior to KT and 214 were followed without any intervention or surgery. Of the 214 patients observed, the median follow-up was 73.8 months and biliary complications occurred in 20 patients, with an incidence rate of biliary complications of 9.3%. 20 had acute cholecystitis, 2 had acute cholangitis, and 3 had gallstone pancreatitis. When cholecystectomy was performed, the incidence rates of postoperative complications were 6.3% in the pre-KT cholecystectomy group and 38.8% in the post-KT cholecystectomy group, respectively (p = 0.04). The severity of postoperative complications was based on the Clavien-Dindo classification, and the post-KT cholecystectomy group had a higher incidence of fatal complications greater than grade 4 compared to the pre-KT cholecystectomy group. Patients with multiple GB stones (adjusted hazard ratio [aHR] 2.46, 95% CI 1.56-8.30, p = 0.04), GB wall thickening ([aHR] 5.41, 95% CI 1.63-17.91, p = 0.006) and large GB stones greater than 1 cm ([aHR] 5.55, 95% CI 2.02-15.23, p = 0.001) were more likely to have biliary complications.

	Post cholecystectomy Complication	Severity Grade	Treatment
Pre-KT cholecystectomy			
1	Operation bed fluid collection	IIIa	PCD
Post-KT cholecystectomy			
1	Abdominal wall bleeding	II	Transfusion, conservative care
2	Liver abcess	II	Antibiotics
3	Operation bed fluid collection	IIIa	PCD
4	Operation bed fluid collection, perihepatic abcess	IIIa	PCD, Antibiotics
5	Aspiration pneumonia, septic shock	IVb	Antibiotics, ICU care
6	Cystic duct stump leakage, biliary septic shock, pleural effusion	IVb	ERCP and ERBD, ICU care, Thoracentesis
7	Hemoperitoneum, Biloma, Bile leakage	IVb	PCD, ERBD, Antibiotics

PCD : Percutaneous drainage

Table 4. List of postoperative complications in pre-KT and post-KT cholecystectomy group

Conclusion: Gallstone-related biliary complications and subsequent cholecystectomy after kidney transplantation results in more serious complications and worse treatment outcomes. Therefore, it may be helpful to recommend prophylactic cholecystectomy for KT candidate with significant risk factors for biliary complications, such as multiple gallstones, large gallbladder stone greater than 1cm or Gallbladder wall thickening.

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PP1513

COMPARISON OF ONCOLOGICAL OUTCOMES AFTER IMMEDIATE AND DELAYED RE-RESECTION OF INCIDENTAL GALLBLADDER CARCINOMA

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Introduction: Gallbladder carcinoma (GBC) is the most common malignant tumor of the biliary tract and the sixth malignancy of the gastrointestinal tract[1,2]. It is frequently diagnosed at an advanced stage due to nonspecific symptoms and aggressive biological behavior[3]. Radical resection is the most effective treatment, yet reported 5-year survival rates following operation vary greatly, from 10% to 100%[4-6].

Indeed, long-term survival appears in patients with early-stage tumors. These patients are usually diagnosed incidentally, after cholecystectomy for presumed benign gallbladder disease. As the growing number of laparoscopic cholecystectomies executed, incidental gallbladder carcinoma (iGBC) is a progressively relevant clinical issue[7,8].

Re-exploration and re-resection are currently recommended for T1b, T2, and T3 iGBC patients without definite distant metastasis[9]. The extent of re-resection involves a partial hepatectomy of segment IVB+V, either as wedge resection or multi-segments resection and hepatoduodenal lymph nodes dissection[10]. However, there are few data on the timing of re-resection, especially immediate re-resection and delayed re-resection.

In this study, we compared the outcomes of immediate and delayed re-resection in iGBC patients, and to define optimal re-resection time that may improve prognosis.

Aims & Methods: For incidental gallbladder carcinoma (iGBC) patients with T1b and higher tumors are recommended to undergo radical re-resection, it is not clear whether immediate re-resection is more beneficial to long-term survival compared with delayed re-resection. To assess whether immediate re-resection is more beneficial to long-term survival compared with delayed re-resection.

This single centre retrospective observational cohort study of patients with iGBC was conduct from June 2006 and February 2015. Patients who underwent radical re-resection for T1b or higher iGBC were enrolled.

The oncological outcomes of patients who underwent immediate re-resection were compared with those of patients treated with delayed re-resection.

Results: A total of 78 patients were included. 31 patients underwent immediate re-resection and 47 patients underwent delayed re-resection. The baseline demography, extent of resection, resection margin, T stage, lymph node involvement and postoperative complications were similar between the two groups. Patients in immediate re-resection group had less intraoperative blood loss and shorter hospital stay compared with those in delayed re-resection group.

Kaplan-Meier analysis indicates that the overall survival rate of patients with delayed re-resection significantly decreased than those with immediate re-resection. Multivariate analysis showed that delayed re-resection (HR = 5.110, 95%CI: 1.595-16.371, P = 0.006), R1 resection (HR = 4.502, 95%CI: 1.345-15.070, P = 0.015) and lymph node positivity (HR = 6.025, 95%CI: 1.286-28.220, P = 0.023) were adverse prognostic factors for overall survival.

Conclusion: Immediate re-resection for selected patients with incidental gallbladder carcinoma is oncologically superior to delayed approach. To improve iGBC detection and timely referral of iGBC patients to immediate re-resection may allow more patients to benefit from this operation.

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PP1514

SHORT-TERM AND LONG-TERM CLINICAL OUTCOMES OF COMBINED MAJOR VESSEL RESECTION FOR HILAR CHOLANGIOCARCINOMA: A PROPENSITY SCORE ANALYSIS

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Introduction: The clinical value of combined resection of important hepatic vessels in hilar cholangiocarcinoma remains controversial. We aimed to compare the short-term and long-term outcome of combined versus non-combined major vessel resection in patients undergoing radical resection for hilar cholangiocarcinoma.

Aims & Methods: This single centre retrospective cohort study of patients with hilar cholangiocarcinoma was conduct from January 2007 to December 2018. Patients who underwent radical re-resection were enrolled. The short-term and long-term clinical outcomes of the groups were compared after propensity score matching.

Results: A total of 310 patients were included. There was no statistically significant difference in perioperative clinical outcomes between VR group (PVR and AVR) and non-VR group after 1:2 PSM. Patients who received PVR had significantly longer OS (p=0.023) and DFS (p=0.010) compared to those in the non-PVR group. AVR group was associated with improved OS (p=0.036) and DFS (p=0.029) compared with non-AVR group following the curative-intent resection. The postoperative complications of combined VR would not worsen long-term survival for patients (OS: p=0.159; DFS: p=0.112).

Conclusion: Combined vascular resection (VR) would improve the long-term survival for patients with hilar cholangiocarcinoma. The postoperative complications of combined VR would not worsen long-term survival. Therefore, radical surgical resection should be actively performed in these patients.

Disclosure: The authors declare that they have no competing interests.

PP1515

COMPARATIVE STUDY OF THREE COMMON BILE DUCT CLOSURE TECHNIQUES AFTER CHOLEDOCHOLITHOTOMY: SAFETY AND EFFICACY

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Introduction: T-tube drainage, primary closure, and biliary stenting are the common bile duct closure methods. There is great debate on the optimal duct closure technique after common bile duct exploration.

This study aimed to assess the safety and efficacy of the three commonest common bile duct closure methods after common bile duct exploration for common bile duct stone for future generalization.

Aims & Methods: In this analysis, 211 patients with common bile duct stone underwent common bile duct exploration from January 2016 to December 2020. The patients were divided according to common bile duct closure techniques into three groups, including the T-tube drainage group (63 patients), primary duct closure group (61 patients), and antegrade biliary stenting group (87 patients).

Results: The incidence of overall biliary complications and bile leak were statistically significantly lower in the biliary stenting group than in the other two groups. Also, Hospital stays, drain carried time, return to normal activity, re-intervention, and re-admission rates were statistically significantly lower in the biliary stenting group than in the other two groups. There were no statistically significant differences regarding operative and choledochotomy time, retained and recurrent stone, stricture, biliary peritonitis, cholangitis, and the cost among the three groups.

Conclusion: We state that the biliary stenting procedure should be the preferred first option for common bile duct closure after common bile duct exploration when compared with T-tube drainage and primary duct closure.

Disclosure: Nothing to disclose.

PP1516

POST-CHOLECYSTECTOMY MAJOR BILE DUCT INJURY: IDEAL TIME TO REPAIR BASED ON A MULTI-CENTER RANDOMIZED CONTROLLED TRIAL WITH PROMISING RESULTS

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Introduction: Bile duct injury (BDI) is one of the serious complications of cholecystectomy procedures, which has a disastrous impact on long-term survival, health-related quality of life (QoL), health-care costs as well as high rates of litigation. The standard treatment of major BDI is hepaticojejunostomy (HJ). Surgical outcomes depend on many factors, including the severity of the injury, the surgeons' experiences, the patient's condition, and the reconstruction time.

We aimed to assess the impact of reconstruction time and abdominal sepsis control on the reconstruction success rate.

Aims & Methods: This is a multicenter, multi-arm, parallel-group, randomized trial that included all consecutive patients treated with HJ for major post-cholecystectomy BDI from February 2014 to January 2022.

Patients were randomized according to the time of reconstruction by HJ and abdominal sepsis control into group A (early reconstruction without sepsis control), group B (early reconstruction with sepsis control), and group C (delayed reconstruction).

The primary outcome was successful reconstruction rate, while blood loss, HJ diameter, operative time, drainage amount, drain and stent duration, postoperative liver function tests, morbidity and mortality, number of admissions and interventions, hospital stay, total cost, and patient QoL were considered secondary outcomes.

Results: Three hundred twenty one patients from 3 centers were randomized into three groups. 44 patients were excluded from the analysis, leaving 277 patients for intention to treat analysis. With univariate analysis, older age, male gender, laparoscopic cholecystectomy, conversion to open cholecystectomy, failure of intraoperative BDI recognition, Strasberg E4 classification, uncontrolled abdominal sepsis, secondary repair, end-to-side anastomosis, diameter of HJ (< 8 mm), non-stented anastomosis, and major complications were risk factors for successful reconstruction.

With multivariate analysis, conversion to open cholecystectomy, uncontrolled sepsis, secondary repair, the small diameter of HJ, and non-stented anastomosis were the independent risk factors for the successful reconstruction. Also, group B patients showed decreased admission and intervention rates, decreased hospital stay, decreased total cost, and early improved patient QoL.

Conclusion: Early reconstruction after abdominal sepsis control can be done safely at any time with comparable results for delayed reconstruction in addition to decreased total cost and improved patient QoL.

Disclosure: Nothing to disclose.

PP1517

CHOLECYSTECTOMY DOES NOT INCREASE THE RISK OF THE METABOLIC SYNDROME

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Introduction: Laparoscopic cholecystectomy is well known as a gold standard of treatment for gallstone disease. It has been implied that cholecystectomy is an independent risk factor for metabolic syndrome.

Nevertheless, evidence on metabolic outcomes of cholecystectomy is based chiefly on population-based retrospective research and remains inconclusive.

Aims & Methods: The study aims to assess the risk of metabolic syndrome after laparoscopic cholecystectomy prospectively and evaluate the change in serum lipid levels associated with gallbladder removal. The study included individuals undergoing laparoscopic cholecystectomy due to gallstones. The exclusion criteria covered all previous metabolic disorders and influencing drugs. The changes in all metabolic syndrome criteria were evaluated before and three months after the laparoscopic cholecystectomy.

The blood evaluation contained serum glucose, total serum cholesterol (TC), low-density (LDL) and high-density lipoprotein cholesterol (HDL), and triglyceride levels (TG). The medical examination evaluated blood pressure (BP), heart rate (HR), weight, and waist circumference.

The study was approved by the local ethics committee and was registered on ClinicalTrails.gov. (NCT05557669).

Results: 85 participants were enrolled. There were no statistically significant differences postoperatively in weight, body mass index, BP, HR, serum glucose, and TG. Although, there was a remarkable decrease in both TC and LDL levels. HDL increased notably. The prevalence of the MetS changed insignificantly after surgery.

The notably lower percentage of individuals after surgery fulfilled the fasting plasma glucose criterion, but other criteria changed unremarkably. The relative risk of developing MetS after laparoscopic cholecystectomy was 0,87 (0.64-1.19; CI 95%).

Criteria	RR	CI 95%
Fasting plasma glucose	0.83	0.61-1.11
Waist circumference	0.98	0.71-1.33
TG	1.12	0.75-1.66
HDL	0.89	0.62-1.28
BP	1.00	0.72-1.38

Table 1. Relative risk (CI 95%) of developing different metabolic syndrome criteria after laparoscopic cholecystectomy.

Conclusion: In contrast to retrospective studies, the prospective evaluation indicated no evidence of increased risk of metabolic syndrome after laparoscopic cholecystectomy.

However, further investigation regarding the metabolic consequences of this procedure is required.

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PP1518

ENDOSCOPIC MANAGEMENT OF BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION

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Introduction: Biliary complications are estimated to occur in 5-32% of patients undergoing liver transplantation (LT) and are an important source of morbimortality, with mortality and retransplantation rates up to 20% and 13%, respectively. Their early recognition and multidisciplinary management are critical in improving outcomes.
Aims & Methods: Our aim was to evaluate post LT biliary complications, their endoscopic management, and clinical outcomes.
We conducted a retrospective study of a prospectively maintained database of LT adult patients who underwent endoscopic retrograde cholangiopancreatography (ERCP) at a transplantation center between July 2020 - December 2022. Demographic, clinical, surgical, and endoscopic data were collected and analyzed in Stata®V17 (p<0,05). The outcomes assessed were ERCP's technical success, procedure-related complications, complete resolution of the biliary complication, need for surgical reintervention, and mortality.
Results: We performed 166 ERCPs in 64 patients (2,6±1,3 ERCPs/patient), 86% males, mean-aged 56±11 years. The median interval between LT and first ERCP was 10 [2;46] months. The most frequent indications for ERCP were radiological documentation of biliary stenosis (BS) (33%) and cholangitis (27%). All patients had prophylactic antibiotic treatment and rectal indomethacin.
The most common biliary complication was anastomotic BS (75%), followed by bile leakage (14%), non-anastomotic BS (5%) and choledocholithiasis without BS (5%). 56% of anastomotic BS presented in the first year, whereas all the non-anastomotic BS were diagnosed after the first year. The bile leaks were detected from the fourth week following LT, 67% were high-output leaks and 67% associated with a BS.
Biliary cannulation ± sphincterotomy was achieved in 100% of the procedures, with a 97% technical success rate (4 BS were not traversed by the guidewire and 1 high output leakage was considered not amenable to endoscopic treatment).
We performed dilation in 28% of the procedures, plastic stent placement in 62% (mean number of 2±1 stents with a total caliber of 15±6Fr per procedure) and fully covered self-expandable metal stent in 5% of the cases.
There were 4.8% procedure-related complications (4 intraprocedural bleedings treated endoscopically, 2 post-ERCP cholangitis, 1 mild pancreatitis and 1 delayed bleeding requiring blood transfusion), with no associated deaths.
Median follow-up was 10 [4;21] months. From the initial 64 patients, 16 patients are still under treatment, 4 were retransplanted for unrelated reasons, 3 died of other causes and 1 abandoned follow-up.
Our clinical success rate was 77.5% (31/40), achieving complete endoscopic resolution of the biliary complication within 3,2±1,3 ERCPs during a median of 196 days of treatment. Success rates per diagnosis were 100% in isolated choledocholithiasis, 79% in anastomotic BS, 67% in bile leaks and 50% in non-anastomotic BS.
Among the 9 patients with treatment failure (22.5%), 5 had presented with cholangitis, 3 of whom with multiple liver abscesses. Seven underwent surgical reintervention and 4 died of complications related to the post-LT biliary condition (mortality rate: 4/40, 10%). We did not find statistically significant associations of age, number of index surgeries, T tube placement, and indication for ERCP with clinical failure in multivariable logistic regression analysis.
Conclusion: The endoscopic management of biliary complications after LT had a high success rate in our patients, with few associated complications and an important contribution to decreasing the need for surgical reinterventions.
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Disclosure: Nothing to disclose.

PP1519

ABLATION USING PAPILLOTOME AND BIPOLAR HEMOSTATIC FORCEPS FOR PATIENTS WITH INTRADUCTAL RESIDUAL TUMOR EXTENDING INTO THE PANCREATIC OR COMMON BILE DUCT AFTER ENDOSCOPIC PAPILLECTOMY

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Introduction: In recent years, the indications for endoscopic papillectomy (EP) have expanded, and additional ablation such as radiofrequency ablation (RFA) have been reported for residual tumors that have extended into the pancreatic duct or common bile duct after EP. However, RFA may cause adverse events due to excessive heat, highlighting the need for safe and reliable methods to manage intraductal lesions.

Aims & Methods: This study aimed to assess the efficacy and safety of additional ablation using a papillotome and bipolar hemostatic forceps for residual neoplasms in the pancreaticobiliary tract following EP of ampullary tumors. We retrospectively reviewed patients who underwent ablation for residual pancreaticobiliary lesions following endoscopic papillectomy (EP) between January 2017 and March 2023. Intraductal ablation was performed using a papillotome for endoscopic sphincterotomy in Spray Coagulation mode (VIO 3; Elbe) and bipolar hemostatic forceps (Hemostat-Y: PENTAX). Clinical data, including adverse events, were collected retrospectively. After EP, endoscopic papillotomy and endoscopic pancreatic ductotomy were performed either on the same day or within seven days as needed to expose intraductal lesions. The bipolar forceps were energized with the forceps open without grasping the tissue. The tube stent was removed during treatment, and a guidewire was inserted to stabilize the procedure and facilitate sequent stent replacement. This approach prevents excessive thermal damage to deeper tissue layers by applying heat to the targeted tumor tissue with the Bipolar forceps cup open. While the sparks from the papillotome reach the upper left half of the duct, they do not extend to the lower right half; therefore, bipolar hemostatic forceps were applied to address this problem in the lower right half of the pancreatic or common bile duct.

Results: The median lesion size was 18 mm (interquartile range: 13-21 mm). Residual pancreaticobiliary extension lesions had a median size of 13 mm (interquartile range: 8-15 mm) in the common bile duct and 7 mm (interquartile range: 6-10 mm) in the pancreatic duct. Adverse events were observed in 3 patients (11.5%), with one experiencing delayed bleeding and three developing symptomatic biliary stricture. The median follow-up period was 311 days. During the follow-up, one patient with T1 carcinoma that invaded the sphincter of Oddi experienced recurrence in the pancreatic duct. No local recurrence was detected in the other patients via endoscopy or computed tomography.

Conclusion: Ablation using a papillotome and bipolar hemostatic is a safe and effective method to treat residual intraductal pancreaticobiliary extension lesions after EP. However, more studies are needed to confirm these findings.

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Disclosure: Nothing to disclose.

PP1520

COMPARISON OF EUS-GUIDED CHOLEDOCHODUODENOSTOMY VERSUS EUS-GUIDED GALLBLADDER DRAINAGE IN PATIENTS WITH MALIGNANT DISTAL BILIARY OBSTRUCTION AFTER FAILED ERCP A RETROSPECTIVE MULTICENTER ANALYSIS (GALLBLADEUS STUDY)

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Introduction: Malignant distal biliary obstruction is a common complication in the progression of pancreatic tumors. Endoscopic ultrasound (EUS) guided drainage can provide effective biliary drainage when not achieved by endoscopic retrograde cholangiopancreatography (ERCP) and can be performed by hepaticogastrostomy or choledocoduodenostomy (CDD). Gallbladder drainage by cholecystogastrostomy (GBD) has been described in small uncontrolled series and could be effective. The objective of this study was to compare the clinical efficacy of CGD vs CDD in distal biliary tract obstruction (DBTO).

Aims & Methods: This was a retrospective, multicenter study (four tertiary centers) including all consecutive patients with DBTO and jaundice who underwent CDD or GBD with a lumen-apposing metal stent (LAMS). The primary outcome was to compare the clinical success rate defined as a decrease of total bilirubin by 50% in 14 days and/or a decrease in total bilirubin below 51 µmol/L after 30 days. Secondary outcomes were technical success, overall survival, survival without biliary reintervention, immediate (within 24 hours) and delayed (>24 hours) morbidity.

Results: 78 patients were included between July 2018 and September 2022, 41 GBD and 37 CDD. The mean age was 71 years, and 82% had pancreatic adenocarcinoma, 55% had metastatic disease at diagnosis, and 45% had duodenal stenosis. Most patients (N=59; 76%) had undergone EUS-guided drainage after ERCP failure.

The mean diameter of the main bile duct was significantly smaller in the CGD group (13 mm vs. 18 mm; p=0.001). The total bilirubin mean was 196 µmol/L in the GBD group vs. 241 µmol/L in the CDD group; p=0.149. Clinical success was comparable between the two groups: 88% (36/41 - CGD) vs. 89.2% (33/37 - CDD); p=0.848.

There was no difference in overall survival (log-rank p=0.727) or survival without biliary obstruction (log-rank p=0.725) between the two groups. Immediate morbidity was comparable: 7% (3/41 - GBD) vs. 13% (5/37 - CDD); p=0.368. The rate of significant immediate complications tended to be lower in the GBD group (5% (2/41 - CGD) vs. 8% (3/37 - CDD); p=0.093). Delayed morbidity (mainly LAMS obstruction) (>24 hours) was lower in the GBD group 7.3% (3/41 - CGD) vs. 27% (10/37 - CDD); p=0.022. There were no biliary complications after the 26th day in the GBD group. The LAMS dimensions did not have an impact on biliary complications in the CGD group (6x8mm vs. 10x10mm vs. 15x10mm).

Conclusion: Biliary drainage of tumoral obstruction of the distal biliary tract by GBD had comparable clinical efficacy and was associated with reduced delayed morbidity compared to CDD. This type of drainage is feasible, especially when the main bile duct is not dilated enough to consider CDD.

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Disclosure: Nothing to disclose.

PP1521

A SINGLE CENTRE ANALYSIS OF AMBULATORY HOT CHOLECYSTECTOMY IN A DISTRICT GENERAL HOSPITAL IN THE UK

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Introduction: The COVID-19 pandemic has created a backlog of around 7 million patients waiting for an operation in NHS England. A significant proportion of the waiting list included patients waiting for Laparoscopic Cholecystectomy. This is partly due to a lack of awareness and intent leading to non-compliance with the Hot Gall Bladder Pathway. NICE recommends 80% of qualifying acute biliary diseases must be dealt with cholecystectomy within 5 days of diagnosis. The issue of the rising number of patients waiting for elective cholecystectomies is prevalent across Europe.
Aims & Methods: A thrice-weekly ambulatory service aimed at reducing the burden of gallstone disease was initiated in our hospital.
This study evaluated a consecutive series of hot laparoscopic cholecystectomies performed between December 2021 and January 2023. Statistical analysis was performed using Statistical Package for Social Science (SPSS) version 27.0 for Windows (SPSS Inc., Chicago, IL, USA).
Results: Overall, 264 (females: 189, males: 75) hot cholecystectomies were performed with a median age of 47 years. The median BMI and ASA were 32 and 2 respectively. 210 patients presented for the first time. 139 patients had Grade I while 90 patients had Grade II acute cholecystitis as per Tokyo Guidelines 2018.
All cases were completed laparoscopically. 29 patients had a subtotal cholecystectomy. Patients with Tokyo Grade II had 6.9 times higher odds of subtotal cholecystectomy than Grade I. Median postoperative stay was zero. 49 patients encountered complications (Clavien-Dindo Grade I: 17; Grade II: 9; Grade III: 23). Increased BMI was linked to an increased risk of complications.
Conclusion: A dedicated ambulatory service for hot cholecystectomies can be employed to resolve the mounting waiting lists not only in England but also across Europe whilst at the same time providing high-quality care.
Disclosure: None.

PP1522

FEASIBILITY AND SAFETY OF SPYGLASS DS CHOLEDOCHOSCOPE AND ENDOSCOPIC RADIOFREQUENCY ABLATION IN THE DIAGNOSIS AND TREATMENT OF UNRESECTABLE EXTRAHEPATIC CHOLANGIOCARCINOMA

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Introduction: The sensitivity and accuracy of diagnosis for extrahepatic cholangiocarcinoma (EHCC) can be greatly improved by Spyglass DS choledochoscope, which can realize direct observation and biopsy . Studies have shown that endoscopic radiofrequency ablation (RFA) could prolong stent patency and survival in patients with unresectable extrahepatic cholangiocarcinoma (EHCC). However, there are few reports about Spyglass DS choledochoscopy and endoscopic RFA therapy in the same stage of diagnosis and treatmen for unresectable EHCC.
Aims & Methods: Aim: To investigate the feasibility and safety of Spyglass DS combined with endoscopic RFA)for unresectable EHCC on the same stage.
Methods A total of 90 patients with extrahepatic bile duct obstruction treated in Hangzhou First People's Hospital from January 2013 to January 2022 were divided into two groups according to the diagnosis and treatment process: conventional group: ERCP + cytobrush/ Spyglass DS cholangioscopy first, and ERCP + RFA again when the pathological results were positive; simultaneous group: ERCP was performed via Spyglass DS cholangioscopy to examine the bile duct and biopsy the lesion under direct vision, and RFA was performed on the same stage for patients identified as malignant tumor. The success rate of procedure, recovery of liver function, the number of ERCPs and the incidence of postoperative adverse events were compared between the two groups.
Results: The sensitivity of Spyglass DS choledochoscope biopsy for EHCC was 87.5% (35/40) significantly higher than that of the cell brush group (38.9% (14/36), and the difference was statistically significant (P<0.05); All patients in both groups successfully completed endoscopic RFA with a 100% of procedure success rate; there was no statistically significant difference in the improvement of bilirubin between the two groups (P>0.05); the mean number of ERCPs in simultaneous group was significantly less than that in conventional group (1.00 vs. 2.59, P<0.001), which was statistically different; the incidence of postoperative adverse events between the two groups was 14.7% (5/34) vs. 14.3% (5/35), with no statistical significance (P=0.889).
Conclusion: Spyglass direct vision diagnosis + biopsy combined with RFA for unresectable extrahepatic cholangiocarcinoma can significantly improve the diagnostic sensitivity, reduce the number of ERCPs, and not increase the incidence of postoperative adverse events, which is a safe and effective diagnosis and treatment method with a high cost-benefit ratio.
Disclosure: None.

Poster presentations
Pancreas

Poster Presentations
Pancreas

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PP1523

RELATIONSHIP AND CELLULAR LOCALIZATION OF AHR AND ELAVL1 IN PANCREATIC CANCER, *IN VITRO*

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Introduction: Pancreatic cancer (PC) is emerging as one the most lethal types of cancer with only a 10% five-year survival rate[1].

Pancreatic ductal adenocarcinoma (PDAC) being the most common among PC. Low survival rate is attributed to the fact that most incidences of PDACs are diagnosed in advanced or metastatic stages [2].

In such cases, gemcitabine remains one the first-line drugs used for treatment [2] but the efficacy of the treatment can fall short due to PDAC tumour heterogeneity and its acquired resistance to said chemotherapy [3].

The aryl hydrocarbon receptor (AHR) is a transcription factor that is commonly upregulated in pancreatic ductal adenocarcinoma [4].

AHR can be linked to Human antigen R (ELAVL1) whose expression in cell cytoplasm is positively associated with PDAC response to gemcitabine [5].

AHR can block ELAVL1 from shuttling from nucleus to cytoplasm [6] where it stabilizes its target messenger RNAs (mRNAs) and increases protein expression of said mRNAs.

Among those target mRNAs are those induced by gemcitabine treatment. Frequently with upregulated AHR expression, ELAVL1 would be sequestered in the nucleus which would lead to increased chemoresistance, however the relationship between AHR and ELAVL1 in PDAC is still poorly understood.

Aims & Methods: The aim of the study was to investigate how AHR and ELAVL1 genes and proteins interacts with each other and change their cellular localization in PDAC cells.

Two PDAC cell lines were used (BxPC-3, Su.86.86). AHR and ELAVL1 genes were silenced for 24-hours by lipofectamine mediated siRNA transfection. Cellular localization change of AHR and ELAVL1 proteins was illucidated by fluorescent microscopy. After silencing of AHR or ELAVL1 genes, RNA and proteins were extracted and real-time polymerase chain reaction (RT-PCR) and Western Blot (WB) analysis were performed. Direct binding between ELAVL1 protein and AHR mRNA was investigated by immunoprecipitation assay followed by RT-PCR and WB assays.

Results: The results of gene silencing showed that silencing of AHR can increase ELAVL1 mRNA and protein and silencing of ELAVL1 can decrease AHR mRNA and protein expression. The results of immunoprecipitation assay showed that ELAVL1 protein binds AHR mRNA resulting in mRNA stabilization. This shows a direct link between these two molecules. Moreover, silencing of AHR resulted in increased ELAVL1 protein concentration in cytoplasm which indicates that AHR blocks ELAVL1 shuttling from nucleus to cytoplasm. Silencing of ELAVL1 did not alter the cellular localization of AHR protein.

Conclusion: A direct relationship between AHR and ELAVL1 can be seen in PDAC. Moreover, by decreasing AHR expression it is possible to increase ELAVL1 shuttling from nucleus to cytoplasm which might contribute to PDAC cells responding better to chemotherapy.

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Disclosure: Nothing to disclose.

PP1524

GLP1 AND ANALOG ROSE-010 BIND GLP1 RECEPTOR AT AN NNOS-/FOX3+ SUBSET OF MYENTERIC NEURONS

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Introduction: We earlier published evidence of relaxation of human gut muscle contraction by GLP1 and analog ROSE-010 in surgically isolated biopsies (1).

Pharmacological experiments pointed to dependency on functional nerves. Immunohistochemistry (IHC) revealed presence of GLP1 receptor (GLP1R) in a subset of cells within myenteric plexus. Exact cell types were not established. A hypothetical model was proposed in which GLP1R activation at nNOS expressing nitrergic myenteric neurons triggers NO production, then driving muscle relaxation.

Aims & Methods: This hypothesis was pursued by identifying FOX3 and nNOS expressing myenteric plexus neurons relative GLP1 and ROSE-010 binding. Paraffin sections from human gut transmural biopsies were, by segment (n): cardia (6), fundus (2), corpus (6), jejunum (2), ileum (5), unspecified small intestine (6), colon (7), sigmoid (2), rectum (3). GLP1R was first mapped using a new antibody (clone D-6, sc-390774, Santa Cruz Biotech, USA) by ordinary IHC with DAB. This targets amino acids 91-145 of N-terminal extracellular domain of human GLP-1R. Mapping was verified in serial sections using biotinylated GLP1 (B-GLP1, 1 µM) or ROSE-010 (B-ROSE, 5 µM) synthesized with biotinyl-AEEAc tag at amino terminal histidine.

To visualize this 1:1 stoichiometry, a signal amplification system was developed using streptavidin-HRP, biotinylated goat anti-streptavidin antibody and a second round of streptavidin-HRP followed by DAB staining. For triple labelling on other slides, streptavidin tagged fluorophores were instead used after FOX3 staining of neuronal nuclei using monoclonal an-

tibody (Biolegend, USA) and HRP-DAB; nNOS was visualized by antibodies (mouse sc-5302 FITC, Santa Cruz Biotech or goat NB100-858, Novus Biologicals). Although unusual, amplification and triple labelling only required off-the-shelf reagents (Vector Labs, USA).

Results: Across the gut, approx. half of myenteric plexus cells were positive using GLP1R antibody; this number being variable. Many had clear neuronal morphology. Intensity was scored between 2 and 3 (max was 4). The amplification system introduced a small background, but B-GLP1, B-ROSE and nNOS stained far above this. Myenteric plexus cells most strongly staining for B-GLP1 and B-ROSE were in some cases negative for nNOS. Triple labelling further revealed peptide positive cells within myenteric plexus that were nNOS- with FOX3+ nuclei. Myenteric plexus GLP1R and nNOS distribution was confirmed by ordinary IHC of serial sections.

Conclusion: This arrives at the existence of GLP1R+ myenteric neurons that are not nitrergic as well as GLP1R- nitrergic neurons. Support was found for the hypothesis in which GLP-1 and ROSE-010 act on nitrergic neurons (i.e., GLP1R+/nNOS+/FOX3+).

However, the other permutations of GLP1R relative nNOS expressing neurons indicate that GLP1 and ROSE010 act simultaneously on other types of neurons (as of now undefined), whereas not all nitrergic neurons are equipped to respond to these peptides. The net effect of these peptides to induce muscle relaxation arises from selective signaling at a distinct subset of neurons that collectively are only definable as "GLP1R+".

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PP1525

PANCREATIC DUCTAL FLUID AND HCO_3^- SECRETION INCREASE IN DIABETES IN WHICH CFTR PLAYS A CENTRAL ROLE

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Introduction: Type 1 diabetes is a disease of the endocrine pancreas, but it also affects the exocrine part, especially the ductal cells. Several studies have shown that secretin-induced ductal HCO_3^- secretion is reduced in diabetes, however, the underlying mechanism and the effect of diabetes on basal secretion is less known.

Aims & Methods: Our aim is to investigate the effect of diabetes on pancreatic exocrine function. Diabetes was induced in wild type and cystic fibrosis transmembrane conductance regulator (CFTR) knock out mice by i.p. administration of streptozotocin and disease development was confirmed by fasting blood glucose level measurement. Pancreatic ductal fluid and HCO_3^- secretion were measured by fluid secretion measurements and fluorescence microscopy, respectively. Expression of ion transporters were investigated by real-time PCR and immunohistochemistry, whereas TEM was used for the morphological characterization of the pancreas.

Results: Basal fluid and HCO_3^- secretion are significantly elevated in diabetes. Acute or chronic glucose treatment did not affect HCO_3^- secretion, but inhibition of CFTR significantly reduced it in both normal and diabetic mice. Cl^- efflux and the expression of CFTR, ANO1, NHE-1 and AQP1 increased in diabetes. Secretin-stimulated fluid secretion was also significantly higher in diabetic mice.

Conclusion: Our results show that diabetes increases fluid and HCO_3^- secretion in ductal cells both under basal and stimulated conditions in which the increased function of ion and water transporters, especially CFTR, plays central role.

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Disclosure: Nothing to disclose.

PP1526

THE PREVALENCE AND FACTORS ASSOCIATED WITH PANCREATIC STEATOSIS IN TURKEY: A NATION-WIDE MULTICENTER STUDY

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Introduction: Excessive lipid accumulation in the pancreas is known as pancreatic steatosis (PS). PS is an entity whose clinical significance has not been understood until recently. However, recent studies have shown that PS may be a pathology associated with metabolic syndrome (MS), insulin resistance (IR), and diabetes mellitus (DM), which can disruptthe endocrine and exocrine functions of the pancreas.

In our previous study, we showed that ultrasonographic PS and its grade were associated with MS and its components, fatty liver and pancreatic tissue stiffness that we determined by shearwave elastography.

Aims & Methods: Unfortunately, data on the frequency of PS are very limited. There is no data on its frequency in Turkey. Therefore, as the Turkish Pancreas Study Group, we aimed to evaluate the frequency of PS detected by transabdominal ultrasonography (TAU) in gastroenterology clinics located in different geographical regions of Turkey and the factors associated with PS and its degree. Volunteers were evaluated by TAU whether theyhad PS, or not, also the degree of PS, at their study centers.

In order to eliminate the differences between the researchers on PS diagnosis by TAU, the researchers in the centers participating in the study were trained for ultrasonographic evaluation, method and common nomenclature, and the kappa score was calculated statistically in terms of compliance. Also if possible, pancreatic stifness was evaluated by means of SWE by ultrasonography. All demographic, antropometric and biochemical parametres, and arterial blood pressures were measured and the diagnosis of MS established by these measurements. During TAU examination, hepatosteatosis (HS) state and its degree evaluated and recorded.

Results: A total of 1700 volunteers from 13 centersthroughout Turkey were included in the study, prospectively. Mean age was 48.03± 20.86 years (56.9% female, 43.1% male), no significant difference was found between

both genders (p=0.176). BMI mean was 27.22 ± 5.00 kg/m^2. PS pevalance was detected in 68.9% all study population (Mild PS in 32%, moderate PS in 28.8%, severe PS in 8.1%). There was a correlation between PS and ultrasonographic grade and age, BMI, waist circumference, SBP, fasting blood glucose, lipid levels, IR, DM, Hypertension and MS frequency, fecal elastase level, pancreatic shearwave elastography score (kP).

The frequency of HS was 55.5%, the Positive Predictive Value of HS for PS was 87.58%, the Positive Predictive Value of PS for HS was 68.55%, and the Relative Risk of HS for PS was 6.734. Positive Predictive Value of PS for MS was 88%.

Conclusion: In this comprehensive multicenter study conducted in Turkey, the frequency of PS was found70%, its relationship was determined with HS, MS (and it'scomponents).

Furthermore, there was a relationship betweenPS (also PS stage) and pancreatic stiffness, as well as, PS and Fecal Elastase Level (pancreatic exocrine functions).

Disclosure: Nothing to disclose.

PP1527

COVID-19 INFECTION IS A PREDICTOR OF INCREASED MORTALITY IN PATIENTS ADMITTED WITH ACUTE PANCREATITIS: A NATIONWIDE ANALYSIS

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Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2), the causative virus for coronavirus disease-2019 (COVID-19), primarily affects lung tissues causing severe acute respiratory distress syndrome. SARS-CoV-2 is believed to cause acute pancreatitis (AP) through direct viral invasion (through ACE2 receptors) or the systemic inflammatory immune response (SIIR) through cytokine storm.

This study was conducted to assess the impact of COVID-19 infection on clinical outcomes, including mortality, in patients admitted with acute pancreatitis.

Aims & Methods: The national inpatient sample (NIS) 2020 was queries for hospitalizations with the discharge diagnosis of acute pancreatitis. Patients who were diagnosed with COVID-19 infection upon hospitalization were identified. Their baseline characteristics and clinical outcomes were compared to patients with AP and no COVID-19 infection. Chi-square and the student's t-test were used for the statistical analysis.

Multivariate analysis to assess mortality predictors in patients with AP was then performed.

Results: Out of 258965 AP hospitalizations included in the analysis, 2725 patients had COVID-19 infection. There was a higher percentage of Hispanics in the COVID-19 AP compared to the non-COVID-19 AP group. Peripheral vascular disease, chronic pulmonary disease, alcohol use, drug use, and smoking were more prevalent in the non-COVID group.

There was no difference in the burden of comorbidity between the two groups, as estimated by Carlson's comorbidity index (p 0.7597) (Table 1).

In-hospital mortality was higher in the COVID-19 AP group compared to the non-COVID-19 AP group (2.2% vs. 0.6%, p <0.0001). The multivariate logistic regression analysis showed higher odds of mortality in patients with COVID-19 infection (OR 3.97, CI 2.17-7.26. p <0.0001).

	No COVID-19	COVID-19	P-value
Number	256,240	2725	
Patient baseline characteristics			
Age	50.9 years	50.0 years	0.2034
Race			
White	64.05%	41.4%	<0.0001*
Black	17.36%	19.85%	
Hispanic	12.83%	30.06%	
Indicator of sex			
0 Male	55.07%	51.19%	0.0729
1 Female	44.93%	48.81%	
Comorbidities			
Congestive heart failure	6.96%	7.71%	0.4943
Peripheral vascular disease	3.57%	2.02%	0.0518
Hypertension uncomplicated	45.96%	37.25%	<0.0001*
Hypertension complicated	11.7%	12.08%	0.7811
Paralysis	0.22%	0.73%	0.0117*
Chronic pulmonary disease	16.63%	10.64%	0.0002*
Diabetes uncomplicated	13.35%	15.05%	0.2615
Diabetes complicated	15.1%	15.78%	0.6625
Renal disease	8.93%	9.91%	0.4236
Liver disease	25.28%	22.94%	0.2197
Peptic ulcer	1.47%	2.02%	0.2851
Obesity	19.95%	23.3%	0.0528
Weight loss	7.79%	5.87%	0.1080
Alcohol abuse	36.66%	24.04%	<0.0001*
Drug abuse	10.17%	5.69%	0.0005*
Smoking	36.1%	18.17%	<0.0001*
COPD	16.63%	10.64%	0.0002*
Charlson's comorbidity index			
0	36.89%	39.08%	
1	31.82%	30.28%	0.7597
2	14.78%	14.5%	
3	16.52%	16.15%	
Outcomes			
In-hospital mortality	0.66%	2.2%	<0.0001*
LOS - Length of stay	4.22 days	5.4 days	<0.0001*
Total cost of hospitalization	11.068.71$	14244.85$	0.0014*
Acute liver failure	0.35%	0.55%	0.4217
Acute kidney failure	13.1%	14.13%	0.4834
Acute respiratory failure	3.15%	6.79%	<0.0001*
Mechanical ventilation	1.38%	1.65%	0.5935
Septic shock	0.7%	2.02%	0.0003*
Fluid and electrolyte imbalance	46.05%	46.06%	0.9998

Table 1.

Conclusion: COVID-19 clinical course varies individually from asymptomatic to severe multiorgan failure and death. A meta-analysis of 2419 patients concluded that COVID-19 significantly increased the odds of mortality in AP. It also showed that COVID-19 was associated with an increased incidence of severe pancreatitis, necrotizing pancreatitis, and a longer length of stay in AP.

Another study showed that COVID-19 virus had been isolated in stool samples and pancreatic pseudocysts in patients with AP, which further supports the morbid effect of the virus on AP. A meta-analysis of 19 studies has shown a similar pattern of cytokine levels alteration in both severe AP and COVID-19, which leads to further exacerbation in the cytokine storm leading to multi-organ failure and death.

Our study showed that COVID-19 infection is independently associated with increased mortality among patients admitted with acute pancreatitis.

Disclosure: Nothing to disclose.

PP1528

IDENTIFYING EARLY PREDICTORS FOR INFECTED NECROSIS IN ACUTE PANCREATITIS: A SYSTEMATIC REVIEW AND A META-ANALYSIS

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Introduction: Infected necrotizing pancreatitis (INP) is associated with an increased risk of organ failure and mortality. In a previous meta-analysis, procalcitonin (PCT) was found to have the most robust connection to INP. Herein, we aimed to identify early predictors for INP.

Aims & Methods: A systematic search was conducted in Medline (via Pubmed), Embase, and Central databases on 27.10.2022 (PROSPERO no.: CRD42022370672). The selected studies confirmed infection by computed tomography imaging with the presence of gas in the necrotic collection or by examination of the sample acquired by an intervention using Gram staining or culture. Any laboratory biomarkers were included for the index test that were compared between sterile necrotizing pancreatitis and INP. The random effect model was used to gain pooled estimates with 95% CI, and we fitted the SROC curve. Heterogeneity among the studies was evaluated.

Results: We included 14 observational studies involving 1,591 patients, in the analysis 9 studies with 758 patients were included. In the disease's early phase, within the first 72 hours after admission, the pooled area under the ROC curve (AUC) of C-reactive protein (CRP) was 0.70 (95% confidence interval (CI) = 0.63, 0.77), and for PCT, it was 0.70 (95% CI = 0.57, 0.83), and for white blood cell count (WBC), it was 0.61 (95% CI = 0.47, 0.75). After the first 72 hours, in the late phase, the pooled AUC of CRP showed an elevated level of 0.88 (95% CI = 0.75, 1.00), and for PCT, it was 0.86 (95% CI = 0.60, 1.00). No significant heterogeneity was observed.

Conclusion: The predictive value of CRP and PCT for infection is intermediate in the early phase but very good in the late phase of the disease. Based on these results, in case of persistently high CRP and PCT, infection is likely, and initiation of antibiotics is recommended.

Disclosure: The authors declare no conflict of interest.

PP1529

ARE INTERLEUKIN 6 AND YKL-40 POTENTIAL BIOMARKERS FOR PERIPANCREATIC FLUID COLLECTIONS IN THE ACUTE PANCREATITIS?

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Introduction: Acute pancreatitis (AP) is an acute disease of the pancreas with several serum indicators of the disease severity (C-reactive protein (CRP), procalcitonin (PCT)), but none of them are accurate. YKL-40 (chitinase-3-like-1 protein) is a glycoprotein that plays a mayor role in the inflammation and angiogenesis. Development of peripancreatic fluid collections (PFC) in the AP complicates the clinical course of the disease and often requires advanced endoscopic or surgical treatment. Early recognition of PFCs could lead to new therapeutic options and their improved management.

Aims & Methods: The aim of our study was to compare the diagnostic yield of YKL-40 and interleukin 6 (IL-6) versus routine laboratory markers in prediction of PFCs in AP. This prospective study recruited 57 patients (23 male, 34 female) with AP at the University Hospital Center Sestre Milosrdnice, Zagreb, from June 2020 until December 2021. After obtaining informed consent, patients had blood drawn for routine laboratory studies (including CRP and PCT) with additional 7 milliliters of blood for determining serum concentrations of YKL-40 and IL-6 on admission and 48 hours after admission. Presence of PFCs was determined with a computer tomography scan carried out 72-96 hours after admission.

Analysis were performed using enzyme-linked immunosorbent assay (ELISA). Receiver operating characteristic curve was calculated, confidence intervals were obtained using bootstrap method with 1000 iterations, and areas under the curve (AUCs) were compared using Kruskal-Wallis, Dunn, and Mann-Whitney tests.

Results: The AUC values are presented in Table 1. Post-hoc Dunn test with Bonferroni correcton indicated that there is a statistical difference between all pairwise comparisons in AUC scores for PFC predicton of investigated biomarkers both on admission and 48 hours after admission ($P < 0.05$). Both YKL-40 and IL-6 had an order of magnitude better AUC scores than CRP and PCT. At 48 hours after admission, CRP AUC scores improved drastically, reaching AUC scores comparable with YKL-40 and IL-6, with all of the biomarkers having AUC scores in range of moderately good predictors. IL-6 had the best AUC scores overall in both groups.

	On admission (AUC [95%CI])	48 hours after admission (AUC [95%CI])	Mann-Whitney U between measurements *P*
CRP	0.55 [0.25-0.83]	0.82 [0.61-1.0]	<<0.05
PCT	0.57 [0.03-0.89]	0.61 [0.12-0.97]	0.06
YKL-40	0.70 [0.38-0.86]	0.81 [0.51- 0.97]	<<0.05
IL-6	0.8 [0.6-0.96]	0.85 [0.63-1.0]	<<0.05
Kruskall wallis test *P*	<<0.05	<<0.05	

Table 1.

Conclusion: Results demonstrated that IL-6 on admission and YKL-40 (alongside CRP) 48 hours after admission may be good early predictors for PFCs and the need for future invasive treatments, but due to small sample size and low study power further measurements are needed to confirm these preliminary results.

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Disclosure: Nothing to disclose.

PP1530

NOVEL SUBPHENOTYPES OF SEVERE ACUTE PANCREATITIS USING TRAJECTORIES OF MULTIPLE ORGAN FAILURE

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Introduction: Patients with severe acute pancreatitis (SAP) had different types and duration of organ failure (OF), which was not taken into account in the current classifications. There is a lack of research on early progression patterns of multiple OF to further develop clinical subphenotypes of SAP.

Aims & Methods: This study aimed to develop and validate potential subphenotypes of SAP based on multiple OF trajectories. Patients with SAP admitted to Jinling Hospital between 2012-2016 (development) and patients with predicted SAP participating in a randomized controlled trial (the TRACE trial, NCT02473406) between 2017-2020 (validation)were included. A group-based multi-trajectory model was performed to identify subphenotypes using consecutive OF data assessed by the sequential organ failure assessment (SOFA) score. The worst SOFA sub-scores (respiration, renal and cardiovascular) for every 3 days during the first 15 days of hospital admission/enrollment were used to develop trajectories. The primary outcome was infected pancreatic necrosis (IPN) at 90 days. The association between subphenotypes and outcomes were evaluated in the two cohorts. The heterogeneity of treatment effects for immune enhancement was investigated in the validation cohort.

Results: There were 258 SAP patients in the development cohort and 504 predicted SAP patients in the validation cohort, with respiratory failure (79.8%) being the most common OF type. Four subphenotypes were identified in development cohort, Rapidly Improving (RI, n=41, 15.9%) presented with rapidly improved respiratory failure. Single Delayed Improving (SDI, n=98, 38%) had delayed improvement in respiratory failure without renal and cardiovascular failure. Multiple Delayed Improving (MDI, n=55, 21.3%) was characterized by delayed improvement in both respiratory and renal failure but no cardiovascular failure. Persistent Worsening (PW, n=64, 24.8%) was persistent respiration, renal and cardiovascular failure. The incidence of 90-day IPN for the subphenotypes in development cohort was 5% for RI, 31% SDI, 42% MDI, and 72% PW, which were replicated in the validation cohort ($p<0.01$).

In multivariate Cox model of the validation cohort, SDI, MDI and PW were associated with an increased risk of 90-day IPN in reference of RI ($p<0.05$). Subphenotypes significantly modified treatment efficacy ($p=0.048$), the incidence of IPN was lower in SDI using thymosin alpha 1 compared to placebo (HR 0.62, 95%CI 0.39 to 0.99, $p=0.049$).

Conclusion: Four novel multiple OF trajectory-based subphenotypes for SAP patients associated with IPN risk stratification were identified. The heterogeneous immune-enhancing treatment effects among subpheonotypes could contribute to individualized management.

Disclosure: The authors declare that they have no competing interests.

PP1531

SIX-FOLD INCREASED RISK OF ACUTE PANCREATITIS IN ALCOHOL RELATED LIVER DISEASE COMPARED TO MATCHED CONTROLS: A NATIONWIDE POPULATION-BASED COHORT STUDY

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Introduction: Excessive alcohol consumption is a significant global health concern. Alcohol-related liver disease (ALD) and pancreatitis are two common digestive diseases caused by alcohol. The coexistence of ALD with acute or chronic pancreatitis is common, but with wide prevalence estimates of pancreatitis ranging from 1.4% to 70% in alcohol-related cirrhosis. Due to high variability, a better understanding of the overlap between these diseases is necessary.

This nationwide study aims to estimate the incidence of acute pancreatitis (AP) in patients with ALD compared to the general population and identify risk factors for developing AP.

Aims & Methods: This was a nationwide population-based cohort study using data from the Swedish National Patient Register on 37,062 patients with ALD from 1969 to 2020. Patients were matched for sex, age, and municipality with 352,931 reference individuals from the general population. The diagnosis of AP and mortality data were derived from the National Patient Register and the Cause of Death Register, respectively.

Logistic regression was employed to estimate the risk of ever having pancreatitis (either acute or chronic) at or prior to ALD diagnosis, and Cox regression was used to estimate rates for hospitalization related to AP after ALD diagnosis.

Results: A total of 389,993 persons were included in the study (median age at entry, interquartile range [IQR], 59 [56–67]; 72.1% male). Of patients with ALD, 7% have experienced at least one episode of pancreatitis before being diagnosed with ALD, which corresponded to 9-fold higher odds of pancreatitis (either acute or chronic) in ALD than in controls. During follow-up, 1,049 patients with ALD developed AP (4.3/1000 person-years) compared with 3,979 reference individuals (0.8/1000 person-years). The 10-year cumulative incidence of AP was 2.7% (95%CI=2.5–2.8) for patients with ALD and 0.6% [95%CI=0.58–0.63) for reference individuals.

This corresponded to an adjusted HR of 6.3 (95%CI=5.8–6.9). The rate of AP was highest within the first year after ALD diagnosis (aHR 13.0, 95%CI=10.6–15.9) and was thereafter decreasing during follow up, but was always higher than in reference individuals, e.g., after 10 years (aHR 3.1, 95%CI=2.5–3.8). After excluding patients with gallstone related AP, the results did not change materially.

Overall mortality was 74.7% in ALD comparing to 43.1% in the general population. Younger age, male sex, history of alcohol and tobacco consumption were independent risk factors for developing AP in ALD. In particular, drinking after ALD diagnosis was strongly associated with risk of future AP (aHR 8.6, 95%CI=6.7–11.2).

Conclusion: ALD diagnosis is associated with 9-fold increased odds of prior history of pancreatitis compared to the general population. The rate of AP following a diagnosis of ALD is 6-fold higher than in the general popula-

tion, however only around 2.7% of patients with ALD develop AP within ten years. We identified possible risk factors that could be of clinical interest when trying to estimate AP risk in patients with ALD.

Disclosure: Nothing to disclose.

PP1532

ENDOSCOPIC ULTRASOUND IN ACUTE PANCREATITIS: CAN WE REDUCE RECURRENCE?

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Introduction: Acute pancreatitis (AP) is a common cause of acute hospital admissions, with the potential for severe acute complications, progression to chronic pancreatitis and recurrent episodes. A first presentation leads to investigations to identify a cause, including serum blood tests and transabdominal ultrasound.

Following these investigations, a significant minority of patients have no clear cause for pancreatitis. Endoscopic ultrasonography (EUS) can identify aetiologies of AP, and direct intervention to reduce recurrence.

The goal of this study was to determine the diagnostic yield of EUS and the impact of subsequent biliary intervention on recurrence of AP.

Aims & Methods: This was a retrospective service evaluation of EUS referrals to a regional referral centre in the UK from January 2015 to December 2019. Demographics, symptoms, liver blood tests, non-invasive imaging, EUS records and outcomes were reviewed. A EUS was labelled as diagnostic if findings were identified which explained the cause for pancreatitis that had not been explained with other investigations.

Symptom resolution was defined as no further episodes of acute pancreatitis or abdominal pain requiring investigation, imaging, or presentation to secondary care during the follow-up period. Statistical significance for the difference between proportions was calculated using chi-squared tests.

Results: Ninety-seven patients were included in the study. The median age of the cohort was 58 (range 18-88) years. 55 (57%) patients were male. 22/97 (23%) patients had previously had a cholecystectomy. 41/97 (42%) had abnormal liver blood tests at the time of referral. Three patients had no non-invasive imaging. 27/97 (28%) had one of either transabdominal ultrasound, MRCP or CT, 63/97 (65%) had two tests and 4/97 (4%) had all three. 5 (5%) patients previously had a non-diagnostic EUS.

72/97 (74%) EUS were diagnostic. Findings included gallstones (n=15), gallbladder microlithiasis/sludge (n=51), bile duct stones (n=13), bile duct microlithiasis/sludge (n=11), chronic pancreatitis (n=7) and a pancreatic mass (n=1) which was later diagnosed as a pancreatic adenocarcinoma.

65 patients had a biliary aetiology for their pancreatitis which was amenable to treatment. Of these, 12 had subsequent ERCP, 7 had ERCP and cholecystectomy, 33 had a cholecystectomy and 13 were treated conservatively. Recurrent pancreatitis occurred in 12/52 (23%) patients who had treatment for a biliary aetiology of their pancreatitis compared with 8/13 (75%; p<0.01) of patients who were managed conservatively despite a biliary aetiology for pancreatitis, 8/32 (25%; p=0.84) of patients with a diagnostic EUS with a finding not amenable to treatment or a non-diagnostic EUS experienced further episodes.

One patient died from complications related to acute pancreatitis and was not included in this analysis. Median duration of follow-up was 51 months (range 32-80 months).

Conclusion: In our cohort of patients referred for EUS for unexplained acute pancreatitis, EUS had a high diagnostic yield. A lower proportion of patients had a biliary aetiology for their pancreatitis that was amenable to intervention with either ERCP, cholecystectomy or both procedures; these patients experienced fewer episodes of recurrent acute pancreatitis than those managed conservatively. This supports the use of EUS in patients with acute pancreatitis with no cause identified with non-invasive imaging.

Disclosure: Nothing to disclose.

PP1533

HOW USEFUL ARE THE ESGE AND ASGE GUIDELINES FOR ESTIMATING COMMON BILE DUCT STONES IN ACUTE BILIARY PANCREATITIS PATIENTS?

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Introduction: In cases of acute biliary pancreatitis, ERCP is typically used to treat choledocholithiasis. There is currently no consensus on the indications and timing of ERCP in the treatment of acute biliary pancreatitis (1). The classification of patients based on their risk groups is a key aspect of the guidelines published by American and European associations for assessing the indications for ERCP in patients with gallbladder stones and identifying those who require further investigation (2,3).

Aims & Methods: This study aims to determine how well ASGE and ESGE guidelines predict choledocholithiasis among patients who have been hospitalized with a diagnosis of biliary pancreatitis. The demographic, clinical, and laboratory parameters of cases admitted with a diagnosis of acute biliary pancreatitis between January 2014 and December 2018 at the Gastroenterology Clinic of Sakarya University Education and Research Hospital were retrospectively examined in our study.

The patient groups that underwent ERCP and those that did not were compared in terms of the criteria included in ESGE and ASGE among these patients.

Results: The data of 1538 patients was analyzed in the study. According to the ASGE and ESGE criteria, the specificity of indicating the presence of choledocholithiasis was 96% and 97.5%, respectively, and the positive predictive value (PPV) of ESGE was slightly higher than that of ASGE (83.9% and 79.5%, respectively). Adding the criteria of T. bilirubin >4 mg/dl and choledochal dilatation in ultrasonography (USG) to the ASGE criteria increased the specificity to >99% and was identified as the criterion with the highest positive likelihood ratio (LR+) (22.26). The specificity of the moderate probability of presence according to the ASGE and ESGE criteria was around 40%.

However, the presence of abnormal liver function tests (LFT) and choledochal dilatation together in the moderate probability criteria doubled the specificity in both ASGE and ESGE (98.6% and 95.4%, respectively).

Conclusion: In conclusion, it was determined that the use of high-probability ASGE and ESGE criteria is helpful for selecting appropriate patients for elective ERCP in patients with biliary pancreatitis. Especially, the presence of bilirubin and/or an elevated LFT in addition to choledochal dilatation detected by USG has a high predictive value for choledocholithiasis.

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Disclosure: Nothing to disclose.

PP1534

EARLY PREDICTION MODELS FOR ESTIMATING THE NEED FOR INTERVENTION AND MORTALITY OF ACUTE PANCREATITIS: A MULTICENTER COHORT STUDY

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Introduction: The incidence of acute pancreatitis (AP) has been steadily increasing worldwide and the burden of disease can become greater if severe late phase complications occur. However, there is currently no prediction tool available in early phase for this specific clinical situation. We aimed to establish a prediction model with early phase parameters to estimate the need for intervention and late phase mortality.
Aims & Methods: We selected patients from a retrospectively collected AP cohort of five university hospitals that contained data of patient with AP from 2010 to 2022. The endpoint was defined as late phase pancreatitis-related mortality or endoscopic, percutaneous, vascular, or surgical intervention for complications within six months after admission. We randomly split the cohort into development and validation sets with a ratio of 7:3. The model was developed by logistic regression, and the diagnostic performance was analyzed using area under the curve (AUC).
Results: We identified 2,497 patients with AP (1,748 in the training set; 749 in the validation set) with a total endpoint rate of 3.1%. Two models were established using four variables at admission (Systemic Inflammatory Response Syndrome, organ failure, calcium <8.5 mg/dL, albumin <3.45 g/dL) and four variables after 48 hours of admission (Fever, organ failure, CRP ≥200 mg/L, CT Severity Index (CTSI) ≥5). Model #1 consists of variables at admission only, and Model #2 consists of all eight admission and 48hr variables. Model #2 had an AUC of 0.835 and 0.790 in the development and validation set, respectively. Model #2 showed significantly higher AUC to predict late-phase severe complications compared to Model #1 and other systems such as Ranson's criteria, BISAP score, and CTSI. Using two established models sequentially, patients can be classified into four groups with different rates of late phase severe complications (15.2% vs. 9.5% vs. 2.8% vs. 0.9%; P<.001).
Conclusion: We developed a set of early prediction models to predict the likelihood of eventual mortality or intervention in the late phase of AP within 6 months. These models can stratify the long-term prognosis of AP and help with appropriate allocation of medical resources for intensive care and interventional procedures.
Disclosure: Nothing to disclose.

PP1535

THE NATURAL COURSE OF ASYMPTOMATIC PANCREATIC WALLED-OFF NECROSIS

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Introduction: Walled-off necrosis (WON) may develop in the long-term follow-up after acute pancreatitis due to acute inflammation of the pancreas. It can be managed through endoscopic, percutaneous, or surgical drainage, depending on its clinical condition. The methodology is a topic of debate due to the scarcity of data regarding the progression of asymptomatic WON in patients (1).
Aims & Methods: The aim of this study is to determine the course of asymptomatic individuals who have developed walled-off necrosis (WON) following to an episode of acute pancreatitis over a long time of observation. A retrospective evaluation was conducted on 46 (3.9%) out of 1173 patients diagnosed with acute pancreatitis between June 2016 and December 2019, who developed WON during the follow-up period. Individuals who exhibited symptoms either at the point of diagnosis or during subsequent monitoring had been determined. An analysis was made between the clinical and WON characteristics at baseline of patients who required drainage during follow-up and those who did not.
Results: Out of the total of 46 patients who developed WON, 4 individuals were excluded due to inadequate follow-up data, 9 patients underwent drainage at the time of diagnosis, and 2 patients lost without receiving any form of drainage intervention. During the course of the study, a total of 31 patients were followed up for a mean duration of 25.20±17.40 months. Out of these patients, 10 (32.3%) required interventional intervention within a mean duration of 122.5±152.5 days (Group 1), while the remaining 21 patients (67.7%) were monitored without any intervention.
Embolization was executed on a single patient owing to the presence of a splenic artery aneurysm identified in WON, however, drainage was not carried out. Endoscopic drainage was employed in five patients, percutaneous drainage in three patients, and surgical drainage in one patient. The prevalence of biliary etiology was found to be significantly higher in Group 1 compared to Group 2 (90.0% vs 47.6%, p<0.050).
The study revealed that the Intra-WON necrosis rate and initial WON size were significantly higher in patients who required drainage at follow-up. The Intra-WON necrosis rate was 68.50±28.50% compared to 38.10±26.90% in the non-drainage group (p<0.05).
Similarly, the initial WON size was 125.90±46.60 mm in the drainage group compared to 89.30±45.00 mm in the non-drainage group (p<0.05).
Conclusion: Asymptomatic patients with walled-off necrosis (WON) ought to be managed conservatively through careful ongoing monitoring. It is recommended that the results obtained be validated through extensive longitudinal research.
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Disclosure: Nothing to disclose.

PP1536 WITHDRAWN

PP1537

DISCONNECTED PANCREATIC DUCT SYNDROME IN ACUTE NECROTISING PANCREATITIS AND OUTCOMES OF ENDOSCOPIC ULTRASOUND-GUIDED INTERVENTIONS: A DECADE'S EXPERIENCE FROM A TERTIARY CENTRE

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Introduction: Surgery has been the conventional treatment for symptomatic Disconnected pancreatic duct syndrome (DPDS). The advent of therapeutic endoscopic ultrasound (EUS) has brought a paradigm shift in endoscopic management of DPDS. However, data on long-term outcomes of various interventions especially endoscopic interventions in DPDS is lacking.

Aims & Methods: A prospectively maintained database of patients with acute necrotizing pancreatitis (ANP) having DPDS and undergoing endoscopic interventions over the last ten years was analyzed. All included patients had proven duct disruption documented either on Magnetic resonance cholangiopancreatography or endoscopic retrograde cholangiopancreatography. Patient demographics, etiology of pancreatitis, extent of pancreatic necrosis, site of duct disruption, details of interventions and their outcome along with long-term follow-up data were analyzed.

Results: 68 patients with DPDS (mean age: 38 ± 8.16 years, male to female ratio: 5.8) were included. Alcohol was the commonest etiology of ANP [45/68 (66.2%)]. The site of duct disruption was neck in 23 (33.8%), body in 43 (63.2%) and tail in 2 (2.9%) patients. 42 (61.76%) patients had >30% parenchymal necrosis on imaging at day 5 of onset of ANP. 53 (77.94%) patients with DPDS had an external pancreatic fistula (EPF) consequent to percutaneous drainage while 3 (4.41%) developed EPF post-surgery.

Other presentations included recurrent pancreatic fluid collection(PFC) following successful transmural drainage of walled off necrosis in 5 (7.3%) patients and percutaneous drainage in 1 patient (1.4%) respectively and recurrent pain/pancreatitis in 6 (8.8%) patients. EPF healed by medical therapy including subcutaneous Octreotide in 23 (33.8%) patients whereas EUS-guided transmural drainage (ETD) of fistula tract/coexistent fluid collection resulted in successful closure of EPF in 25 (36.8%) patients. Surgical closure of EPF was done in 8 (11.8%) patients. Recurrent PFCs (n=6) were successfully managed by ETD and permanent indwelling transmural plastic stents.

Patients with recurrent pain were successfully managed with EUS-guided pancreatic duct drainage of the disconnected segment followed by regular stent exchange. Over a mean follow-up period of 54.43 ± 29.46 months, 3 patients developed recurrent PFC that was successfully managed with ETD. All these 3 patients had initially presented with EPF (2 managed conservatively and 1 surgically). None of the patients treated endoscopically had recurrent pain/PFC. 18 (26.5%) patients developed diabetes mellitus (DM) with 14 patients requiring insulin.

Conclusion: DPDS results in a prolonged and complicated clinical course in patients with AP. EUS-guided interventions seem to be safe and effective for the management of various clinical consequences of DPDS. Despite successful drainage of the disconnected segment, one-third of patients develop DM.

Disclosure: Nothing to disclose.

PP1538

THE RISK FACTORS OF ACUTE PANCREATITIS PROGRESSION INTO RECURRENT ACUTE PANCREATITIS AND CHRONIC PANCREATITIS. A SYSTEMATIC REVIEW AND META – ANALYSIS

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Introduction: Acute pancreatitis (AP) can progress to recurrent acute pancreatitis (RAP) or chronic pancreatitis (CP).

Aims & Methods: This systematic review and meta-analysis aimed to identify risk factors associated with this progression. The protocol was registered on PROSPERO (CRD42022368931). A comprehensive search was conducted in three (Medline, Embase, Cochrane) databases on October 25th, 2022. Articles reporting and risk factors associated with AP progression into RAP or CP were included. Pooled odds ratios (OR) with 95% confidence intervals (CI) were calculated using the random effects model. Heterogeneity was evaluated using the I^2 statistic. The risk of bias assessment was performed using the Quality in Prognostic Studies (QUIPS) tool.

Results: A total of 71 articles were included in the meta–analysis, and several risk factors were identified for the progression of AP into RAP and CP. We found the following risk factors of AP recurrence: younger age, male gender, smoking, alcoholic etiology, hypertriglyceridemia, diabetes mellitus, pseudocyst, etc. The pooled OR for the male gender was 1.45 (95% CI: 1.29-1.64, I^2=24%), for smoking was 1.45 (95% CI: 1.16-1.81, I^2=62%), for alcoholic etiology was 1.76 (95% CI: 1.38-2.25, I^2=81%), for hypertriglyceridemia was 2.45 (95% CI: 2.07-2.90, I^2=9%), for diabetes mellitus was 1.49 (95% CI: 1.24-1.80, I^2=0%), for pseudocyst was 2.19 (95% CI: 1.52-3.15, I^2=0%). We also found risk factors of RAP progression into CP. The risk of bias was moderate in the majority of the included studies.

Conclusion: Our study identified multiple modifiable risk factors which can be treated to prevent the progression of pancreatitis.

Disclosure: Nothing to disclose.

PP1539

ROLE OF UNKNOWN SIGNIFICANCE (VUS) AND NON-DISEASE-CAUSING (NDC) CFTR GENE MUTATIONS IN THE PATHOGENESIS OF ACUTE PANCREATITIS

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Introduction: Acute pancreatitis (AP) can be associated with CFTR gene mutations. Several mutations have been described and classified based on the type of protein changes. The CFTR-France database classifies variants in disease-causing (DC), variants of unknown significance (VUS) and no-disease-causing (NDC), according to their clinical consequences. The role of VUS and NDC mutations in AP patients was not clearly defined.

Aims & Methods: The aim of this study is to determine the role of VUS and NDC mutations in patients suffering from AP. We enrolled retrospectively patients with AP observed in our Centre between 2013 and 2020 and tested for CFTR gene mutations. Patients were divided in CFTR wild type, DC, VUS and NDC. We evaluated epidemiological, clinical, and instrumental characteristics at the disease onset and the clinical outcome in terms of progression to chronic pancreatitis, onset of pancreatic calcifications, development of exocrine and endocrine pancreatic insufficiency.

Results: We tested 322 patients (199 males and 123 females, age at onset 35.4±15.8 years). We compared 99 patients with CFTR mutations (65 males and 34 females, age at onset 29±13 years) with 223 wild type patients (134 males and 89 females, age at onset 38.2±15.7 years), showing significant differences in terms of age at onset, BMI, smoking and drinking habits, chronic pancreatitis, and pancreatic calcifications at the onset of the disease. The clinical course of the wild type patients was characterized by an earlier progression to chronic pancreatitis, onset of calcifications and exocrine pancreatic insufficiency. VUS and DC patients had a similar clinical outcome of the disease. NDC group was excluded from the analysis due to the low number of patients.

Conclusion: Patients carrying VUS mutations of the CFTR gene have a clinical outcome similar to patients carrying DC mutations.

Disclosure: Nothing to disclose.

PP1540

FROM ONSET TO RESOLUTION: THE NATURAL HISTORY OF PANCREATIC FLUID COLLECTIONS IN ACUTE PANCREATITIS

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Introduction: Pancreatic fluid collections (PFCs) resulting from acute pancreatitis (AP) that are persistently symptomatic can be associated with infections and mass effect.

Aims & Methods: Aim: The aim of the study was to evaluate the clinical characteristics and natural history of PFCs in AP.

Methods: In this study, we recruited a total of 378 patients includes 253 (66.93%) prospective hospitalized patients and 125 (33.06%) retrospective patients who had presented with documented AP at the Pancreas Clinic. In this abstract, we present prospective data. Patients underwent a thorough demographic and clinical history. We also recorded data on PFC morphology, presence of venous thrombosis, the need for interventions and outcomes of PFCs at baseline and each follow-up visit. Continuous data were expressed in median with interquartile range (IQR) and categorical data as proportions.

Results: A total of 253 prospective hospitalized patients were included with median (interquartile range, IQR) age in years of 34.56 (27–43) and a higher prevalence of males 217 (81.5%) than females 36 (14.2%) were observed. The most common etiology was idiopathic 71 (28.1%) followed by alcohol 70 (27.7%), alcohol with smoking 5 (2.0%) and cholelithiasis 37 (14.6%). Most patients had moderately severe and severe AP were 214 (84.6%) and 39 (15.4%) respectively with the index episode observed in 175 (69.2%), recurrent in 75 (29.6%) and acute on chronic in 3 (1.2%). The most common type of fluid collection was acute necrotic collection 230 (90.9%) followed by walled-off necrosis 20 (7.9%), pseudocyst 4 (6.2%) and acute peripancreatic fluid collection 3 (1.2%).

In terms of fluid collection, During the first three months, the volume and maximum size were 83.60 (26.3–383.20) cubic centimeters (cc) and 8.90 (5.47–12.42) diameter, respectively. Venous thrombosis was the most common complication in 172 (68%) patients and was observed in the retropancreatic splenic vein in 38 (15.2%). 18 (14.4%) patients required interventions in the first 3 months, while 14 (11.2%) in the next 3 months. Venous thrombosis developed in 15 (5.9%) additional patients during the next 3 months. The most common intervention was EUS-guided cystogastrostomy (CG) with SEMS or plastic placement in 49 (19.6%) in the first 3 months, followed by PCD alone in 29 (11.5%), PCD followed by EUS drainage in 16 (6.4%), and combined procedures in 15 (6%). Complete resolution was observed in 52 (20.6%) patients among those who did not undergo intervention within the first three months, while a reduction and increase in size were seen in 60 (23.7%) and 65 (25.7%) patients respectively. Among the patients who did not undergo intervention between third and sixth months, complete resolution was observed in 72 (28.5%) patients, while a decrease and increase in size were seen in 31 (12.3%) and 26 (10.3%) patients respectively. Among the patients who underwent interventions during the first and next 3 months, PFC relapse and increase in size were observed in 8.90 (5.47–12.42) and 4.4 (0.0–10.9) of the patients who underwent interventions in the first and following three months, respectively. The mortality rate was observed in 21 (8.4%) patients.

Conclusion: 75% of PFCs undergo spontaneous resolution within 6 months, while most relapses and venous thrombosis occur within the first 3 months. These findings highlight the importance of closely monitoring patients during the early stages of PFC development, as this period may present a heightened risk for complications that require medical intervention.

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Disclosure: Nothing to disclose.

PP1541

A MACHINE-LEARNING BASED DECISION TOOL SELECTING PATIENTS WITH IDIOPATHIC ACUTE PANCREATITIS FOR ENDOSONOGRAPHY TO EXCLUDE A BILIARY ETIOLOGY

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Introduction: Etiology of acute pancreatitis can be established in the majority of patients. However, in 25 % of cases it remains elusive. Biliary microlithiasis/sludge is detected in up to 75% of patients with idiopathic acute pancreatitis (IAP). As recurrent biliary pancreatitis can be prevented, the underlying etiology of IAP should be established. The aim of this multicentre retrospective study was to develop a machine learning-aided non-invasive prediction tool to guide clinicians in the selection of idiopathic acute pancreatitis patients to be referred to endosonography to establish etiology and allow treatment.

Aims & Methods: We retrospectively used routinely recorded clinical and laboratory parameters of 218 consecutive patients with confirmed acute pancreatitis admitted to our tertiary care hospital between 2015 and 2020. Patients who did not receive endosonography as part of the diagnostic work-up and whose pancreatitis episode could be adequately explained by other causes than biliary sludge and microlithiasis were excluded. We trained supervised machine learning classifiers using H2O.ai automatically selecting the best suitable predictor model to predict microlithiasis/sludge. The predictor model was validated in two independent retrospective cohorts from two tertiary care centers (TU Munich & University Medical Center Göttingen).

Results: 28 categorized patients' variables recorded at admission were identified to compute the predictor model with an accuracy of 0.84 [95% CI 0.791, 0.9185], positive predictive value of 0.84 and negative predictive value 0.80 in the identification cohort (218 patients). In the validation cohort, the robustness of the prediction model was confirmed with an accuracy of 0.76 [95% CI 0.673, 0.8347], positive predictive value of 0.76 and negative predictive value of 0.78 (117 patients).

Conclusion: We present a robust and validated machine learning-based predictor model consisting of routinely recorded lab work at admission that can predict biliary sludge and microlithiasis as cause of acute pancreatitis and select patients for EUS.

Disclosure: Nothing to disclose.

PP1542

SLUDGE AND MICROLITHIASIS WITH COMPARABLE CLINICAL OUTCOME COMPARED WITH GALLSTONE-INDUCED ACUTE BILIARY PANCREATITIS

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Introduction: Microlithiasis and sludge have been considered the largest aetiological drivers within the cohort of idiopathic acute pancreatitis for decades. Subsuming microlithiasis and sludge-induced pancreatitis patients into the idiopathic or gallstone-induced pancreatitis cohorts has so far made adequate risk assessment regarding pancreatitis outcome impossible. It is therefore still unclear whether different therapeutic approaches are needed for microlithiasis and sludge than for gallstone-induced pancreatitis.

Aims & Methods: 348 patients with acute biliary pancreatitis treated at a high-volume pancreas centre from 2005 to 2021 were stratified into a total of 7 concrement groups using the new consensus definition for microlithiasis and sludge. The gallstone-pancreatitis cohort was compared with the microlithiasis and sludge cohort and all possible combination concrement groups with regard to pancreatitis disease progression (cholestasis pattern, EUS/ERCP results).

Results: Microlithiasis and sludge-induced pancreatitis as well as combination concrement groups classified according to the revised Atlanta classification did not show a milder course than gallstone-induced pancreatitis (p = 0.63). Microlithiasis (3.6 mg/dl; mean) and sludge (2.6 mg/dl; mean) showed an increase in bilirubin on the day of admission to hospital due to pancreatitis, which was not significantly different from gallstone-induced pancreatitis (3.5 mg/dl mean, normal range < 1.2 mg/dl; p = 0.067). The highest EUS concrement detection and ERCP concrement extraction rate occurred on the day of admission and day 1, respectively. EUS detection rate (day 1): Gallstone AP 44.82 % (n = 13/29), Microlithiasis AP 46 % (n= 7/15), Sludge AP 40.7 % (n = 11/27), p = 0.98; ERCP extraction rate (admission day): Gallstone AP 39.1 % (n = 18/46), Microlithiasis AP 25 % (n = 5/20),Sludge AP 38.8 % (n = 7/18); p = 0.49).

Conclusion: Microlithiasis and sludge achieve a gallstone-equivalent cholestasis pattern and also do not differ in pancreatitis outcome from gallstone-induced acute biliary pancreatitis. In the case of EUS detection of microlithiasis and sludge in the early phase of acute pancreatitis, the concrement should be considered as a trigger rather than a cause of pancreatitis (unless another aetiology can be detected).

Disclosure: Nothing to disclose.

PP1543

RISK FACTORS FOR DIABETES MELLITUS AFTER ACUTE PANCREATITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Within five years of having acute pancreatitis (AP), three in five people develop prediabetes (PD) or diabetes mellitus (DM). However, information on risk factors is limited.

Aims & Methods: We aimed to identify risk factors for developing PD or DM following AP. We systematically searched three databases up to 2021.11.18 extracting direct, within-study comparisons of risk factors on the rate of new-onset PD, DM or PD/DM in AP patients. Meta-analysis was performed using the random-effects model to calculate pooled odds ratios (OR) with 95% confidence intervals (CI).

Results: Of the 45 studies identified, 36 were included in the meta-analysis, covering 71,367 participants. The odds of developing DM was significantly higher after severe AP (OR: 2.65; CI: 1.23-5.71) than non-severe, alcoholic AP (OR: 1.95; CI: 1.03-3.67) compared to other aetiologies and if pseudocysts developed (OR: 2.50; CI: 1.00-6.28) versus their absence. The odds of developing PD/DM was significantly higher after severe AP (OR: 3.16; CI: 1.13-8.83) than non-severe, severe and moderate AP (OR: 4.66; CI: 2.24-9.68) versus mild and presence of necrosis (OR: 5.53; CI: 1.59-19.21) versus its absence. Compared to other aetiologies there was a tendency for PD/DM development in hypertriglyceridaemic AP (OR: 3.27; CI: 0.84-12.67) and significantly lower odds of developing DM (OR: 0.61; CI: 0.44-0.85) and PD/DM (OR: 0.72; CI: 0.55-0.94) with idiopathic and biliary aetiology, respectively.

Conclusion: Severe and moderately severe AP, local complications, alcoholic and hypertriglyceridaemic aetiologies may be linked to a higher odds of developing PD or DM.

Disclosure: No conflict of interest.

PP1544

TIME DEPENDENCY AND RISK FACTORS OF SPLANCHNIC VEIN THROMBOSIS DEVELOPMENT IN THE EARLY PHASE OF ACUTE PANCREATITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Splanchnic vein thrombosis (SVT) is a local complication of acute pancreatitis (AP) that may lead to subsequent complications such as portal hypertension, gastrointestinal bleeding, and mesenteric ischemia.[1,2] Despite its clinical significance, there is limited data in the literature concerning the temporal development and associated risk factors of SVT.

Aims & Methods: Our aim was to understand the time course and risk factors of SVT in the early phase of AP. To identify relevant studies we conducted a systematic search across four major medical databases (Embase, MEDLINE via PubMed, Scopus, and Cochrane Central Register of Controlled Trials) on 27th of October 2022. We included studies that employed appropriate imaging techniques in adult patients with AP, reported SVT data from the early phase of AP, and provided reliable information about the timing of imaging relative to AP symptom onset or hospital admission. We excluded studies that reported data on patients with a recent history of malignant disease or recent surgical procedures. We calculated the proportion of patients affected by SVT with 95% confidence intervals (CI). We conducted subgroup analyses based on diagnostic timing and disease characteristics. To assess the risk of bias we used the Joanna Briggs Institute Critical Appraisal Checklist for Prevalence Studies and the GRADEpro tool to determine the level of evidence. The protocol for this method was registered prospectively in the PROSPERO database, with registration number CRD42022367578.

Results: Data from 14 eligible studies and 1,951 patients was pooled; the proportion of patients with SVT in the early phase of AP (within 11 days after symptom onset or 5 days after hospital admission) was 0.13 (CI 0.07-0.23). The occurrence was lowest 0-3 days after symptom onset at 0.06 (CI 0.03-0.1), it increased to 0.23 (CI 0.16-0.31) between 3-11 days. Disease factors influencing SVT occurrence were severity (mild: 0.14 (CI 0.04-0.39), moderate: 0.23 (CI 0.09-0.47), severe: 0.31 (CI 0.15-0.54), p=0.21), etiology (alcoholic 0.31 (CI 0.13-0.58), biliary 0.12 (CI 0.04-0.3), p=0.03), and pancreatic necrosis (absent 0.10 (CI 0.04-0.25), under 30% 0.25 (CI 0.1-0.5), over 30% 0.55 (CI 0.29-0.78), p= 0.01).

Conclusion: One in eight patients develops SVT in the early phase of AP. Alcoholic etiology and pancreatic necrosis increase the risk of SVT. In addition, this risk seems to increase with the duration of AP; therefore, looking for and diagnosing SVT with imaging is important in the management of AP.

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Disclosure: Nothing to disclose.

PP1545 WITHDRAWN

PP1546

NEUTROPHIL-LYMPHOCYTE RATIO (NLR) AS PROGNOSTIC MARKER IN ASSESSING ACUTE PANCREATITIS OUTCOME

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Introduction: Acute pancreatitis is one of the most common cause of emergency hospital admissions in India. The neutrophil–lymphocyte ratio (NLR), calculated from the white cell differential count, provides a rapid indication of the extent of an inflammatory process and helpful categorizing the patients.
Aims & Methods: To determine an optimal ratio of NLR for severity prediction.
Prospective cross-sectional study was done in department of gastroenterology, Kurnool medical college in 100 consecutive acute pancreatitis (according revised Atlanta criteria) patients visiting gastroenterology OPD. Blood samples were collected immediately on admission and end of 48 hours. Relevant radiological investigations were done.
Results: Alcohol etiology was common cause of pancreatitis.
The mean NLR on admission in Mild group was 6.2±1.2 and the moderate group was 9.1± 1.6. The mean NLR of severe group was 13.6±2.5. The differences between the severity were statistically significant (P <0.001).
The mean NLR at end of 48 hours in Mild was 4.7± 0.7, The moderate group was 8.3± 1.2 and the mean NLR of severe group was 14.8±1.6. The differences between the severity were statistically very highly significant (P <0.001).
Conclusion: NLR can be done at the time of admission and can be serially monitored which can act as a guide to detect those patients progressing to severe pancreatitis.
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Disclosure: Nothing to disclose.

PP1547

PREDICTION OF DEVELOPING RISK FOR POSTENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY PANCREATITIS BY MEASURING PANCREATIC VOLUME AND INTRAPANCREATIC FAT CONTENT USING PRE-EXAMINATION CT IMAGES

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Introduction: Acute pancreatitis is the most common and serious complication of endoscopic retrograde cholangiopancreatography (ERCP). Risk factors for PEP are classified as patient-related and endoscopist- or technique- related factors. However, patient-related factors focused on the pancreatic volume and intrapancreatic fat content have not been investigated previously.
In this study, we used 3- dimensional (3D) volumetry, and histogram investigated the potential association of pancreatic head volume and fat content with the incidence of PEP.
Aims & Methods: We retrospectively analyzed 157 patients who underwent ERCP for diagnostic or therapeutic purposes.Pancreatic volume was measured by using contrast-enhanced images obtained by continuous 5.0-mm, 320-, 64-row detector CT before ERCP. Computed tomography scan images of precontrast and venous phase were used for evaluation. Pancreatic volume was determined by using 3D analysis software.
The pancreas was divided into the head and body/tail using the left edge of the superior mesenteric-portal vein confluence, and the volume of each part was calculated separately. Hounsfield unit histogram analysis (HUHA) was performed by using precontrast images. The percentage of HUHA ≤0 Hounsfield unit (HU) in pancreatic parenchyma represented the fat content. Multivariate analysis was performed to identify risk factors for PEP.
Results: PEP occurred in 35 patients (PEP group) and the incident rate was 22.3%. The mean volume of the whole pancreas was significantly larger in the PEP group (p<0.001). The mean volume of the pancreatic head was significantly larger in the PEP group (p<0.0001), but there were no significant differences in those of the pancreatic body and tail. Fat content of the pancreatic head was significantly higher in the PEP group (p<0.01), but there were no significant differences in fat content of the pancreatic body and tail. Multivariate analysis revealed that the pancreatic guidewire placement (hazard ratio [HR], 4.7; p < 0.01), the pancreatic head volume (HR, 7.1; p < 0.01), and fat content of the pancreatic head (HR, 5.1; p < 0.01) were independent risk factors for PEP.
Conclusion: The volume and fat content of the pancreatic head were independent predicting factors for PEP. Quantitative assessment of the pancreas using multislice CT imaging may contribute to the prediction of the onset of PEP.
Disclosure: Nothing to disclose.

PP1548

UPDATED MORBIDITY AND MORTALITY RATES OF ACUTE PANCREATITIS BASED ON DATA FROM THE FEDERAL STATISTICS OFFICE OF GERMANY

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Introduction: Incidence and mortality rates of acute pancreatitis (AP) vary and often rely on old surveys. Likewise, the type of organ failure and consequent interventions have only been reported in a few recent reports. [1-3] We thus compiled German-wide data on morbidity and mortality of AP using the Diagnosis-related group (DRG) coding system.

Aims & Methods: All German hospitals have to report DRG codes to the federal statistical office. We analysed this database of the years 2018 and 2019 for selected DRG Codes.[4] The derived information was classified as reliable, acceptable or prone to bias depending on the reported code (e.g. mandatory information or not).

Results: In 2018 and 2019 109.064 patients with the main diagnosis AP were treated in German hospitals. This corresponds to an incidence of 65.5/100.00 person-years. The median age was 57 (IQR 45-71), 60.8% were male and 22.0% had an acute on chronic pancreatitis. The median hospital stay was 6 days (IQR 4-10), while 5.2% were discharged within 1 day. According to the DRG codes, 7.3% suffered respiratory failure, 6.4% renal failure (acceptable information), 1.6% circulatory failure and 0.6% liver failure (information prone to bias). 1.3% of the patients received renal replacement therapy and 0.06% ECMO therapy. A pancreatic drainage was performed in 1.8 % of the patients. In 73% of these cases an internal drainage was applied. A necrosectomy was performed in 1.1% of the patients and 0.8% received therapy with Caspofungin (reliable information). In total, 3.5% of the patients were admitted to an intensive care unit , 3.6% were put on ventilation, and 3.1% on invasive ventilation. According to the revised Atlanta classification 86.8% of the patients had a mild pancreatitis while 13.2% suffered at least one coded organ failure or local complication (moderately severe and sever AP). Overall mortality was 2.4% (1.6/100.000 persons, reliable information). Patients with at least one coded organ failure or local complication suffered a mortality rate of 14.9 %, in patients that were either treated for local complications, ventilated or dialysed (5.5% of the patients, corresponding to a severe AP) the mortality rate was 24.9% (reliable information).

Conclusion: The incidence of AP is notably higher than previously reported and patients with systemic or local complications still suffer a substantial mortality. However, recent mortality rates in Germany appear to be on the lower side of the reported range.

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4. Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, DRG Statistik, own calculations. 2018-2019.

Disclosure: Nothing to disclose.

PP1549

LONG-TERM PLACEMENT OF A TRANSMURAL PLASTIC STENT AFTER ENDOSCOPIC ULTRASONOGRAPHY-GUIDED TREATMENT OF PANCREATIC FLUID COLLECTIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Recent advancement in endoscopic ultrasonography (EUS)-guided treatment has improved clinical outcomes of patients with pancreatic fluid collections (PFCs). However, there is still a debate on preventive effect of long-term placement of a transmural plastic stent (PS) on recurrence after successful resolution of PFC. We conducted a systematic review and meta-analysis evaluating PFC recurrence rates with and without a transmural PS after EUS-guided treatment.

Aims & Methods: We conducted a systematic literature search using PubMed, Web of Science, Embase, and the Cochrane database to identify clinical studies comparing outcomes with and without transmural PS published until September 2022. We pooled data on PFC recurrence and adverse events using the random-effects model.

Results: Seven studies (randomized controlled trial, 2; prospective study, 1; retrospective study, 4), including 333 patients with long-term transmural PS and 289 patients without PS, were identified. The rate of PFC recurrence was significantly lower in patients with transmural PS (pooled odds ratio [OR] 0.24, 95% confidence interval [CI] 0.06-0.95; P = 0.042). A similar trend was observed when analyzing three prospective studies (OR 0.14, 95% CI 0.02-0.85; P = 0.033). In a subgroup analysis limited to studies focusing on patients with disconnected pancreatic duct syndrome that has been reported to be a risk factor for PFC recurrence, the odds ratio was numerically lower than that for the entire cohort (OR 0.14, 95% CI 0.04-0.46). Adverse events associated with long-term transmural PS placement were reported in four studies. The rate of adverse events was 4.1%, whereas asymptomatic stent migration was observed in 22.3%. We conducted a meta-regression analysis, which suggested that the types of stents utilized for the initial EUS-guided drainage (lumen-apposing metal stent vs. PS) had no significant influence on the association between long-term transmural PS and PFC recurrence.

Conclusion: In this meta-analysis, long-term PS placement could reduce the risk of PFC recurrence. Given the potential adverse events of indwelling PS, such as stent obstruction or bleeding, our results should be confirmed in prospective comparative studies.

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PP1550

A 7-YEAR RETROSPECTIVE COHORT STUDY: EPIDEMIOLOGY, ETIOLOGY, SEVERITY AND COSTS OF ACUTE PANCREATITIS IN A ROMANIAN LARGE TERTIARY CENTER

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Introduction: Updated population-based studies on acute pancreatitis (AP) in Romania are lacking. Our aim was to evaluate the current data for AP in a tertiary center in Bucharest.

Aims & Methods: We performed an electronic health care records (EHRs) search ICD-10 codes: K85, B25.2, B26.3) for AP cases treated at University Emergency Hospital of Bucharest between 2015 and 2022. Aim of this study was to estimate the daily cost of AP and its probable correlation in regard to: type of case (gastroenterological or surgical), sex, age, ICU, outcome, etiology, severity, morphology (assessed as stated in Revised Atlanta Classsification (RAC). All costs reported in EUR by conversion from RON at the date of submission (28 april 2023).

Results: 1503 episodes of AP (942 gastroenterological, 561 surgical) in 1314 unique patients were analysed, data about costs being found in 1246 episodes. Median daily cost (MDC) estimated at 170.91. Higher MDC was related to surgical AP, F(1,1244)=7,05, p<0,01. The Kruskal-Wallis analysis showed significant diferences in regard to: severity H(2)=85,20, p<0,01 with the highest cost in severe AP (Md=229.23) and the lowest in mild AP (Md=162.26); outcome H(4)=105,22, p<0,01 the deceased having the highest MDC (Md=204.84) and the one healed the lowest (Md=118.57).

Significant differences H(6)=17,22, p<0,01 were found between Acute Necrotic Collection (Md=123.29) and Interstitial AP (Md=84.80) and between the biliary H(15)=203,96, p<0,01 (Md=139.34), hypertrigliceridemic (Md=97.45) and alchoolic etiology (Md=79.31). Pearson Correlation found a weak and unsignificant correlation with older age, r(1244)=0,25, p=0,373. No significant differences were found regarding sex, F(1,1244)=2,73, p=0,09, and admission in ICU F(1,1229)=1,46, p=0,23.

Conclusion: In this large retrospective study higher costs of AP correlate to hospitalization in surgical wards, severity, developement of local complications and biliary etiology. No correlations were found to age or ICU admission. Median daily cost (MDC) estimated at 170.91. This is the first report of AP related costs in Romania.

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Disclosure: Nothing to disclose.

PP1551

"COMPARISON OF EFFICACY OF THORACIC EPIDURAL ANALGESIA VERSUS INTRAVENOUS ANALGESIA FOR PAIN CONTROL AND MORBIDITY IN PATIENTS OF ACUTE PANCREATITIS"

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Introduction: Nearly all patients with Acute Pancreatitis (AP) experience abdominal pain which warrants prompt analgesia, and this is one of the main management priorities in the early management of AP (1). With some recent studies suggesting that EA might be a safe procedure and a promising therapeutic approach in AP (2,3,4), we sought to assess the benefit of EA over IV analgesia on pain control in patients of AP with moderate to severe pain.

Apart from analgesia efficacy we also checked for improvement in organ failure, morbidity and mortality in patients of AP.

Aims & Methods: This study was conducted over a period of one and a half years. All consecutive patients of AP were prospectively included in the study with moderate to severe pain based on a numerical rating scale (NRS ≥4), irrespective of the severity of pancreatitis. Patients were sequentially allocated into 2 groups- Epidural Patient-controlled analgesia (PCA) group (Ropivacaine 0.2% + Fentanyl 2 mcg/ml) and Intravenous (IV) PCA group (Fentanyl 10 mcg/ml) + IV Paracetamol 1 gm Thrice daily and medications were given for a period of 5 days. In both groups, morphine was used as rescue analgesia at times when NRS ≥4.

The primary objective was to assess pain control and the Secondary objectives were to assess the efficacy of epidural and IV analgesia on organ failure, morbidity and mortality in patients of AP. Standard statistical analysis was done and the comparison of quantitative variables with or without normal distribution was analysed using Independent t-test and Mann-Whitney test respectively. The Qualitative variables were analysed with the Chi-square and Fisher's exact tests. P value <0.05 was considered statistically significant.

Results: We enrolled 36 patients with AP, 18 patients in each group. All baseline characteristics were comparable between the two groups. The mean age of subjects was 45.2 ± 13.3 years. The mean time of admission from the onset of pain in our study subjects was 2.56 ± 1.2 days. The mean number of days with adequate pain control was 3.28 ± 0.75 days in the epidural versus 3.11 ± 0.76 days in the IV group with no observed statistically significant difference (p = 0.496). Adequate pain control was achieved at day 3 in both groups as per NRS which was not statistically significant. The total Patients who required rescue analgesia were 16

(44.4%). Almost half of the patients 9 (50%) in the IV group required rescue analgesia in comparison to 7 (38.9%) in the epidural group, and the cumulative dose of rescue analgesia (morphine) required was 60 mg in the epidural group, which was lower than the dose required (76 mg) in the IV group though not statistically significant (p = 0.83). Organ failure was seen in a total of 9 (25%) patients (4 patients in the epidural versus 5 patients in the IV group).

The most common observed organ failure was acute lung injury in 6 (16.7%), 3 in each group followed by acute kidney injury in 3 (8.3%) patients, 2 in IV and 1 in the epidural group (p = 1.0). The resolution of SIRS at day 3 in comparison to baseline was better in the epidural group as compared to the IV group (70% vs 27.7%) though statistically not significant (p = 0.089). There was no mortality in either group.

Conclusion: We concluded that thoracic epidural PCA and IV PCA were equally efficacious in pain control in acute pancreatitis. However, the need for rescue analgesia was lower in the thoracic epidural group than in the IV group, though statistically not significant. Moreover, thoracic epidural analgesia was safe, feasible, and showed an insignificant clinical trend towards early SIRS resolution.

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Disclosure: Nothing to disclose.

PP1552

THERAPEUTIC PLASMAPHERESIS IN HYPERTRIGLYCERIDEMIA-INDUCED PANCREATITIS: TEN YEAR EXPERIENCE OF AN INTENSIVE CARE UNIT

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Introduction: Hypertriglyceridemia is a well-established cause of acute pancreatitis, representing up to 35% of all etiologies. The risk of developing acute pancreatitis increases progressively with serum triglyceride (TG) levels over 500 mg/dL. The degree of TG elevation is also associated to the severity of hypertriglyceridemia-induced pancreatitis (HTGP).

Besides general measures, it has been suggested from observation studies that, in selected patients, insulin and plasmapheresis may have a role in the management of this condition.

Aims & Methods: We present an observational retrospective study of patients diagnosed with severe HTGP treated with plasmapheresis (PX) in an Intensive Care Unit (ICU) between January 2013 and March 2023.

Results: Of the 19 patients included in this study, 89% were men (n=17) and the mean age of presentation was 41 ± 7 years. Around 90% of patients were obese with a mean body mass index (BMI) of 29 ± 3 kg/m^2. The average APACHE II score was 9±7 and most patients did not require organ support (n=16, 84%). All the selected patients had severe hypertriglyceridemia at admission (1225 to 4700 mg/dL) and underwent PX within 48h of ICU admission. Levels of TG were measured before and after each plasmapheresis. 68% of patients needed only one treatment to reduce TG to a value below 500 mg/dL (n=13), 26% needed two treatments (n=5) and 5% needed four (n=1). A total of 27 PX were conducted. The average decrease in TG levels per treatment was 67% and 74% with the first treatment. The mean volume exchanged was 3683 mL ± 859 mL, and the most used replacement solutions were albumin/crystalloid (n=12, 44%) and albumin alone (n=11, 41%). The technique was interrupted mainly due to elevated transmembrane pressure (n=11, 40%). There were no PX interruptions due to complications related to the patient. Although heparin was used in all patients for anticoagulation, no hemorrhagic complications were associated to the technique. Hypotension occurred in 7% of plasmapheresis and was solved with crystalloid administration . The mean ICU length of stay was 7+11 days and the mean hospital length of stay was 17+21 days. The hospital mortality was 5% (n=1).

Conclusion: PX proved to be successful in lowering TG levels in HTGP. One to two plasma exchanges effectively reduced the serum TG level. There was a low rate of procedure-related complications. However, having no comparison with standard treatments, the impact of this technique on the patients' clinical outcomes is still uncertain. Further prospective randomized clinical studies are needed to outline an efficient treatment for the management of HTGP.

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PP1553

THE IMPACT OF A MULTIDISCIPLINARY TEAM EVALUATION ON THE DIAGNOSIS AND MANAGEMENT OF ACUTE AND CHRONIC PANCREATITIS IN A TERTIARY REFERRAL CENTER

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Introduction: Multidisciplinary team meetings (MTM) have been adopted widely to ensure that oncological patients receive an optimal diagnosis, staging and treatment, especially in tertiary referral centers. The relevance of MTM on acute and chronic pancreatitis is unexplored.

Aims & Methods: The aim of this study is to describe the experience of a tertiary referral center MTM for pancreatic diseases in the management of patients with acute and chronic pancreatitis (AP/CP).

A prospectively maintained database of patients with AP/CP discussed in MTM from 10/2020 to 01/2023 was queried and patients analyzed according with the subsequent clinical problems: etiology of AP (EAP), treatment of AP complications (TAP), etiology of chronic pancreatitis (ECP) and treatment of chronic pancreatitis complications (TCP).

Results: Globally 143 patients were included for a total of 201 discussions. 94 were AP and 49 CP (median/IQR age 55/43-68 years; males 58.3%). According with the established clinical questions:

- EAP (67 patients): the hypothesized etiology before MTM discussion was in most cases autoimmune (64%) or idiopathic (18%). Imaging revision alone at the MTM changed the suspicious etiology in 28%. After performing further investigations suggested by the MTM the final diagnosis was changed in additional 39% (3 overlooked cancers diagnosed).
- TAP (27 patients): mostly referred for pseudocysts (37%), management of complications in anatomical variants (17%), walled-off necrosis (13%). The problem was solved in 100% of cases, mostly by surgical (33%) or endoscopic (48%) treatments.
- ECP (14 patients): MTM changed the initial suspicion in 50% of cases, with previously unexplored genetic etiology in 64% of cases. 50% of initially idiopathic CP cases had a definite etiology.
- TCP (35 patients): mostly referred for appearance of focal lesion in CP (22%), pancreatic duct obstruction/stenosis (28%) or abdominal pain (28%) with resolution of the problem in 98% of cases by surgical (53%) or endoscopic (17%) treatments. Three malignant lesions were diagnosed.

Conclusion: Our observational study shows that a MTM conducted in tertiary referral center for pancreatic diseases allows to correctly establish etiology and treat complications in AP and CP. A high rate of previously overlooked malignancies were diagnosed and genetic defects identified.

Disclosure: Nothing to disclose.

PP1554

VIRAL ETIOLOGY IN PATIENTS WITH IDIOPATHIC ACUTE PANCREATITIS

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Introduction: Acute pancreatitis (AP) is the most common gastrointestinal disease requiring hospitalization, and is associated with high morbidity and mortality. Despite the improvement of diagnostic technologies, and the availability of endoscopic ultrasound and sophisticated radiological imaging techniques, the etiology of AP remains unclear in 10–30% of patients and is defined as idiopathic AP (IAP). Overall incidence of infectious etiologies causing AP is not known given the lack of population studies reporting on the topic.

Aims & Methods: We aimed to assess the frequency of viral etiology in patients with IAP. A prospective study recruited patients age 18 years or older who were diagnosed with AP (ClinicalTrials.gov ID: NCT03601325) admitted to the hospital in period between 2018 and 2022. IAP was defined as an episode with AP with etiological cause of an AP is not detectable after an accurate anamnesis excluding drug abuse, alcohol abuse, history of infection, an evaluation of metabolic disorder, including hypertriglyceridemia and hypercalcemia and at least two second-level imaging techniques including EUS and/or MRCP to exclude abnormality of pancreatic gland, pancreatic or biliary and gallbladder lithiasis. In cases with IAP; One serum sample for virus serology was collected from each patient. Acute viral infection was diagnosed by serological detection of IgM in the initial sample using ELISA and /or detection of viral nucleic acid using PCR.ELISA kits for the detection of IgG/IgM Coxackie B virus, and antibodies against viral capsid antigens of Epstein-Barr virus (EBV), anti-human herpes virus 1/2/6, Cytomegalovirus (CMV) IgM, HIV and Adenovirus IgM/IgG were purchased from SERION ELISA classic (Germany). All assays were carried out according to the manufacturer's instructions.

Results: A total of 300 patients were enrolled in the study with mean age was 49.50 years. Majority (66.7%) of patients was males. Gall stone pancreatitis was found in 190 (63.3%) patients. One third of cases had severe acute pancreatitis. In a total of 60 (20%) patients, the etiology of AP wasn't detected and were defined as IAP. Viral serology was positive 11/60 (18.3%) patients with IAP (Coxackie B virus in 9 cases and CMV in two cases). A total of 15 (5%) patients were died; two of them had CMV induced pancreatitis.

Conclusion: In patients with IAP, viral induced acute pancreatitis may be present in a considerable number of patients. So, viral serology should be done in cases with IAP.

Disclosure: None

PP1555

PREVALENCE OF SARCOPENIA AND ITS INFLUENCE ON CLINICAL OUTCOMES IN PATIENTS WITH ACUTE PANCREATITIS

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Introduction: Sarcopenia is a progressive skeletal muscle disorder characterized by a loss of muscle mass, as well as strength and function. The presence of sarcopenia in acute pancreatitis (AP), a disease with potentially marked catabolism and impaired food intake, could further affect the course and outcome of the disease.

Aims & Methods: The aim of our study is to determine the prevalence of sarcopenia in patients with AP based on computed tomography (CT) and its association with disease severity and clinical outcomes. We retrospectively analyzed patients hospitalized for AP in 2020, regardless of etiology. Predictors of disease severity, the APACHE II index, and the BISAP index were determined on admission. To assess pancreatic necrosis and local complications, contrast-enhanced CT of the abdomen with CT Severity Index (CTSI) was performed between days 3 and 5. Assessment of sarcopenia was recorded by determining the psoas muscle index (PMI) and the Hounsfield Unit average calculation (HUAC) at the level of the L3 vertebra. Thresholds for PMI were set at 6.36 cm2/m2 for men and 3.92 cm2/m2 for women, whereas HUAC values were determined at the level of the 25% quartile of values measured in our patients. Local and systemic complications of AP were defined using the revised Atlanta criteria, whereas the impact of comorbidities was assessed by determining the Charlson comorbidity index (CCI).

Results: We analyzed 50 patients, of whom 32% were women. The mean age was 67 years (IQR 52-73), and the mean body mass index (BMI) was 27.88 ± 4.72 kg/m2. The mean length of hospital stay was 11.82 ± 7.68 days. The prevalence of sarcopenia was 16% by PMI and 26% by HUAC. There was no difference in the prevalence of sarcopenia between the sexes. We found significant negative correlations of PMI with APACHE II (r=-0.38; P=0.006), BISAP (r=-0.32; P=0.02), CCI (r=-0.43; P=0.002), and age (r=-0.35 ; P=0.01) but no significant correlation with CTSI, BMI, and length of hospital stay. HUAC is significantly negatively correlated with APACHE II (r=-0.73; P<0.0001), BISAP (r=-0.58; P<0.0001), BMI (r=-0.39; P=0.005), CCI (r=-0.68; P<0.0001), age (r=-0.58; P<0.0001) and length of hospital stay (r=-0.32; P=0.02) but with no correlation with CTSI.

According to the PMI criteria, no significant difference was found between the group of subjects with marked sarcopenia and the group without sarcopenia in all analyzed outcomes. Using HUAC criteria, patients with sarcopenia were significantly older (76±7.23 vs 59.22±14.12; P=0.0001) and had significantly higher BMI (30.85±3.77 vs 26.84±4.62; P=0.007). The same group had significantly higher values of APACHE II (10.92±20.74 vs 6.32±8.28; P=0.0001) and CCI index (5±2.48 vs 2.19±1.81; P=0.0001). No differences were observed in other outcomes. Mortality analysis was not possible because no deaths occurred.

Conclusion: Sarcopenia is quite common in patients with AP already on admission. As expected, sarcopenia in this group is also associated with older age and a greater number of concomitant diseases, but it also seems to be associated with higher BMI values. There are indications that sarcopenia is associated with potentially more severe forms of the disease, but this has not been confirmed in terms of the frequency of specific clinical outcomes. This is likely a consequence of the relatively small number of patients studied with a rather limited number of observed complications and a very low proportion of patients with a severe AP. Further studies in a larger number of subjects with a higher proportion of severe forms of AP are needed for more reliable results.

Disclosure: Nothing to disclose.

PP1556

ENTEROCOCCUS FAECALIS IS INVOLVED IN THE PANCREATITIS PROCESS

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Introduction: Chronic pancreatitis is one of the well-known risk factors of pancreatic adenocarcinoma, the 4th leading cause of cancer mortality. Excessive chronic alcohol consumption is the first cause leading to chronic pancreatic and hepatic inflammation. The intestinal microbiota plays a role in the pathogenesis of these two diseases and patients with chronic alcoholic pancreatitis (CAP) or alcoholic hepatitis (AH) display altered and specific gut dysbiosis, with a higher relative abundance of Enterococcus in patients with CAP compared to AH(1).

A recent study identified strains of E. faecalis able to produce a toxin, called cytolysin, responsible for liver lesions in chronic liver diseases. Its presence was associated with the worst clinical outcomes(2). It is yet unknown whether patients with CAP also exhibit an elevated relative abundance of cytolysin-producing E. faecalis strains.

Aims & Methods: The objectives of this study were 1/ to assess the presence of E. faecalis strains expressing or not cytolysin, in the intestinal microbiota of patients with CAP (n = 24) compared to patients with AH (n = 27) and to healthy controls (HC, n = 28), 2/ to evaluate the role of E. faecalis strains (isolated from the patients), in the genesis and potentiation of pancreatitis lesions and early precancerous lesions (acinar-to-ductal metaplasia), in a murine model of pancreatitis induced by cerulein, and 3/ to assess the presence of Enterococcus in surgical specimens of patients who went under pancreatic resection for CAP, (n = 6) compared to controls (normal pancreatic parenchyma apart of benign tumors n = 4).

Results: Our data showed that the relative abundance of cytolysin-positive E. faecalis in the intestinal microbiota is elevated in patients with AH and even more in patients with CAP. Genomic DNA of E. faecalis was detected in 96% of CAP patients, and 85% of AH patients. CAP patients were more frequently cytolysin-positive (96%) than HC (39%, p < 0.001) or AH patients (48%, p < 0.001). The relative abundance of cytolysin-positive E. faecalis was elevated in CAP and AH patients (p = 0.0006 and p= 0.0067) but not HC. In our murine model of cerulein-induced chronic pancreatitis, E. faecalis tend to increase the rate of pancreatitis lesions, as well as the number of acinar-to-ductal metaplasia lesions, specifically when pancreatitis is triggered. We used two different anti-Enterococcus antibodies

with concordant results, showing that Enterococcus is present in the pancreatic parenchyma of patients with CAP, but not in the healthy pancreas of controls.

Conclusion: These results support a potentially detrimental role of Enterococcus, and especially E. faecalis, in the evolution of pancreatic inflammation. This study opens new research perspectives to investigate the pathophysiological mechanisms of intestinal microbiota species in the pancreatic exocrine tissue. Microbiota and metabolites produced by these microorganisms (like cytolysin) are probably key actors in the pancreatic inflammation process, involved in the cross-talk between the gut and pancreas. It could lead to consider potential new therapeutic targets in patients with chronic pancreatitis at risk of developing aggressive pancreatic cancers.

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Disclosure: Nothing to disclose.

PP1557

LP-ONE STUDY: OBSERVATIONAL PROSPECTIVE STUDY TO ASSESS THE RELATIONSHIP BETWEEN HEPATIC STEATOSIS AND PANCREATIC EXOCRINE FUNCTION

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Introduction: Liver and pancreas are target organs of an increased alcohol intake or impaired metabolic asset. While the correlation between liver cirrhosis and exocrine pancreatic insufficiency (EPI) is better known from literature and clinical practice, the relationship between non-cirrhotic chronic liver damage and EPI is less clear. Although studies show the role of alcohol-related hepatic steatosis and NAFLD as precursors of chronic pancreatic damage, literature is heterogeneous, discordant and lacking.

Aims & Methods: The aim of our study is to verify the frequency of EPI in patients (pts) with known diagnosis of hepatic steatosis. This is a prospective, observational, monocentric, not randomized study. Pts with known diagnosis of alcohol-related hepatic steatosis (alcohol intake > 2-3 AU/day - Group A) and non-alcoholic-related (alcohol intake < 2-3 AU/day, insulin resistance with Homa Index > 2.5, Diabetes type II - Group B) were included. All pts were submitted to a clinical questionnaire (mini nutritional assesment - MNA), clinical and biochemical evaluation (nutritional and metabolic profile), ultrasound and hepatic elastometry; evaluation of exocrine pancreatic function was made by faecal elastase (FE-1) value (EPI < 200 µg/g). Pts with known diagnoses of chronic liver damage (liver cirrhosis, viral hepatitis, autoimmune), and known diagnoses of chronic pancreatitis and/or PEI were excluded.

Results: This study included 37 pts in total, of whom 22 (59.4%) men and 15 (40.5%) women (median age of 57 yrs). Pts with alcohol intake > 2-3 AU/day (Group A) were 10 (27.2%), those with insulin resistance and type II Diabetes in oral hypoglycemic therapy (Group B) were 27 (72.9%). They were also divided according to the degree of hepatic steatosis evaluated ecographically (mild: 7 (18.9%), moderate: 15 (40.5%), severe: 5 (13.5%) and hepatic elastometry according to Metavir score (F0-F1:10 (27%), F2:25 (67.5%), F3:2 (5.4%). No pts had a nutritional and vitamin profile change, except 3 (8.1%) women with vitamin D values < 30 ng/ml. 34 (91.9%) pts had FE-1 value > 500 µg/g compatible with preserved pancreatic exocrine functionality while 3 pts (8.1%) from Group B had FE-1 value < 200 µg/g, of which only one with symptoms. There was no correlation between steatosis and hepatic fibrosis with exocrine pancreatic function.

Conclusion: In conclusion, only 8.1% of patients with hepatic steatosis had a condition of EPI. These data, despite the presence of recent studies confident in the increased frequency of EPI in patients with mainly non-alcohol-related hepatic steatosis, although still preliminary, do not show a significant relationship between hepatic steatosis and EPI. Therefore, it will be necessary to increase the study population and it will be meritorious secondary integration through radiological study with pancreatic MRI and Elasto-MRI.

Disclosure: Nothing to disclose.

PP1558

DO ADIPOKINES PLAY A ROLE IN CHRONIC PANCREATITIS? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Several biomarkers including adipokines have been investigated in chronic pancreatitis (CP). Nevertheless, the current results are inconclusive with conflicting results.

Aims & Methods: Therefore, we aimed to evaluate the levels of major adipokines including adiponectin, leptin, and resistin in CP patients. A systematic electronic search using Pubmed, Embase, and Scopus was conducted, evaluating observational studies published till November 2022. Quality assessment of the included studies was performed using the Newcastle-Ottawa Scale (NOS). The principal summary outcome was the mean difference (MD). Results were reported as MD (95% confidence interval [CI]).

Results: A total of 14 studies were included in our qualitative synthesis, out of which, 9 were evaluated in our quantitative synthesis. A significant MD in leptin levels was found in CP patients vs. controls (-1.299 [95% CI -2.493 – 0.105]), resistin levels in CP patients vs. controls (10.129 [95% CI 6.735 – 13.524]), and adiponectin levels in pancreatic cancer (PC) patients vs. controls (11.240 [95% CI 5.872 – 16.60]). Nevertheless, no significant MD was observed in leptin levels between CP vs. PC patients (-1.299 [95% CI -2.493 – 0.105]), in addition to adiponectin levels in CP patients vs. controls (0.422 [95% CI -5.651 – 6.535]) and CP vs. PC patients (-6.252 [95% CI -13.269 – 0.766]).

Conclusion: We reported significantly decreased leptin and increased resistin levels in CP patients. Moreover, PC patients present increased levels of adiponectin. However, leptin and adiponectin levels did not significantly differ between CP and PC patients, as well as adiponectin levels between CP patients and controls.

Disclosure: Nothing to disclose.

PP1559 WITHDRAWN

PP1560

SEGMENTAL PORTAL HYPERTENSION IN PANCREATIC DISEASES

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Introduction: Segmental portal hypertension (SPH) is a rare complication of benign or malignant pancreatic pathology caused by thrombosis or compression of the splenic vein or mesenteric confluent. The main clinical presentation is upper bleeding.

Aims & Methods: our study aimed of this study is to investigate the characteristics of SPH in pancreatic diseases. This is was a retrospective, descriptive study conducted over 6 years and 4 months, from January 2017 to April 2023. All patients with SPH related to a pancreatic pathology were included.

Results: Out of 162 patients with pancreatic pathology, 17 patients (8.2%) presented with SPH. The average age of the patients was 60.8 years [35-76 years], and there was a clear male predominance with a male-to-female ratio of 7.6H/F.

Clinical symptoms were mainly related to the underlying pancreatic pathology, and only 3 patients (17%) had clinical signs suggestive of portal hypertension (such as ascites, splenomegaly, collateral venous circulation, and digestive hemorrhage).

The pancreatic pathology responsible for SPH was a tumor of the head of the pancreas in 9 patients (52.9%), a compressive pancreatic necrotic collection (type WON) in 2 patients (11.7%), neuroendocrine tumor in 1 patient (5.8%), TIPMP in 1 patient (5.8%), chronic calcifying pancreatitis in 2 patients (11.7%), and IgG4 autoimmune pancreatitis in 2 patients (11.7%).

Imaging studies, including ultrasound and abdominal CT, showed collateral venous circulation in 10 patients (58.8%), splenic thrombosis in 4 patients (23.5%), superior mesenteric vein thrombosis in 1 patient (5.8%), and splenic vein compression in 4 patients (23.5%).

Upper endoscopy was performed in 9 patients, and isolated gastric varices (IGV) were found in 6 patients (35.2%), esophageal varices (VO) in 4 patients (23.5%), and normal findings in 2 patients (11.7%).

Conclusion: Segmental portal hypertension is a rare complication in pancreatic diseases with a prevalence of 8.2%. Clinical symptoms are nonspecific, and the prognosis is closely related to the underlying pancreatic pathology. Tumor pathology appears to be the most common cause of SPH in this study.

Disclosure: Nothing to disclose.

PP1561

PARADUODENAL PANCREATITIS: PRELIMINARY DATA FROM AN ITALIAN MULTICENTRE REGISTRY

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Introduction: Paraduodenal pancreatitis (PP) is a particular form of chronic pancreatitis that affects an area, defined by some authors as "groove", between the head of the pancreas, the duodenum and the main biliary tract. [1]

The two forms of PP, the cystic and the "solid" form, [2] may extend to the adjacent pancreatic tissue and the entire main pancreatic duct, causing chronic obstructive pancreatitis ("diffuse" form), leading to heterogeneous clinical presentations.[3,4]

Pathogenesis and natural history is still unclear, even if it has been linked to exogenous factors, especially alcohol and smoking, and the treatment include both medical therapy and surgery [5].

Aims & Methods: We performed a multicentre retrospective observational study to explore the burden of the disease, and its evolution towards exocrine pancreatic insufficiency(EPI) considering also the risk of neoplastic evolution. We collected data from both academic and non-academic Italian centers. All patients with diagnosis of PP were included in the registry. Data were extracted at the time of diagnosis and during follow-up. Univariate and multivariate analysis were performed to explore the relations between variables and outcomes of interest.

Results: 208 patients(87.5% male) from 16 centres were collected into our national registry. Mean age at diagnosis was 51(± 11) years and mean time from clinical presentation to diagnosis was 18(±29) months. 88.4% had history of alcohol abuse and 89% of smoking. 36 patients(17.9%) had diabetes at diagnosis, while 80 patients (41.5%) had chronic pancreatitis. Clinical presentation included abdominal pain(89.1%), jaundice(18.5%),

nausea(47.1%) and vomiting(32.6%). Initial laboratory tests showed a mean increase of bilirubin of 1.62(±1.7) times upper limit of normal(ULN), Amylase 2.9(±2.5) times ULN, Lipase 3.2(±3.1) times ULN. 6(3%) patients developed pancreatic cancer after a mean time of 10.3(±10.8) months from PP diagnosis. 49 patients(23.6%) had EPI at diagnosis , while further 49 patients developed it during follow up.

Among patients with EPI at diagnosis, 19(38.8%) recovered with no more signs of EPI at the last follow up. Preliminary analyses showed that EPI at diagnosis was associated to EPI at the last follow up(OR 2.6, p=0.012). Mean time to develop EPI was 17.1(±23.5) months. Conservative treatment was the treatment of choice in 54.3% cases, surgery in 17.3% and endoscopic therapy in 16.35% cases. Over a median follow-up of 36 (range, 1-168) months, mortality was 4.8%.

Conclusion: Paraduodenal pancreatitis is an uncommon disease, mainly diagnosed in male patients with history of alcohol and smoking. Moreover, conservative strategy was the treatment of choice in our cohort of patients.

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Disclosure: Nothing to disclose.

PP1562

EARLY ONSET OF ABNORMAL GLUCOSE TOLERANCE IN PATIENTS WITH CYSTIC FIBROSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Basic science results suggest that abnormalities of the endocrine pancreas in cystic fibrosis (CF) occur earlier than hitherto estimated (1).

All stages of the abnormal glucose tolerance (AGT) spectrum are associated with declining pulmonary function and increased mortality which could be reduced by early recognition and treatment (2-4).

Despite, screening for AGT is recommended only from 10 years of age (yoa) according to the current guidelines (5,6).

Accurate knowledge of the prevalence of AGT and its subtypes is essential to develop a better screening strategy, therefore we conducted a systematic review and meta-analysis in the topic.

Aims & Methods: Our systematic review and meta-analysis (PROSPERO number: CRD42021282516) was conducted on studies that reported data on the prevalence of AGT or its subtypes in CF populations. Literature search was conducted in MEDLINE (via PubMed), Embase and Cochrane Register of Controlled Trials (CENTRAL). General and superselected populations (e.g.: pancreas exocrine insufficient, ΔF508 homozygous) were separately analyzed. Pooled proportions, risk and odds ratios with 95% confidence intervals (CI) were calculated in at least three age subgroups (pediatric, adult, mixed/unknown). One-stage dose-response random effect meta-analysis was used to assess the effect of age on CF- related diabetes (CFRD).

Results: The quantitative analysis included 457 studies and data from 520,544 patients. More than one third of children with CF (chwCF) were affected by AGT (0.31 [95% CI 0.25-0.37]), even under 10 yoa 0.33 [95% CI 0.23-0.44], and half of the adults with CF (awCF) had AGT (0.51 [95% CI 0.45-0.57]). The prevalence of prediabetes remained unchanged (impaired glucose tolerance in chwCF: 0.14 [95% CI 0.10-0.18]) vs. awCF: 0.19 [95% CI 0.14-0.25]), while the proportion of CFRD increased by age (<5 yoa: 0.005 [95% CI 0.0001-0.15]; 5-10 yoa: 0.05 [95% CI 0.01-0.27]; 10-18 yoa: 0.11 [95% CI 0.08-0.14]; >18 yoa: 0.27 [95% CI 0.24-0.30]).

Conclusion: CF-related AGT is common under 10 years of age. Reconsideration of the current guidelines and better awareness are needed for screening and treating AGT in CF, especially under 10 yoa, to delay the disease progression and maintain a better life quality.

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PP1563

COMPARATIVE ANALYSIS OF HISTOLOGICAL METHODS FOR ASSESSING THE DEGREE OF PANCREATIC FIBROSIS: PRELIMINARY RESULTS OF THE STUDY

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Introduction: Pancreatic fibrosis (PF) is a major component of chronic pancreatitis (CP) pathogenesis. Besides, PF affects different pancreatic disorders. So, pancreatic fibrosis precise diagnosis gives a great opportunity to be a part of the strategy for preventing disease progression.
Hence, non-invasive pancreatic fibrosis evaluation based on pathologically approved data are perspective.
Aims & Methods: The aim of this study was to find out the relationship between the histological assessment of the degree of pancreatic fibrosis according to G. Klöppel & B. Maillet's scale, supplemented by histochemical methods, and non-invasive method - multidetector computed tomography (MDCT).
The study was performed on 58 patients underwent surgery for pancreatic diseases from April to December 2022, mean age 60.5±15 (35-80).
We assessed the degree of perilobular and intralobular fibrosis, their integrative index according to G. Klöppel & B. Maillet's scale [1], as well as the percentage of collagen fibers in fibrosis using Van Gieson's stain.
Results: Fibrosis assessment using G. Kloppel's 6-point grading system has revealed data: perilobular and intralobular fibrosis by 1 point, respectively, - 29.3% and 41.4%, by 2 points - 17.3% and 13.8%, 3 points - 5.2% and 3.4%, 4 points - 13.8% and 18.9%, 5 points - 20.7% and 13.8%, 6 points - 12.0% and 7.0%, 0 points - 1.7% each.
Integral index of pancreatic tissue fibrosis with a weak degree was detected in 58.6%, moderate - in 17.2%, severe - in 22.5%; fibrotic changes were absent in 1.7%, that positively correlated with the results of proportion of collagen fibers measurement according to Van Gieson's stain: 0 - 2.6%, 1-10 - 30.8%, 11-50 - 48.7% and more than 50% - 17.9% (p=0.03). The indicators of the four selected groups were compared with data of multidetector computed tomography.
Analyzing MDCT-results, we received significant intergroup differences between mean values of normalized contrast enhancement ratios in portal vein phase of contrast enhancement and enhancement ratio in groups with mild and moderate fibrosis (p=0.05), as well as moderate and severe fibrosis (p=0.04).
Conclusion: Non-invasive methods for diagnosis of pancreatic tissue fibrosis may be an alternative approach for assessment diseases which are associated with pancreatic fibrosis, especially in moderate and severe degree.
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PP1564

EUS-SHEAR WAVE ELASTOGRAPHY MEASUREMENT IN THE PANCREATIC BODY CONTRIBUTES TO THE ACCURACY OF DIAGNOSIS OF CHRONIC PANCREATITIS BY ROSEMONT CRITERIA

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Introduction: Chronic pancreatitis (CP) is a persistent inflammation of the pancreatic parenchyma that can lead to irreversible endocrine and exocrine dysfunction as well as pancreatic cancer. As the disease progresses, the pancreatic parenchyma becomes irregularly fibrotic and atrophic, resulting in the formation of the so-called "hard pancreas".
Although endoscopic ultrasound (EUS) has been widely used for diagnosing CP, the assessment of fibrosis using the Rosemont criteria (RC) is generally subjective.
Shear wave elastography using EUS (EUS-SWE) has been advocated as an objective approach to evaluating pancreatic fibrosis; however, the diagnostic accuracy and the optimal pancreatic region or the number for the measures are still unknown.it is unknown which pancreatic region is taken measurement.
This study compares the measurement site diagnostic accuracy in diagnosing CP and its correlation with RC.
Aims & Methods: Fifty patients with CP or suspected CP who underwent EUS-SWE were analyzed retrospectively. As per the RC, they were classified into two groups: CP and non-CP. The pancreatic stiffness was evaluated by measuring the velocities of the shear wave (Vs) and determining the relevant cutoff value of Vs for diagnosing CP. In addition, the correlation between Vs and RC, and the factors of the RC affecting pancreatic stiffness were evaluated.
Results: We finally analyzed 34 CP group cases and 16 non-CP group cases. Vs values were significantly higher for the CP group in all regions (p<0.001). Vs values by region for diagnostic accuracy of chronic pancreatitis were highest in the body (cut off, 2.33, AUC 0.87, 95%CI 0.76-0.98). The number of EUS criteria and Vs values were significantly correlated in all regions, but the correlation coefficient was highest in the pancreatic body (rs=0.55).
Multivariate analysis revealed that lobularity with honeycombing was an independent factor for EUS criteria affecting pancreatic stiffness (p=0.02).

	Univariate analysis			Multivariate analysis		
	OR	95%CI	P value	OR	95% CI	P value
Hyperechoic foci with shadowing	2.94	1.09–2.7	0.006	4.5	0.40–50.7	0.22
Hyperechoic foci without shadowing	1.26	0.38–4.2	0.71			
Lobularity with honeycomb	11.8	2.3–60.0	0.003	11.1	1.4–88.1	0.02
Lobularity without honeycomb	2.4	0.57–10.4	0.23			
Irregular MPD contour	7.4	1.78–30.8	0.005	6.6	0.73–58.9	0.09
Dilated side branches	5.4	1.58–18.7	0.007	0.93	0.14–6.17	0.94
Hyperechoic MPD margin	29.0	3.29–256.0	0.002	4.18	0.37–1.37	0.25
MPD dilation	3.1	0.58–16.5	0.19			

Table. Endoscopic ultrasonography findings by Rosemont criteria related to Vs values of the pancreatic body by univariate and multivariate analysis

Conclusion: Quantifying pancreatic hardness by EUS-SWE is useful as an objective indicator in diagnosing CP. In addition, the SWE measurement in the pancreatic body is suitable for pancreatic hardness evaluation and correlates well with the Rosemont criteria.

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PP1565

INCIDENCE AND PREVALENCE OF CHRONIC PANCREATITIS: A 7-YEAR POPULATION-BASED STUDY

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Introduction: Chronic pancreatitis (CP) is a fibroinflammatory syndrome with reduced quality of life (QOL) and shortened life expectancy. Population-based estimates of the incidence and prevalence of CP are scarce in China.

Aims & Methods: Aims: To evaluate the incidence and prevalence of CP and describe the disease burden of CP in Sichuan Province, China.

Methods: Hospital admissions (HA) data for CP from 1 January 2015 to 31 December 2021 were obtained from the Health Information Center of Sichuan Province (HIC-SC). During the study period, 38,086 individuals were diagnosed with CP in Sichuan Province. The yearly incidence rate and point prevalence rate (31 December 2021) of CP were calculated. Disease burden of CP were evaluated. Yearly incidence rates were standardized for age by the direct method using the permanent population of Sichuan Province in the 2020 census as the standard population. Costs for CP were adjusted by the consumer price index (CPI) every year to 2021 costs.

Results: The 38,086 CP patients consisted of 23,278 males and 14,808 females. The mean age at diagnosis of CP was 57.83 years. The mean incidence rate of CP during the study period was 6.81 per 100,000 person-years, and the incidence of CP increased each year. The point prevalence rate of CP in 2021 was 45.52 per 100,000 people for the total population, 55.04 per 100,000 people for men, and 35.78 per 100,000 people for women. The number of CP-related hospitalizations increased from 3,734 in 2015 to 11,009 in 2021. The total costs for CP-related hospitalizations for CP patients over the study period were US$ 103.54 million, with an average of US$ 2718 per patient.

Conclusion: We conducted a population-based epidemiological study of CP in Sichuan Province, China, from 2015 to 2021. During the study period, the annual incidence of CP in Sichuan Province increased, and by 2021, the prevalence of CP was 45.52 cases per 100,000 person-years for the total population. The number of CP patients and CP-related hospitalization costs increased. Therefore, prevention and treatment of CP are of great importance.

Disclosure: There are no conflicts of interest to report.

PP1566

DIAGNOSTIC ACCURACY OF FAECAL ELASTASE-1 TEST FOR THE DIAGNOSIS OF PANCREATIC EXOCRINE INSUFFICIENCY: SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Pancreatic exocrine insufficiency (PEI) has been recently defined as a reduction of pancreatic exocrine secretion and/or intraluminal activity of pancreatic enzymes below a level that prevents normal digestion of nutrients. For diagnosis, quantification of the coefficient of fat absorption (CFA) is considered the gold standard. Faecal elastase-1 test (FE-1) is the most widely used pancreatic function test in clinical practice. However, the efficacy of this test for the diagnosis of PEI is debatable.

Aims & Methods: Aim of our study was to evaluate the accuracy of FE-1 test for the diagnosis of PEI using CFA or 72-h faecal fat quantification as reference methods.

Methods: A systematic review and meta-analysis was performed. Major databases were searched for studies reporting accuracy of FE-1 test using the above mentioned reference methods for the diagnosis of PEI. Sensitivity (S), Specificity (E), Positive Predictive Value (PPV) and Negative Predictive Value (NPV) were calculated globally and individually for cystic fibrosis (CF) and chronic pancreatitis (CP) based on cut-off points of 200 µg/g and 100 µg/g. Results are shown with 95% confidence interval.

Results: 19 studies (948 patients) were included (8 studies in CF, 5 in CP, 2 after pancreatic surgery, 2 in pancreatic cancer, 1 in diabetes mellitus and 1 in neuroendocrine tumours). The overall S, E, PPV, and NPV of FE-1 test for PEI were 86% (76-94), 55% (36-73), 72% (55-86) and 44% (21-67), respectively, for a cut-off point of 200 µg/g. In the studies that used a cut-off point of 100 µg/g, values were 92% (87-96), 65% (52-76), 55% (22-85) and 59% (31-84), respectively. In CF, the studies using the cut-off point of 200 µg/g showed S and E of 88% (73-98) and 65% (31-93). In CP, with the same cut-off point, results of S and E were 83% (63-96) and 54% (18-88).

Conclusion: Independently of the cut-off used for diagnosis, FE-1 test is a rather sensitive but nonspecific method for PEI. A low FE-1 result supports the diagnosis of PEI in just 55-72% of the patients with pancreatic disease, whereas a normal FE-1 result does not rule out PEI.

Disclosure: Nothing to disclose.

PP1567

EARLY RESULTS FROM THE HUNGARIAN CYSTIC FIBROSIS RELATED PANCREATIC DISORDER REGISTRY DATA

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Introduction: All stages of the cystic fibrosis-related abnormal glucose tolerance (CF-AGT) spectrum are associated with increased morbidity and mortality which could be reduced by early detection and treatment (1-4). Despite, the oral glucose tolerance test (OGTT) with two blood glucose measurement time points from 10 years of age (yoa) is still the gold standard method according to current guidelines (5,6).

Aims & Methods: Our aim is to provide data on the usability and diagnostic value of a hybrid protocol for the detection of early AGT in children with CF (chwCF).

The Cystic Fibrosis Related Pancreatic Disorder Registry (CFRPDR) is a prospective registry involving chwCF (<18 yoa) undergoing our hybrid AGT-screening protocol. The screening protocol consists of a frequently-sampled three-hour OGTT with blood sampling in every 30 minutes. Those chwCF with more than two interim blood glucose levels higher than 11 mmol/l are further examined with postprandial capillary glucose monitoring. Screening is started as early as possible, in most cases before 10 yoa and repeated yearly.

Results: Currently 121 chwCF are involved in the registry from which we have analyzed the baseline data of the first 79. 74% of the chwCF were diagnosed with normal glucose tolerance (NGT) (0-18 yoa: 58, 0-6 yoa: 18, 7-12 yoa: 22, 13-18 yoa: 18), 15% with impaired glucose tolerance (IGT) (0-18 yoa: 12, 0-6 yoa: 3, 7-12 yoa: 5, 13-18 yoa: 4) and 11% with CF-related diabetes (CFRD) (0-18 yoa: 9, 0-6 yoa: 0, 7-12 yoa: 1, 13-18 yoa: 8) according to the current gold standard method. 60% of the chwCF were diagnosed with NGT (0-18 yoa: 47, 0-6 yoa: 14, 7-12 yoa: 17, 13-18 yoa: 16), 14% with indeterminate glycaemia (INDET) (0-18 yoa: 11, 0-6 yoa: 4, 7-12 yoa: 5, 13-18 yoa: 2), 15% with IGT (0-18 yoa: 12, 0-6 yoa: 3, 7-12 yoa: 5, 13-18 yoa: 4), and 11% with CFRD (0-18 yoa: 9, 0-6 yoa: 0, 7-12 yoa: 1, 13-18 yoa: 8) by frequently-sampled OGTT.

After the postprandial capillary glucose monitoring 4 more diabetic chwCF were diagnosed, 3 of them had IGT and 1 of them had INDET according to their OGTT measurements. 39% (12 chwCF) of the AGT cases was diagnosed under 10 yoa with frequently sampled OGTT.

Conclusion: In our cohort CF-AGT is common even under 10 yoa, and 44% of the AGT cases would have been missed with current standard screening method. Therefore, guidelines need to be revised, and our hybrid AGT-screening protocol could be a potent alternative especially in low- and middle income countries where continuous glucose monitoring is less available.

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PP1568

MALNUTRITION AND BONE COMPLICATIONS IN PATIENTS WITH CHRONIC PANCREATITIS

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Introduction: With disease progression, patients with chronic pancreatitis experience pancreatic exocrine insufficiency (PEI), nutritional deficiencies with associated bone complications and impaired quality of life.

Aims & Methods: The aim of this study was to investigate risk factors in patients with chronic pancreatitis and to evaluate their relation to bone density complications. The severity of CP was assessed by the M-ANNHEIM classification. Nutritional status was evaluated by fat-soluble vitamins D (CMIA method) and K (K1 and K2 by High-Performance Liquid Chromatography); magnesium and BMI in addition to routine biochemical markers; PEI was assessed by fecal-elastase-1, and imaging morphological data by Cambridge classification for CT/MRCP (grade I-IV). Bone densitometry was performed by Dual-energy X-ray absorptiometry. For statistical analysis was used SPSS v22.

Results: The study enrolled 45 patients with chronic pancreatitis (29 males, 52,01 ± 14,42). Patients with severe morphological changes (25 patients) were evaluated with lower vitamin D ($p = 0,04$) and K1 levels ($p = 0,027$). PEI with fecal elastase-1 values below 200 µg / g feces was found in 17 patients. The mean levels of vitamin D, K1, and K2 were 37.85 nmol/L 0.21 µg / L, and 0.15 µg / L, respectively. Vitamin D deficiency was found in 10 patients and insufficiency in 22 patients. 11 patients had low vitamin K levels. Significantly higher vitamin D values were observed with increasing BMI ($r = 0.39$, $p = 0.001$). Disease progression by M-ANNHEIM classification was associated with lower vitamin D and K levels. Osteopenia was observed in 10 patients and osteoporosis in 6 patients. Bone density was affected and significantly decreased in patients with vitamin D deficiency or severe insufficiency, PEI, and morphological changes grade Cambridge IV ($p < 0.05$).

Conclusion: An effort should be the point of a multidisciplinary approach for an up-to-date strategy for patients with pancreatic disorders. Proper patients follow-up and monitoring of complications of chronic pancreatitis might reduce the associated morbidity and mortality and ensures a better quality of life.

Disclosure: Nothing to disclose.

PP1569

SUBCLINICAL COGNITIVE IMPAIRMENT IN CHRONIC PANCREATITIS IS ASSOCIATED WITH REDUCED MOBILITY AND QUALITY OF LIFE

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Introduction: Chronic pancreatitis (CP) is a chronic inflammatory disease of the pancreas that can lead to a wide range of complications. Previous studies have reported that CP may also be associated with subclinical cognitive impairment (SCI).

Aims & Methods: The aim of this study was to prospectively determine the prevalence, characteristics and causes of SCI and to assess its impact on quality of life and physical performance in patients with CP.

Patients with fulfilled criteria in imaging for CP were prospectively enrolled. Patients with any form of overt metabolic (e.g. hepatic, uremic) encephalopathy, neurodegenerative disorders (e.g. dementia, Parkinson's disease), decompensated cirrhosis or sepsis were excluded. All patients underwent psychometric testing (Psychometric Hepatic Encephalopathy Score (PHES) test battery, animal naming test (ANT)), assessment of health-related quality of life (QoL; EORTC C30 PAN28), such as mobility and strength (timed "up-and-go" test (TUG), chair rising test (CRT), tandem gait test, hand grip strength). SCI was diagnosed when at least one test of the PHES was pathological. Possible risk factors described previously (e.g. malnutrition, pancreatic exocrine insufficiency (PEI), pain, alcohol abuse, sleep disturbance, opioid use) were prospectively assessed.

Results: Seventy-one patients with a median age of 58 years were enrolled, and 23% were female. According to the TIGAR-O classification, the etiology was toxic (alcohol/ smoking) in most (49%) of the cases. 69% had a history of pain due to CP and 37% reported suffering from sleep disturbances.

SCI was prevalent in 41% of the patients, while 25% had only one and 16% had two or more pathological tests. Interestingly, only 3 patients showed a pathological ANT. Patients with SCI had lower overall QoL scores (p=0.048). Regarding QoL, it was mainly physical functionality that was impaired (p<0.001). Consistent with these data, patients with SCI took significantly longer to complete the TUG (p=0.008) and had more frequent pathologic CRT (p=0.004). However, while approximately 16% of the patients reported injury from a fall in the past 12 months, there was no significant association with SCI in the present study.

In addition, surrogate parameters for malnutrition, such as serum prealbumin (p=0.01), magnesium (p<0.001) and iron (p=0.02) were decreased in patients with SCI.

Among all possible risk factors analyzed, only a history of alcohol abuse was significantly associated with SCI in univariable analysis. In addition, alcohol abuse was also an independent risk factor of SCI (odds ratio (OR) 3.46; p=0.02) in a multivariable regression model together with the variables age, gender, education and cirrhosis.

Despite SCI affecting global QoL, sleep disturbance appeared to be the strongest variable independently associated with impaired QoL in multivariable analysis (OR 9.9; p=0.001).

Conclusion: We show that subclinical cognitive impairment (SCI) is prevalent in patients with CP and can impact quality of life and physical performance. Alcohol abuse was found to be a significant risk factor for SCI, while sleep disturbance was the strongest variable affecting global quality of life. These findings suggest the need for addressing modifiable risk factors in CP patients to improve outcomes.

Disclosure: Nothing to disclose.

PP1570 WITHDRAWN

PP1571

EFFICACY AND SAFETY COMPARISON OF BALLOON CATHETER AND BASKET CATHETER FOR ENDOSCOPIC PANCREATIC DUCT STONE CLEARANCE

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Introduction: Complete removal of pancreatic duct stones is the goal of endoscopic treatment for chronic pancreatitis (CP), which is mainly performed by endoscopic retrograde cholangiopancreatography (ERCP), and is completed with either a basket or a balloon catheter. However, choosing which catheter primarily depends on the operators' preference, and the evidence is still scarce. Thus, this study compared the efficacy and safety of these two devices for pancreatic duct stone extraction.

Aims & Methods: This single center retrospective cohort study reviewed the records of 452 consecutive CP patients who underwent ERCP for the first time, from February 2012 to December 2021. A propensity score-matched analysis (1:1) was performed using age, sex, diabetes mellitus, steatorrhea, pancreatic duct stricture, pancreas divisum, ESWL prior to stone extraction, number of stones, size and location of stones as variables. Finally, 101 patients with basket and 101 with balloon catheter were analyzed. The primary outcome was the clearance rate of pancreatic stones; the secondary outcomes were ERCP peri-procedural outcomes and complications.

	All patients			Propensity score-matched patients		
Variables	Basket catheter, % (n = 101)	Balloon catheter, % (n = 351)	P value	Basket catheter, % (n = 101)	Balloon catheter, % (n = 101)	P value
Total complete clearance, n (%)	86.1 (87/101)	88.3 (310/351)	0.5547	86.1 (87/101)	84.2 (85/101)	0.6923
Size of Stones, n (%)						
<2.0cm	90.1 (73/81)	87.6 (276/315)	0.5342	90.1 (73/81)	80.5 (66/82)	0.0826
≥2.0cm	70.0 (14/20)	94.3 (33/35)	0.0394	70.0 (14/20)	100.0 (19/19)	0.0314
Pancreatic duct stricture, n (%)						
Yes	83.3 (35/42)	87.7 (142/162)	0.4615	83.3 (35/42)	86.8 (46/53)	0.6367
No	88.1 (52/59)	88.9 (168/189)	0.8732	88.1 (52/59)	81.3 (39/48)	0.3205

Table. The Impact Factors for Rate of Complete Clearance Between Basket and Balloon Catheter Groups

Results: The rate of complete clearance was comparable between two groups (86.1% [87/101] vs 84.2% [85/101], P = 0.692). In patients with stones ≥ 2cm before extracorporeal shock wave lithotripsy (ESWL), the rate of complete clearance was significantly higher in balloon than in basket group (100% [19/19] vs 70.0% [14/20], P = 0.031). No significant difference was found in partial (odds ratio [OR] 0.8; 95% confidence interval [CI], 0.3-2.1; P = 0.603) and unsuccessful clearance (OR 1.9; 95% CI, 0.6-5.8;

P = 0.274). In multivariate analysis, ESWL prior to stone extraction was the only independent predictor of complete clearance (OR, 2.3; 95% CI, 1.2-4.3; P = 0.013). In ERCP peri-procedural outcomes analysis, no significant difference were found in rates of difficult cannulation (1.0% vs 3.0%, P = 0.614), endoscopic sphincterotomy (53.5% vs 49.5%, P = 0.573), dilation of stenosis (26.7% vs 32.7%, P = 0.357), and extraction through the minor papilla (13.9% vs 10.9%, P = 0.522) between basket and balloon catheter groups.

For patients with pancreatic duct stenosis, the rates of clearance were comparable between two groups. The rates of complications were also similar in pancreatitis (6 [5.9%]/9 [8.9%], P = 0.421), infection (0 [0.0%]/1 [1.0%], P = 1.000), and perforation (0 [0.0%]/2 [2.0%], P = 0.477) between the two groups; no bleeding or basket impaction was detected.

Conclusion: Basket and balloon catheters showed similar efficacy and safety for pancreatic stone extraction, while the balloon catheter was superior to the basket if the stone size was ≥ 2cm before ESWL. ESWL prior to stone extraction was an independent predictor for pancreatic stone extraction.

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Disclosure: Nothing to disclose.

PP1572

AUTOIMMUNE PANCREATITIS, MICRONUTRIENTS AND RELAPSE: A PIONEER STUDY

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Introduction: Nutritional deficiencies, including fat-soluble vitamins, water-soluble vitamins and minerals have been studied in the setting many autoimmune diseases, including those involving the digestive system. However, despite the well-known pancreatic involvement in IgG4-related diseases, nutritional deficiencies in autoimmune pancreatitis (AIP) have not been examined so far.

Aims & Methods: The aim of the present study was to determine the prevalence of micronutrient deficiencies in patients with AIP as well as to investigate their relationship with relapse. We retrospectively analysed medical records of patients followed up for AIP at our Pancreas Outpatient Clinic between January 2001 and March 2022. Demographic and clinical data were collected. The primary outcome was the prevalence of micronutrient deficiencies during AIP follow-up. The secondary outcome was the prevalence of AIP relapse, with exposure defined as micronutrient deficiency occurring at any time during follow-up. Micronutrient variables were solely described categorically as deficient or normal, according to the reference values at the time of each test. However, the cut-off value for vitamin D deficiency was set to below 25 nmol/L since levels between 25-50 nmol/L solely indicate an insufficiency.

Results: One hundred patients were included in the final analysis. The male-to-female ratio was 2.5:1; median age at diagnosis was 57 years (range 19-85). Median follow-up was 53 months, and during this time, 38% of patients suffered from at least one micronutrient deficiency. The most prevalent micronutrient deficiencies were vitamin D (16.1%) and zinc (25.5%). There were no statistically significant differences in prevalence of micronutrient deficiency stratified by AIP subtype. The prevalence of PEI and of at least one relapse were significantly higher in patients with micronutrient deficiencies than in those without (92.1% vs 69.4%, p = 0.01 for PEI, and 52.6% versus 27.4%, p = 0.02 for relapse). Interestingly, the prevalence of pancreatic enzyme replacement therapy (PERT) was also higher in patients with any micronutrient deficiency compared to in patients with no deficiencies 34 (89.5%) vs 40 (64.5%), p=0.01. Relapse was observed in 37% of the AIP patients. The odds for relapse were 2.9 (1.26-6.86, p=0.02), 2.71(1.36-5.41, p=0.006) and 3.38 (1.09-10.55, p=0.04) times higher in patients with any deficiency, zinc deficiency and vitamin D deficiency, respectively, compared to in non-deficient patients. However, after stratifying for AIP type 1 and adjusting for PEI and elevated IgG4 levels, this association ceased to be statistically significant.

Conclusion: Zinc and vitamin D deficiencies may be common in patients with AIP indicating that these micronutrients might play a role in the natural course of AIP probably as a result of delicate interplay between disease burden, disease severity and the consequent destruction of the gland. Importantly, any micronutrient deficiency may be prevalent even in the light of treated PEI which emphasizes the potential of micronutrients as an additional tool in the workup and follow-up of AIP patients. More studies are warranted to ascertain our findings.

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Disclosure: Nothing to disclose.

PP1573

CLINICAL OUTCOMES OF PATIENTS WITH TYPE 2 AUTOIMMUNE PANCREATITIS IN A LARGE SINGLE-CENTER COHORT WITH LONG-TERM FOLLOW-UP

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Introduction: Type 2 is a less frequent and known form compared to type 1 autoimmune pancreatitis (AIP). Despite considered as a benign form, only few studies with a short follow-up have been published on type 2 AIP.

Aims & Methods: Patients with definitive or probable diagnosis of type 2 AIP by International Consensus Diagnostic Criteria (ICDC) present in our prospectively maintained database since 1995 were identified.

All patients were contacted and clinically evaluated during the year 2022. Uncontactable patients and patients refusing clinical evaluation were considered as lost at follow-up. Clinical, radiological, serological, and pathological reports were evaluated.

Results: Eighty-eight patient out of 420 AIP patients present in the database (21%) were diagnosed as type 2 AIP (55 males, 33 females, mean age at clinical onset 33.5±13.5 years, range 16-71). According to the ICDC, 21 patients (23.8%) had a definitive and 67 a probable diagnosis of type 2 AIP. Mean follow-up time was 9.2±7.1 years (range 1-27 years). No differences were observed comparing patients with definitive and probable type 2 AIP diagnosis. Concomitant IBD was reported in 77 patients (87.5%), mostly diagnosed before or at the same time of type 2 AIP. Nine patients were drop out (10.2%). Survival curve evaluated a probability of ralapse of 27% at 5 years and 29% at 10 years. Risk of endocrine or severe exocrine insufficiency were relatively low, 5% and 25% respectively. Four extra-pancreatic malignancies (5%) were diagnosed (1 renal, 1 breast, 1 rectum and 1 prostate cancer), none pancreatic. 1 patient died for car accident.

Conclusion: Patients affected by type 2 AIP have a benign long-term clinical outcome. Mortality rate was low, as well as extra-pancreatic and pancreatic malignancies.

Disclosure: Nothing to disclose.

PP1574

THE EFFECT OF STEROID THERAPY ON PANCREATIC EXOCRINE FUNCTION IN AUTOIMMUNE PANCREATITIS

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Introduction: Autoimmune pancreatitis (AIP) is a steroid responsive fibroinflammatory disease of the pancreas, classified as type 1, type 2 or not otherwise specified, based on clinical, radiological and serological features. Few studies have investigated the pancreatic exocrine function (PEF) in patients suffering from AIP. Moreover, no definitive data are available on the role of steroids in recovering PEF.

Aims & Methods: Patients with diagnosis of AIP between January 1 st 2010 and December 31 st 2020 present in our prospectively maintained database were identified (312 patients). Patients with a pre-steroid treatment fecal elastase (FE) were included. Moreover, in patients with available pre- and post-treatment FE (between 3 a 12 months after steroid initiation), changes in PEF were evaluated.

Results: One-hundred-twenty-four patients were included, with a median FE of 122 ug/g (IQR 15-379). Fifty-nine (47.6%) had severe pancreatic exocrine insufficiency (sPEI) (FE < 100 ug/g). At univariate analysis, type 1 AIP, radiological involvement of the head of the pancreas (diffuse involvement of the pancreas or focal involvement of the head), specific symptoms (jaundice and weight loss), age and diabetes were significantly related to lower FE and higher risk of sPEI. However, at multivariable analysis, only the involvement of the head of the pancreas was identified as risk factor for both, lower FE and risk of sPEI. After steroids, median FE changed form 64 (IQR 15-340) to 202 (IQR 40-387) ug/g (p=0.058) and head involvement was the only predictor of PEF recovery, even after adjustment for other variables interaction.

Conclusion: The inflammatory involvement of the head of the pancreas is the only factor associated to PEF and PEF recovery after steroids in patients with AIP.

Disclosure: Nothing to disclose.

PP1575

GLUCOMETRY TO GLUCOMETRY CYST RATIO: A NOVEL DIAGNOSTIC APPROACH FOR MUCINOUS AND NON-MUCINOUS PANCREATIC CYSTS

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Introduction: Pancreatic cyst prevalence is about 2% to 3% in the general population (1,2). It is important to classify them accurately, given the fact that in premalignant lesions surgery could be curative. On the other hand, unnecessary pancreatic surgery could be associated with significant morbidity. The mucinous cysts are considered the premalignant types, traditionally the carcinoembryonic antigen (CEA) has been described as the analysis of cyst fluid to discern them from the non-mucinous.

Recently, the cyst glucose value has been described as a better discriminant, however, there are different cut-off levels founds across the studies (3).

The distribution of glucose in the body is almost uniform (4), a higher metabolic rate within a cyst translates into lower intracystic glucose, which correlates with high-grade injury (3). Therefore, we decided to explore the diagnostic performance of the glucometry-to-glucometry cyst ratio.

Aims & Methods: We conducted a prospective cohort from January 2021 to October 2022 at the endoscopy department at the National Institute of Medical Sciences and Nutrition “Salvador Zubiran” (INCMNSZ) in Mexico City. We included patients older than 18 years who underwent endoscopic ultrasound with FNA of a pancreatic cyst and had a fluid analysis of glucose, CEA, and amylase. We performed glucometry on-site on the patient and the cyst fluid with a FreeStyle Optium Neo glucometer. Glucometry to glucometry cyst ratio (glucometry patient/glucometry cyst) was calculated for each patient.

Follow-up was performed and a final diagnosis was established by a multidisciplinary team, biopsy or surgical specimen. Finally, we performed a 2x2 table and a ROC curve with Youden index to establish the best cut off for diagnostic performance of glucometry-to-glucometry cyst ratio.

Results: 24 patients were included 14 with mucinous cyst diagnosis and 10 with non-mucinous diagnosis, the median age was 58.5 (25-84), and 83% were female. CEA mean was 2331.7± 3359.3 ng/mL for mucinous vs 23.8± 62.6 ng/mL for non-mucinous (p= <0.001). The on-site cyst glucometry was 39.3± 22.1mgdL vs 112± 42.9 for the mucinous and non-mucinous respectively (p= 0.001).

The glucometry/cyst glucometry relation was 3.30± 0.84 (mucinous) vs 1.13± 0.69 (non-mucinous), p= 0.001. The AUC was 0.971 (0.915 -1.000), 0.948 (0.853 – 1.00), and 0.964 (0.900 – 1.000) for glucose relation, glucometry, and CEA respectively. The sensitivity, specificity, PPV, NPV, and precision for CEA (192ng/dL) was 70%, 92.8%, 87.5%, 81.2%, and 83.3% while glucometry (<50mg/dL) was 80%, 85.7%, 83.3%, 85.7%, and 83.3%. Notably, the glucometry relation (>2.45) found a 90%, 92.8%, 90%, 92.8%, and 91.6% for the same parameters.

Conclusion: The glucometry-to-glucometry cyst relation is a novel, cheap, accessible, and superior diagnostic approach for the classification of mucinous and non-mucinous pancreatic cysts. Further studies with bigger sample sizes are needed to confirm these findings.

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Disclosure: Nothing to disclose.

PP1576

UTILITY OF RADIOLOGICAL FOLLOW UP OF MAIN-DUCT INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS AND MIXED-TYPE INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS

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Introduction: Intraductal papillary mucinous neoplasms (IPMN) have a potential to evolve into pancreatic adenocarcinomas. While main-duct IPMN (MD-IPMN), involving the main pancreatic duct (MPD), are less common than side-branch IPMN (SB-IPMN) or mixed-type IPMN (mixed-IPMN), their malignant transformation potential is far greater. Current guidelines refer to worrisome radiological features and high-risk stigmata of IPMN in dictating recommended management strategies, whether surgical resection, endoscopic ultrasound (EUS) with fine-needle aspiration (FNA) or long-term radiological follow-up. However, controversy exists between different guidelines in terms of recommended follow up duration.

Aims & Methods: To assess the utility of radiological follow up of MD-IPMN and mixed-IPMN, including prevalence of worrisome radiological findings and their correlation to development of progression or pancreatic adenocarcinoma.

Eighty-four patients with MD-IPMN or mixed-IPMN who underwent at least one magnetic resonance cholangiopancreatography (MRCP) at our medical center were included. Clinical and laboratory data were obtained retrospectively from their medical records, and imaging tests were revised. A cross-sectional analysis was aimed to point clinical and laboratory parameters associated with development of pancreatic adenocarcinomas. A retrospective cohort study was performed on 44 patients of the study population, who had at least six months of follow up (mean follow up time 26.51±18.75 months), trying to point factors correlating with worrisome radiological features.

Results: Nine cases of pancreatic adenocarcinoma were recorded in the cohort (10.7%). These were diagnosed in 7 patients at presentation, whereas 2 patients developed them during follow up period. Factors associated with cyst progression greater than 5 mm during follow up were alanine aminotransferase (ALT) levels (p=0.007), maximal cyst size (p=0.02), MPD diameter (p=0.01) and the presence of jaundice (p=0.04) or a sense of abdominal fullness (p=0.008).

The cross-sectional analysis indicated that pancreatic adenocarcinoma was associated with complaints of nausea (p=0.01), as well as elevation of aspartate aminotransferase (AST) (p=0.05), gamma glutamyl transpeptidase (GGT) (p=0.01) and alkaline phosphatase (ALP) (p=0.01).

Conclusion: This study demonstrates the association between clinical findings and elevated liver enzymes and the risk of IPMN malignant transformation. Although further studies are needed, these data may aid in risk stratifying patients when determining the duration and mode of follow up for IPMN.

Disclosure: Nothing to disclose.

PP1577

CLINICAL CHARACTERISTICS AND PREOPERATIVE DIAGNOSIS OF SOLID-PSEUDOPAPILLARY NEOPLASM: A SINGLE-CENTER EXPERIENCE OF 18 PATIENTS

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Introduction: Solid-pseudopapillary neoplasm (SPN) is a rare tumor of low malignancy that occurs predominantly in young females. Imaging of SPN is often described as a well-defined and heterogeneous tumor with calcifications or cysts, otherwise small size SPN often shows a homogeneously solid tumor.

However, the differential diagnosis between SPN and other cystic tumors is often difficult due to the variety of imaging findings. In this report, we describe the clinical features and preoperative diagnosis of SPN we experienced at our hospital.

Aims & Methods: We studied 18 cases of SPN that were pathologically diagnosed by surgical resection at our hospital between 1997 and 2022.

Results: There were 12 female and 6 male patients, with a median age of 39.5 years (range: 9-67) and a median tumor size of 23 mm (range: 9-66). The tumor location was in the pancreatic head in 4 cases, body in 6 cases, and tail in 8 cases. The median follow-up period was 89.5 months (range: 8-265), and recurrence-free survival was achieved in all cases during the follow-up period.

The tumors were incidentally detected in 15 cases during health check-ups (mainly by ultrasonography) or other medical examinations, while the other 3 cases were detected due to subjective symptoms that were thought to be caused by SPN. SPN could be diagnosed by contrast-enhanced CT in 10 of 18 cases (56%) and by EUS in 7 of 12 cases (58%).

Contrast-enhanced CT showed enhancing mass in 10 cases, cystic component in 9 cases (50%), and calcification in 8 cases (44%). Among the 8 cases in which SPN could not be diagnosed by contrast-enhanced CT, EUS was performed in 7 cases, and we could diagnose SPN in 2 cases.

Both cases had small lesions of less than 13 mm without cystic components, which made the differentiation from other tumors difficult on contrast-enhanced CT, however EUS showed well-circumscribed, well-defined, and homogeneously hypoechogenic tumors. MRI was performed in 12 cases, and could diagnose SPN in 5 cases, but MRI did not improve the diagnostic accuracy compared to contrast-enhanced CT. The diagnostic accuracy of EUS-guided fine needle aspiration (EUS-FNA) was 89% (8/9 cases).

There were 5 cases in which SPN could not be diagnosed preoperatively. Among them, 3 cases had small tumor sizes (12-16 mm), and 4 cases lacked calcification, making it difficult to differentiate them from neuroendocrine tumors or solid-cystic neoplasms.

Conclusion: Most cases of SPN are detected incidentally, and regular abdominal ultrasonography during medical check-ups is important for early detection. Diagnosis can be more difficult in cases with small tumor diameter, and no cystic component or calcification. However adding EUS to contrast-enhanced CT imaging may improve accuracy. Furthermore, EUS-FNA contributes to preoperative diagnosis with a high diagnostic accuracy.

Disclosure: Nothing to disclose.

PP1578

ANALYSIS OF GENE EXPRESSION TO ELUCIDATE THE PATHOGENESIS OF PANCREATIC SOLID PSEUDOPAPILLARY NEOPLASM

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Introduction: Pancreatic solid pseudopapillary neoplasm (SPN) is a rare tumor of low malignant potential that predominantly affects young women and is characterized pathologically by a pseudopapillary structure. Surgical resection is the only curative treatment for SPN, and there are few effective treatment options for patients with metastasis. However, the natural history of SPN, their molecular biological characteristics, and the factors that determine its malignant potential have not been clarified. Recently, organoid culture technology has enabled more specific and precise analyses using only cultured tumor cells. In this study, we aimed to clarify the molecular biological mechanisms that define the origin of SPN, what genetic factors define the malignant transformation of SPN by combining advanced high throughput technology and organoid technology, and examined its correlation with clinical findings.

Aims & Methods: Age, gender, tumor diameter, and presence or absence of malignant pathological findings were extracted from six SPN cases resected from December 2019 to April 2021 at our hospital. In addition, organoids were derived from tumor and normal pancreatic tissues. Gene expression of the organoids and surgical samples were analyzed by RNA-seq.

Results: The median age of the patients was 41 years (IQR: 38-49 years) with a male-to-female ratio of 1:7. The median tumor diameter was 34 mm (IQR: 18-101 mm). Three patients had nerve plexus or vascular invasion, and one of them had liver metastasis. SPN with malignant findings showed significantly increased nucleus diameter (mean 5.8 μm vs. 8.1 μm, $p<0.001$). The results suggest molecular biological differences associated with malignant transformation. RNA-Seq was performed using normal and tumor surgical tissues, as well as normal and tumor organoids generated from the surgical samples. Comparison of tumor and normal tissue from surgical specimens showed marked changes in gene expression related to cellular localization, and this feature was even more pronounced in tumors with higher grades of malignancy. A similar trend was observed using organoids.

Conclusion: We examined clinical features and performed RNA-seq using surgical tissues and organoids to elucidate the gene expression patterns that characterize SPN. We found that SPN showed a significant enlargement of cell nuclei in high-grade cases, and that there were clear differences in gene expression related to cellular localization and extracellular matrix. Based on the findings of this study, we hope to elucidate the molecular biological mechanisms leading to the development of novel therapies for SPN.

Disclosure: Nothing to disclose.

PP1579

GASTROINTESTINAL CANCER PRECURSOR RISK AND MORTALITY IN PANCREATIC INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS: A NATIONWIDE COHORT STUDY

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Introduction: Intraductal papillary mucinous neoplasm (IPMN) of the pancreas is a precursor of pancreatic cancer. While earlier research has shown a high prevalence of synchronous/metachronous extrapancreatic tumors in IPMN patients, these studies have often been small with retrospective data collection.

Aims & Methods: Through the Epidemiology Strengthened by histoPathology Reports in Sweden (ESPRESSO) cohort, consisting of computerized histopathology data from all 28 pathology departments in Sweden during the period 1965-2017, we retrieved data on IPMN.

Each index case was matched to ≤5 general population controls.

Through Cox proportional hazards regression models, we estimated hazard ratios (HRs) for future gastrointestinal (GI) cancer precursors and death. In secondary analyses, full siblings were used as comparators.

We excluded IPMN patients with high-grade dysplasia (HGD) to avoid the risk of misclassification.

Outcome topography included esophagus, stomach, colon and rectum and outcome morphology included Barrett's esophagus, gastric metaplasia, mucosa type 1-3, tubulous adenoma, sessile serrated polyp, tubulovillous adenoma and villous adenoma.

Results: A total of 117 patients with IPMN, 539 age- and sex-matched controls, and 122 siblings were included. Among patients with IPMN, the mean age at diagnosis was 68.3 years and 48% were female.

Compared to IPMN patients, sibling controls were slightly younger (mean 65.5 years).

Patients with IPMN were also more likely to have prior diabetes, chronic obstructive pulmonary disease, obesity, dyslipidemia, and alcohol-related disease.

Almost all IPMN cases (97%) had ≥3 healthcare visits within the last year before diagnosis.

A Charlson Comorbidity Index score of ≥3 was seen in 28% of IPMN cases, compared to in 11% of controls and 9% of siblings.

IPMN cases were at increased risk of earlier GI cancer precursors compared to controls from the general population (OR=6.67; 95%CI=3.45-14.29), but

the association failed to reach statistical significance when we compared with siblings (OR=2.00; 95%CI=0.92-4.35).
Over a median of 2.1 years of follow up, we confirmed two (1.7%) incident GI cancer precursors in IPMN vs. four (0.7%) in controls, corresponding to an HR of 1.89 (95%CI=0.34-10.55).
By contrast, IPMN patients were at increased risk of death (HR 3.61 (95%CI=1.79-7.27)).
The most common cause of death in IPMN was pancreatic cancer (n=14; 45.2% of all deaths).
Pancreatic cancer was the cause of death in only two (2.7%) controls and one (7.7%) sibling.
Extrapancreatic cancers were found in eight (6.8%) IPMN patients, 21 (3.9%) controls and four (3.3%) siblings.
Conclusion: We found no association between IPMN and other GI cancer precursors. This argues against comprehensive routine surveillance for other GI cancer precursors in IPMN patients.
Mortality was increased in IPMN with pancreatic cancer being the most common cause of death, indicating the need for lifelong follow up in all resected and non-resected patients with IPMN.
Disclosure: Dr Ludvigsson is coordinating a study on behalf of the Swedish IBD quality register (SWIBREG). This study has received funding from the Janssen corporation. Dr Ludvigsson has also received financial support from MSD to develop a paper reviewing national healthcare registers in China. Dr Vujasinovic and Dr Löhr have received lecture fees from Abbott and Viatris. Dr Vujasinovic and Dr Löhr have also received financial support for writing a scientific book from Viatris. All other authors declare that they have no conflicts of interest and nothing to declare.

PP1580

DIAGNOSTIC CHALLENGES OF THE ACINAR CYSTIC TRANSFORMATION OF THE PANCREAS: A SINGLE-CENTRE RETROSPECTIVE STUDY OF 64 PATIENTS

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Introduction: Pancreatic acinar cystic transformation (ACT) was first described in 2000. Its initially supposed pre-neoplastic nature was reconsidered in the WHO Classification 2019. Its current management prone to a non-surgical approach, and so rare cases of histopathological diagnosis have been obtained since. Radiological diagnostic criteria have been proposed to differentiate ACT from Branch-duct Intraductal Papillary Mucinous Neoplasms (BD-IPMN) (Delavaud et al., 2014): 1) ≥ 5 cysts, 2) clustered peripheral small cysts, 3) cyst calcifications and 4) no communication with the main pancreatic duct.
Aims & Methods: The aims of this study were to describe the clinical and radiological characteristics of patients with a presumed diagnosis of ACT in imaging and to assess the role of these known radiological criteria in case of possible differential diagnoses.
In this single-centre retrospective study (2003-2021), consecutive patients with a presumed diagnosis of ACT in the coding database were included. Patients without an available imaging (CT or MRI) for expert radiological centralized review were excluded. A group of "typical" diagnosis of ACT was defined as the absence of differential diagnosis to be evoked. A group of "uncertain" diagnosis of ACT was defined as other possible differential diagnoses.
Results: A total of 64 patients were included (35 male patients [55%]). Median age of diagnosis was of 60 (IQR 47-67) years. ACT diagnosis was "typical" for 35 (55%) patients and was "uncertain" for 29 (45%) patients. In the "typical" group, 91.4% of patients presented ≥3 radiological criteria versus 96.6% in the "uncertain" group (p=0.61). There were more calcifications and <10 cysts in the "uncertain" group compared to the "typical" group (86% versus 66%, p = 0.041 et 24% versus 6%, p = 0.06, respectively).
In the "uncertain" group, the main differential diagnoses suggested were: 16 (55%) BD-IPMN and 7 (24%) calcified chronic pancreatitis (CCP). A pathological confirmation of ACT was obtained for three patients from which two were in the "uncertain" group.
Conclusion: ACT displays an heterogenous morphological imaging presentation reflecting a challenge for accurate non-invasive diagnosis. The published diagnostic radiological criteria seem not to be sufficient, especially in case of calcifications or/and <10 cysts.
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Disclosure: No conflict of interest to be disclosed

PP1581

RADIOCYST - PHASE II MULTICENTRE SAFETY AND EFFICACY STUDY OF ENDOSCOPIC ULTRASOUND GUIDED RADIOFREQUENCY ABLATION OF CYSTIC TUMOURS OF THE PANCREAS

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Introduction: Mucinous cysts of the pancreas are known precursors of pancreatic ductal adenocarcinoma. International guidelines for management and surveillance of pancreatic cysts advise surgical resection of high-risk lesions - mucinous cystic neoplasms (MCNs) and main duct intraductal papillary neoplasms (IPMNs), especially in those with worrisome clinicopathological stigmata. For low-risk cysts, lifelong radiographic surveillance is the standard approach, which can be psychologically distressing for patients and burdensome for healthcare systems. Endoscopic ultrasound (EUS)-guided radiofrequency ablation (RFA) of high-risk cystic lesions of the pancreas is increasingly being used as a minimally invasive alternative in patients who are unfit for or who decline surgery (1). We assessed the safety and efficacy of EUS-guided RFA in the management of low-risk cystic lesions of the pancreas.
Aims & Methods: 68 patients (29M, 39F; mean age 63, range 33-82 years) with low-risk mucinous cystic neoplasms of the pancreas (branch-duct IPMN/mucinous cystadenomas, 0.7-4cm in size) were recruited for treatment by EUS-RFA. The primary endpoint was change in size of the pancreatic cyst on cross-sectional imaging (MRI) at one year after treatment (efficacy). Secondary endpoints included progression following treatment, procedure related morbidity and local complication rate (safety).

Results: 68 patients were recruited of whom 55 completed RFA ablation of their cyst. Anatomical concerns (i.e., blood vessel, main duct proximity) precluded RFA in 12 patients. 18/55 patients (33%) underwent a second ablation. Follow up imaging data were available for 46 (84%) patients and showed a <20% reduction in cyst size in 18 patients, 20-49% in 4 patients, 50-79% in 5 and 80-100% size reduction in 18 patients. For one patient, doubling in cyst size was recorded at the 12-month follow-up. Excluding one case of scope-induced small bowel perforation (Clavien-Dindo; ClvD grade 3), other adverse events were mild (ClvD 0-2) and expected (transient abdominal pain, bloating, sore throat, nausea/vomiting). One patient experienced a self-limiting, post procedure grand mal seizure on a background of epilepsy.

Conclusion: EUS-RFA was well tolerated in most cases. Our data indicate that the procedure is relatively safe. The response ranged from a <20% reduction in size to complete cyst resolution.

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PP1582

IPMN PROGRESSION OVER TIME: THE ROLE OF LIFESTYLE AND MEDICATIONS

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Introduction: IPMNs are mucin-producing subtypes of pancreatic cysts considered a potential precursors of pancreatic cancer accounting for 8% of all pancreatic malignancies. The molecular mechanisms and biological factors involved in the progression of IPMN are still unknown. In previous studies, modifiable risk factors (e.g., smoking) and protective factors (e.g., ACE inhibitors) have been investigated to slow down or prevent the IPMN progression.

The aim of this study is to investigate the association between modifiable lifestyle factors (smoking and alcohol consumption) and the use of commonly prescribed medications (aspirin, ACE -inhibitors, angiotensin- II -receptor antagonists, and statins) and the progression of IPMN.

Aims & Methods: This was a monocentric retrospective cohort study. The study included patients who underwent radiological and clinical examinations at time 0 and at the 3-year follow-up visits. Demographic data (sex, age, weight, and height), IPMN characteristics (type of IPMN and radiological characteristics at baseline), lifestyle factors (smoking and alcohol consumption), and medication use (aspirin, ACE -I, ARBs, and statins) were recorded.

Clinical and radiological characteristics were recorded at the 3-year follow-up to detect progression of IPMN (defined as the presence of high-risk stigmata and/or features of concern). Statistical analysis was performed using SPSS 20. Descriptive data are presented as mean±standard deviation and median with range or percentage.

Categorical data were compared using the χ_2 test. Multivariate logistic regression analysis was performed to adjust for confounding factors (age, sex, and IPMN subtype). A p value < 0.05 was considered statistically significant.

Results: 126 patients were included in the study. Patient characteristics are summarized in Table 1. Smoking (p 0.036; OR 5.7, IC95% 1.11-29.04), heavy alcohol use (p 0.027; OR 4.8, IC95% 1.10-9.50), and use of ARB (p 0.048; OR 3.52, IC95% 1.85-14.50) were associated with progression of IPMN. Statin use was associated with a lower risk of IPMN progression (p 0.043; OR 0.154, IC95% 0.021-0.978). Body weight, aspirin, ACEi, and low alcohol intake were not statistically associated with IPMN natural history.

Demographics:	
No. of patients, n	126
Age (years), mean ± SD	65 ± 11
Sex (men), n (%)	46 (36,5%)
Type of IPMN:	
Main duct-IPMN, n (%)	106 (84%)
Side Branches-IPMN, n (%)	7 (5.5%)
Mixed type-IPMN, n (%)	13 (10,5%)
BMI:	
18-25	65 (56%)
25-30	40 (34,5%)
30-35	7 (6%)
35-40	4 (3,5%)
>40	0
Alcohol intake:	
Low-dose (<2 units/day)	88 (69,8%)
High-dose (>2 units/day)	17 (13,5%)
Smoking habit:	24 (19%)
Drugs intake:	
ACE-I	21 (16,5%)
Aspirin	26 (20,5%)
Sartans	34 (26,9%)
ARB	34 (26,9%)

Table 1. Patients' characteristics.

Conclusion: With the limitations resulting from the small sample size and retrospective design of the study, smoking, heavy alcohol consumption, and ARBi use appear to be risk factors for progression of IPMN. In contrast, statin use was found to be a protective factor for IPMN progression. Prospective studies are needed to confirm these preliminary data.

Disclosure: Nothing to disclose.

PP1583

COMPARATIVE ANALYSIS OF GLUCOSE AND CEA LEVELS FOR THE DIAGNOSIS OF PANCREATIC CYSTS: INSIGHTS FROM EUS-FNA

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Introduction: Pancreatic cysts are a common finding in imaging studies, and, considering the different malignant potentials of mucinous and non-mucinous cysts, it is necessary to develop accurate methods and algorithms to differentiate between them. We conducted this study to compare the diagnostic performance of glucose levels and CEA levels in the diagnosis of mucinous pancreatic cysts.

Aims & Methods: We conducted a retrospective study of patients who underwent EUS-FNA of pancreatic cystic lesions between September 2020 and March 2023 at a tertiary referral center. We included patients whose glucose and CEA levels had been measured. Indicators of mucinous cysts include glucose levels less than 2.7 mmol/l and CEA levels greater than 192 ng/ml. It was compared to the final pathology (obtained after surgery or by EUS-FNB) result to determine their accuracy.

Results: A total of 31 patients were included in the study, 13 males and 18 females. The mean age was 55.7 years. Of the 31 patients, 12 (38.7%)

were diagnosed with mucinous cysts (6 mucinous cystic neoplasms, 6 intraductal papillary mucinous neoplasms), and 19 (61.2%) were diagnosed with non-mucinous cysts (9 serous cystic neoplasm, 8 pseudocysts, 1 solid pseudopapillary neoplasm, and 1 lymphoepithelial cyst). There was a female prevalence in patients with mucinous cysts (8 females and 4 males) with a mean age of 59,6 years. From the cyst fluid analysis, the sensitivity, specificity, and accuracy of glucose in diagnosing mucinous cysts were 91.7%, 89.5%, and 90.3%, respectively. CEA's sensitivity, specificity, and accuracy were 81.8%, 85.0%, and 83.9%, respectively.

	Non-mucinous	Mucinous
Gender (%male)	47.3%	33.3%
Age (Median)	50.2	58.3
Cyst location		
head	9	3
body	2	5
tail	8	4

Conclusion: In the diagnosis of pancreatic cystic lesions, glucose levels have high diagnostic performance with high sensitivity and accuracy. In contrast, CEA levels have a lower diagnostic performance. The findings of our study support the use of EUS-FNA and glucose levels in the diagnosis of pancreatic cystic lesions, as well as EUS-FNB to obtain histological specimens for a more accurate diagnosis of pancreatic cysts.
Further studies are needed to validate these findings and explore the potential of other biomarkers in diagnosing and managing pancreatic cystic lesions.
Disclosure: Nothing to disclose.

PP1584

PERFORMANCE OF INTRA-CYSTIC GLUCOSE MEASUREMENT FOR THE CHARACTERIZATION OF PANCREATIC CYSTIC LESIONS

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Introduction: Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) is essential for the classification of pancreatic cystic lesions (PCLs). Recently, glucose measurement in pancreatic cystic fluid (PCF) has been suggested as an alternative to PCF carcinoembryonic antigen (CEA) level as a predictor of mucinous cystic lesions (MCLs) [1].
An accurate detection and differentiation of MCLs versus non-mucinous cystic lesions (NMCLs) is highly important due to the distinctive malignant potential of each type of PCLs.
Aims & Methods: This study aims to evaluate the diagnostic performance of intra-cystic glucose in distinguishing between MCLs and NMCLs and to analyze the possibility of on-site glucose measurement with a standard glucometer.
Patients with PCLs who underwent EUS-FNA with intra-cystic glucose measurement between 2017 and 2022 were included. Final diagnosis of MCL or NMCL was based on the operative specimen, intra-cystic biopsy or, if this data was unavailable, final diagnosis was based on multidisciplinary evaluation. The diagnostic performance of glucose versus CEA in PCF for the differentiation between MCLs and NMCLs was compared. A cut-off of <50 mg/dL was used for the diagnosis of MCLs.
Additionally, the agreement between on-site glucose determination with a standard glucometer and laboratory glucose measurement was assessed.
Results: A total of 78 patients were included, of which 48 were female (61.5%). The median age of 64 years (IQR 52-72). MCLs accounted for 56.4% (n=44) of all PCLs, which were predominantly located in the head of the pancreas (n=25, 32%). The median diameter of the PCLs were 31 mm (IQR 26-43). The median values of glucose and CEA were 20 mg/dL (IQR 20-94) and 39 ng/mL (IQR 2-439), respectively.
Intra-cystic glucose had a sensitivity and specificity of 93.2% and 76.5%, respectively for the diagnosis of MCLs (versus 55.6% and 87.5%, respectively, for CEA). The area under the curve was 0.870 for glucose (versus 0.806 for CEA). An excellent correlation was observed between on-site and laboratory glucose measurement (Intraclass correlation coefficient: 0.947).
Conclusion: The measurement of intra-cystic glucose in PCF showed superior performance to CEA in distinguishing between MCLs and NMCLs, with excellent correlation between on-site and laboratory glucose measurement. Thus, on-site intra-cystic glucose appears to be an excellent biomarker for the characterization of PCLs due to its low cost, high availability, and the need for a minimal volume of PCF for its determination.
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Disclosure: Nothing to disclose.

PP1585

TESTING NEUTROPHIL GELATINASE-ASSOCIATED LIPOCALIN (NGAL) IN ASSOCIATION WITH GLUCOSE IN THE INTRACYSTIC FLUID IS USEFUL FOR DIFFERENTIATION MUCINOUS FROM NON-MUCINOUS PANCREATIC CYSTS

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Introduction: The undetermined pancreatic cystic neoplasms represent 20-30% of the total number of pancreatic cystic lesions(PCL). The diagnostic accuracy of endoscopic ultrasound (EUS) morphology is 51%. Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) should be performed for differentiating between mucinous and non-mucinous pancreatic cysts when the characterization of the cyst cannot be made on the basis of non invasive imaging techniques.

Aims & Methods: Our aim was to assess the utility of the Neutrophil gelatinase-associated lipocalin(Ngal) concentration alone or combined with glucose level in cyst fluid obtained by EUS with EUS-FNA for discriminating between mucinous and non-mucinous PCL's.

This prospective study was performed between april 2018 and may 2020 at one tertiary referral hospital and included 63 patients , 30 with undetermined pancreatic cysts (group A) and the controlled group was represented by 33 patients with pancreatic pseudocysts after acute pancreatitis drained by EUS (group B). The patients from group A underwent EUS-FNA for liquid analysis and the patients from group B had liquid collection during the drainage of pseudocysts. The final diagnosis was based on surgery or EUS results (morphology, cytology, glucose and carcinoembryonic antigen(CEA) intracystic level) or on imaging during follow-up (24 month). We performed sandwich enzyme-linked immunosorbent assays (ELISA) for cystic and serum Ngal determination and measured glucose levels by a hand glucometer.

Results: The final diagnosis was pseudocyst in 33 patients, serous cystadenoma in 6, mucinous cystadenoma in 3, intraductal papillary mucinous neoplasms in 19 patients, and ductal adenocarcinoma in 2 patients. The cystic fluid analysis of these patients showed that the mean Ngal value for the serous cystic adenomas was 336ng/dl, 728ng/dl for the mucinous lesions and 1116ng/dl for the pseudocysts. The intracystic Ngal concentration (cut-off ≥ 500 and ≤ 800ng/dl) had diagnsotic sensitivity 70.8%, and specificity 92.3% for mucinous cysts. Serum Ngal concentration had no diagnostic contribution. The cystic glucose levels (cut-off ≤ 22mg/dl) had sensitivity 83.3% and specificity 82.1% for mucinous lesions. Combined glucose(cut-off ≤ 22mg/dl) and Ngal(cut-off ≥ 500 and ≤ 800ng/dl) testing showed sensitivity of 58,3 and specificity 100% for mucinous cysts. Wheras either positive Ngal (cut-off ≥ 500 and ≤ 800ng/dl) or glucose (cut-off ≤ 22mg/dl) testing showed sensitivity 95.8% and specificity 74.4%.

Conclusion: Pancreatic cyst fluid NGAL concentration alone and combined with glucose level appeared to be useful in discriminating mucinous cysts.

Reference:

State-of-the-Art Update of Pancreatic Cysts -Andrew Canakis · Linda S. Lee2 Digestive Diseases and Sciences (2022) 67:1573–1587

Disclosure: Nothing to disclose.

PP1586

PANCREATIC BIOPSY EVALUATION WITH A "SMART ROSE" DEVICE FOR IMMEDIATE FEEDBACK ON SAMPLE ADEQUACY AND CANCER PRESENCE IN ENDOSCOPIC BIOPSIES: INITIAL HUMAN CLINICAL TRIAL RESULTS

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Introduction: Pancreatic cancer (PC) accounts for 0.5 million new cases and 4.7% of the world's cancer-related deaths in 2020[1,2].

Endoscopic ultrasound (EUS) guided Fine Needle Biopsies (FNB) are the current standard of care for confirming suspicious lesions, however the diagnostic accuracy is reported below 70%[3-5].

Rapid on-site evaluation (ROSE) improves the diagnostic performances of biopsies via an on-site pathological assessment to reduce the number of needle passes, complication rates, and the need for additional procedures[6]. However, availability of an on-site pathologist is often not feasible. NovaScan has pioneered the use of an impedance spectroscopy biomarker for cancer detection in different tissues based on the Cole Relaxation Frequency (CRF).

NovaScan has developed a "smart ROSE" device that assesses PC presence in FNBs obtained during endoscopic procedures ex vivo, in real-time and on-site, without altering the tissue sample or affecting the workflow.

Aims & Methods: Data were collected in a double-blind, IRB approved study from a cohort of 21 patients (9 males, 12 females) undergoing EUS procedures for suspected pancreatic lesions at the Texas International Endoscopy Center. FNBs were performed with a 22 gauge biopsy from a transduodenal approach. Each biopsy sample was transferred onto a disposable strainer allowing for any excess fluid to drain. An electrode for scanning was placed onto the core samples for data collection with the "smart ROSE," a low cost, portable device that can be used in the operating room. The device measures impedance spectroscopy in the 1 kHz - 10 MHz frequency range and derives a bio impedance biomarker via custom-designed hardware. The assessment of the sample is completed in a few seconds and subsequently, the sample is flushed into a pathology jar to undergo the standard workflow for cytology. The algorithm for extracting the bioimpedance biomarker from the measurement was developed based on our previous preclinical study with transgenic (KPC) mice[7]; pancreas samples with a CRF biomarker below 1 MHz were considered noncancerous, while biomarker values above 1MHz or the absence of a biomarker reading were considered cancerous.

Results: PC assessment provided by nsCanary was validated against pathology outcomes for each biopsy sample. Findings showing a sensitivity of 80% and a specificity of 87.5% are reported in Table 1.

		Pathology Outcome	
		CA	NC
nsCanary Assessment	CA	4	2
	NC	1	14

Table 1. Confusion matrix for asessments and pathology outcomes. CA indicates cancerous outcome, NC indicates noncancerous outcome.

Conclusion: We believe the "smart ROSE" device will provide immediate feedback to the endoscopist on cancer presence and on sample adequacy. This device is intended to support the decision-making process by enabling clinicians to overcome the challenge of proving cancer presence during the first biopsy procedure, ultimately avoiding revisits and unnecessary trauma.

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PP1587

NFATC1 DEPENDENT METABOLIC REWIRING IN HYPOXIC AND GLUTAMINE-DEFICIENT PANCREATIC CANCER

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Introduction: Pancreatic ductal carcinoma (PDAC) is characterized by a highly aggressive phenotype and resistance to chemotherapy. Both features are promoted by a hypoxic and nutrient-poor tumor microenvironment. However, the mechanisms by which these conditions support tumor progression and the involvement of nuclear factor of activated T cells (NFATc1) are largely unknown.

Aims & Methods: Aims: Our aim was to define the adaptive role of NFATc1 in metabolic reprogramming and survival mechanisms of PDAC in nutrient and oxygen poor environment.

Methods: PDAC-Cells with transient NFATc1 knockdown or CRISP-Cas9-mediated knockout were examined following deprivation of either oxygen or essential nutrients, e.g. glutamine. The role of NFATc1 in glutamine dependent cell viability and growth was determined in various human and murine PDAC cell lines, as well as patient-derived cells, using MTT and colony formation assays. Metabolic reprogramming was measured by HPLC/MS, RNA-Seq, qPCR and seahorse analysis. Involvement of NFATc1 in nutrient-dependent metabolic and transcriptional effects were confirmed in patients' tumor samples and in patient derived organoids.

Results: Our ongoing study reveals a close link between hypoxic and nutrient deficient tumor environment dependent regulation of glycolysis, integrated stress responses and activation of NFATc1.

Moreover, the activity and expression of key metabolic enzymes and transporters are hooked to NFATc1 in concert with ATF4 and HIF1α. We are currently investigating the potential of targeted inhibition of NFATc1-mediated metabolic reprogramming in the context of hypoxia and glutamine-deficient environment.

Conclusion: We postulate a central role of NFATc1 in the adaptive metabolic reprogramming of PDAC cells, which may provide the framework for new therapeutic strategies, especially in hypoxic and nutrient-deficient tumors.

Disclosure: Nothing to disclose.

PP1588 WITHDRAWN

PP1589

METASTASIS TO THE PANCREAS

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Introduction: Metastatic involvement of the pancreas is rare, incidence is between 2-5% of all pancreatic malignancies in living patients. Renal cell carcinoma (RCC), lung carcinoma, breast carcinoma and melanoma belong to the most common secondary malignancies of the pancreas. Clinical history, imaging (CT, MRI, PET CT), endoscopic ultrasound (EUS) guided biopsy (FNB), histology and immunohistochemical methods are key for a precise diagnosis which allows tailored therapeutical approach.

Aims & Methods: The aim of the study was to evaluate incidence of metastasis to the pancreas in a centre highly specialized for treatment of cancer. We performed a retrospective evaluation of a prospectively maintained database and reviewed all patients who have been referred for an EUS within the last 24 months to our tertiary centre, where around 400 specialized EUSs are carried out annually. Demographic data, imaging, findings on EUS, histology, immunohistochemistry and treatment were reviewed.

Case	Primary tumour	Age (years)	Sex	Location within the pancreas	Size (mm)	Extra-pancreatic metastasis	Time: original diagnosis – pancreatic metastasis (years)	Treatment	Lenght of survival since EUS (months)
1	RCC: left kidney	69	F	Head Body	15 11	No (Note: 16mm NET– pancr. tail)	9	Active surveillance	16
2	RCC: right kidney	60	M	Body	47	No	7	Robotic distal pancreatectomy	13
3	RCC: right kidney	80	F	Head	25	No	8	Active surveillance	13
4	Rectal adenocarcinoma	75	F	Head	30	Yes (peripancreatic perit. deposits)	12	Chemotherapy (FOLFIRI)	12
5	Non-small cell lung adenocarcinoma	76	M	Body	25	No	Synchronous	Chemotherapy/ Immunotherapy (Carboplatin/ Pametrexed / Pembrolizumab)	6
6	RCC: right kidney	70	M	Tail	50	No	13	Immunotherapy (Avelumab) + TKI (axetinib)	6
7	Non-small cell lung adenocarcinoma	64	F	Head	11	Yes (brain)	4	Radiotherapy (IMRT) followed by EGFRi (osimertinib)	5
8	Leiomyosarcoma (left thigh)	74	M	Head	35	Yes (right lung hilum, liver)	39	None (doxorubicin planned)	2 (died)
9	High-grade tubo-ovarian carcinoma	62	F	Tail	35	No	4	Chemotherapy (Carboplatin, Caelyx); robotic distal pancreatectomy; PARPi (Olaparib)	29

Results: Nine patients with metastatic involvement of the pancreas were diagnosed. Mean age was 70 years (min: 62, max. 80); five were females (5/9: 56 %). The primary tumour included RCC (4/9; 44 %), lung adenocarcinoma (2/9; 21 %), rectal adenocarcinoma (1/9; 11 %), leiomyosarcoma (1/9; 11 %) and tubo-ovarian carcinoma (1/9; 11 %). Metastasis was localised in the head of the pancreas in four patients (45 %), in the body in two individuals (22 %) and in the tail in two patients (22 %). One patient (11

%) had RCC metastasis in the head and body of the pancreas. The mean tumour size was 28mm (min: 11mm, max: 50mm). Three patients (33 %) had synchronous extra-pancreatic metastases. Median time between the primary diagnosis and EUS for pancreatic metastasis was 8 years (0-39 years). One patient underwent surgery (distal pancreatectomy), two have been surveilled actively, one died before treatment was commenced; five patients (56 %) have been treated with combinations of systemic treatments (including chemotherapy, immunotherapy, TKI, PARPi, EGFRi) and/or radiotherapy and/or surgery. The mean survival time since EUS-FNB diagnosis has been 11 months. One patient died.

Conclusion: Despite metastatic pancreatic involvement is rare, attention to (even non-recent) clinical history is crucial. EUS guided biopsy is safe and allows precise histological and immunohistochemical diagnosis. Treatment options include excellent systemic tailored treatment approaches as well as surgery in selected individuals.

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Disclosure: The authors declare no conflict of interest.

PP1590

CONSIDERATION OF WHETHER SCREENING FOR EARLY DETECTION OF PANCREATIC CANCER SHOULD BE CONTINUED EVEN IN SUPER-ELDERLY INDIVIDUALS

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Introduction: With the increase in the opportunity to follow up patients with risk factors for pancreatic cancer, such as IPMN, using imaging tests, it is generally considered to discontinue follow-up for those who are elderly and not eligible for surgery.

There are few studies comparing the group of patients who underwent surgery with those who did not undergo surgery among super-elderly individuals aged 80 years or older.

Aims & Methods: This was a retrospective, single-center study aimed at examining the extension of survival by surgery in healthy super-elderly patients aged 80 years and over with pancreatic cancer. Among the 183 patients diagnosed with histologically confirmed conventional ductal adenocarcinoma of the pancreas at our hospital between April 2011 and March 2021, we targeted 20 cases aged 80 years or older, whose clinical courses were available, and who were considered to be resectable or borderline resectable with an ECOG Performance Status of 0. Of the 20 cases, 11 underwent surgery and 9 did not, and we retrospectively compared the surgery group and non-surgery group.

Results: The age of the surgery group was 83±5 years, while that of the non-surgery group was 88±6 years, which was significantly higher in the non-surgery group. However, there was no significant difference in gender, symptom rate, abdominal pain rate, or blood test results for Alb, AMY, CEA, or CA19-9 levels.

Tumor localization was pancreatic head (64%), pancreatic body (18%), and pancreatic tail (18%) in the surgery group, while all cases in the non-surgery group were located in the pancreatic head. All cases in the surgery group were Resectable on CT imaging, and they underwent pancreaticoduodenectomy (73%), distal pancreatectomy (18%), or total pancreatectomy (9%) without NeoAdjuvant Chemotherapy.

In the non-surgery group, 89% were Resectable and 11% were Borderline on CT imaging, and the reasons for non-resection were age (45%), patient preference (33%), past medical history (11%), and surgeon's judgment (11%). Chemotherapy was administered in 64% of the surgery group and 67% of the non-surgery group, and second-line or later treatment was administered in 27% of the surgery group and 22% of the non-surgery group. In addition, radiation therapy was administered in 18% of the surgery group. The median survival time (IQR) was 333 (251-426.5) days in the surgery group and 226 (137-728) days in the non-surgery group, which was significantly longer in the surgery group. All cases in the surgery group died of the original disease, while 78% of the non-surgery group died of the original disease and 22% died of cerebral infarction.

Conclusion: Surgery is expected to prolong the survival period even in super-elderly individuals, and imaging follow-up for early detection of pancreatic cancer is important even in super-elderly individuals if they have a surgical tolerance.

Disclosure: Nothing to disclose.

PP1591

PANCREATIC DUCTAL ADENOCARCINOMA WITH STRONG EXPRESSION OF INTERLEUKIN-13 RECEPTOR A2 SHOWS A POOR RESPONSE TO GEMCITABINE-BASED CHEMOTHERAPY

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Introduction: Interleukin-13 receptor α2 (IL-13Rα2) is a single-transmembrane protein consisting of 380 amino acids. It is a subunit of the IL-13 receptor family. IL-13Rα2 has high affinity for IL-13, and IL-13 binding has complex internal effects and functions. Pancreatic ductal adenocarcinoma (PDAC) with strong expression of IL-13Rα2 has a poor prognosis and is associated with gemcitabine resistance in an orthotopic mouse model of PDAC.

Aims & Methods: We evaluated the influence of IL-13Rα2 expression on patients with PDAC undergoing gemcitabine-based chemotherapy. We included patients with PDAC, as diagnosed by endoscopic ultrasound-fine needle aspiration (EUS-FNA), who received systemic chemotherapy from March 2014 to March 2019. Tumor expression of IL-13Rα2 was assessed by immunohistochemistry and classified using a three-point scale [0 (negative), 1 (weak), or 2 (strong)] in a blinded fashion. The IL-13Rα2-high group comprised patients with strong expression.

Overall survival (OS) and progression-free survival (PFS) were analyzed from initiation of chemotherapy or chemoradiotherapy to death, and from treatment to the date of local progression > 20% or distant metastasis. The primary tumor reduction rate was compared between the high and low IL-13Rα2 expression groups. The effect of chemotherapy was assessed by computed tomography after 3 months. Additionally, in surgical samples, we evaluated the relationship between IL-13Rα2 and gemcitabine resistance genes (hENT, dCK, RRM1, RRM2, and CDA) by quantitative PCR.

Results: A total of 95 patients were enrolled. High and low IL-13Rα2 expression was detected in 63 and 32 cases, respectively. The IL-13Rα2-high group showed significantly poorer progression-free and overall survival rates than the IL-13Rα2-low group ($p = 0.0191$ and $p = 0.0062$, respectively). The factor of IL-13Rα2 expression was associated with progression disease after 3 months of the first gemcitabine-based chemotherapy (odds ratio = 13.72, $p = 0.0143$).

In univariate analyses, PS of 0–1 or 2 ($p < 0.01$), mGPS of 0-1 or 2 ($p < 0.01$), tumor size < 32 or ≥ 32 mm ($p = 0.02$), surgery, ($p < 0.01$), radiation ($p < 0.01$), and tumoral IL-13Rα2 expression ($p < 0.01$) were associated with OS.

In multivariate analysis, no surgery, no radiation, and positive IL-13Rα2 expression of the tumor were associated with a poorer prognosis (HR = 0.31, 95% CI: 0.12–0.81, p = 0.02; HR = 0.35, 95% CI: 0.17–0.73, p = 0.01; and HR = 1.81, 95% CI: 1.02–3.22, p = 0.04, respectively).

As for gemcitabine resistance genes by quantitative PCR, the expression of hENT1 was significantly lower in the IL-13Rα2-high group (p = 0.01); dCK, RRM1, RRM2 and CDA expression levels were not significantly related to IL-13Rα2 expression (p = 0.14, 0.06, 0.97, and 0.13 respectively).

Conclusion: The evaluation of EUS-FNA specimens for tumoral IL-13Rα2 expression at the time of diagnosis enables prediction of prognosis. Strong expression of IL-13Rα2 in EUS-FNA specimens decreases gemcitabine-based chemotherapy effectiveness in PDAC.

Evaluation of IL-13Rα2 expression in EUS-FNA specimens prior to chemotherapy may facilitate selection of the most suitable chemotherapeutic agent.

Disclosure: Nothing to disclose.

PP1592

UTILIZATION OF HANDCRAFTED SOFTWARE FOR QUANTITATIVE CONTRAST-ENHANCED HARMONIC EUS-FOCUSING ON DIFFERENTIAL DIAGNOSIS OF PANCREATIC TUMORS

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Introduction: Contrast-enhanced harmonic endoscopic ultrasound (CEH-EUS) can demonstrate microvascularization of the tumors. However, most images acquired from CEH-EUS are interpreted subjectively without quantification by time-intensity curves (TICs) analysis.

Aims & Methods: In this study, we used handcrafted software to quantify CEH-EUS images for objective interpretation of tumor microvascularization to make differential diagnosis of pancreatic tumors feasible.

We analyzed the videos of CEH-EUS for pancreatic tumors from the patients in National Taiwan University Hospital and Far Eastern Memorial Hospital. The convex-type echoendoscope (GF-UCT260; Olympus, Tokyo, Japan) equipped with ultrasound (US) systems (EU-ME2) was used for the procedures.

The second generation of US contrast agent with Sonazoid (GE Healthcare, Milwaukee,Wisc), which contains perfluorobutane microbubbles with a median diameter of 2–3 μm, was administered bolus and intravenously with a dosage of 0.015 ml encapsulated gas per kilogram body weight. The videos were recorded in AVI formats with 30 frames/second.

The algorithm for getting TICs includes the following steps:

1. Circling the region of interest(ROI) in the B-mode
2. Performing speckle tracking of the ROI in the B-mode
3. Simultaneously obtaining the intensity of ROI (the mean pixel values in the ROI) in the corresponding contrast-enhanced harmonic image
4. Outputting TICs after subtracting the baseline intensity (defined as mean TIC in the first 10 s for eliminating the different baseline intensities caused by other settings).
5. Outputting histogram of pixel values and excel file containing all pixel values from the frame with the highest mean pixel value automatically.
6. Calculating the standard variance of (5) to represent the heterogeneity inside the ROI.

The speckling tracking composes of searching and matching processes. We used full search for the searching process and normalization cross-correlation for the matching process. By using the hardware of CPU with Intel i7-8750H and GPU with Nvidia GTX 1050 Ti, the computation time was 0.7 ms/frame.

Results: The detailed results were shown in Table 1. We collected 10 and 7 videos of CEH-EUS for pancreatic tumors from NTUH and FEMH respectively in this study. Among them, 9 were diagnosed of pancreatic ductal adenocarcinoma (PDAC), 6 were pancreatic neuroendocrine tumors (PNET), and 2 were autoimmune pancreatitis (AIP). The TICs were obtained through our proposed model. Briefly, there were no significant differences in times to peak, the mean peak intensity, the in-slope tangent and standard deviation of pixel value in ROI (from the frame with the highest mean pixel value) among PDAC, PNET, and AIP. However, there was significant difference in the mean peak intensities of PDAC and non-PDAC (37.88 vs 63.12, p=.031).

	PDAC	PNET	AIP	Non-PDAC (NET & AIP)	P value (PDAC vs PNET vs AIP)	P value (PDAC vs non-PDAC)
Number	9	6	2	8		
Times to peak(SD), seconds	27.50 (7.98)	26.76 (8.56)	21.5 (5.94)	25.45 (7.65)	0.632	0.598
The mean peak intensity(SD), dB	37.88 (18.58)	66.10 (28.91)	54.2 (3.96)	63.12 (25.09)	0.087	0.031
In slope(SD)	2.90 (2.34)	5.07 (3.87)	5.34 (2.41)	5.14 (3.40)	0.331	0.131
SD of pixel value in ROI (the highest mean pixel value)(SD)	34.77 (9.14)	35.47 (10.44)	33.94 (0.08)	35.09 (8.86)	0.977	0.942

Table 1. The results from three kinds of pancreatic tumors based on the proposed model.

Conclusion: In this study, there were no significant differences in times to peak, the mean peak intensity, and SD of pixel value in ROI (from the frame with the highest mean pixel value) among PDAC, PNET, and AIP, however there was significant difference in the mean peak intensity between PDAC and non-PDAC group. A study with larger test number is needed in the future for further application.

Disclosure: We have no conflicts of interest to disclose.

PP1593

INCIDENCE AND RISK OF PANCREATIC CANCER IN PATIENTS WITH ACUTE OR CHRONIC PANCREATITIS: A POPULATION-BASED COHORT STUDY

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Introduction: Chronic pancreatitis (CP) and acute pancreatitis (AP) are known risk factors for pancreatic cancer (PC), but the incidence and risk of PC vary depending on the subtype of pancreatitis.

Aims & Methods: We conducted a population-based cohort study to evaluate the incidence and risk of PC in patients with different subtypes of pancreatitis. We identified patients with AP (n=225,811, 50.0%) and CP (n=225,685, 50.0%) from Korean population-based data and matched them with age- and sex-matched controls (n=4,514,960). We analyzed the

incidence and adjusted hazard ratios (aHRs) of PC among patients followed for more than 2 years or 5 years, and annual interval risks in each group, including single AP (SAP), recurrent AP (RAP), CP with AP, and CP without AP. We also performed subgroup analysis for both sexes and adjusted for confounding factors associated with PC.

Results: The incidences (per 10^5) and risks (aHR) of PC were higher in RAP (12.69, 5.00) or CP with AP (12.12, 5.74) groups compared to SAP (2.31, 1.32) or CP without AP (2.28, 1.57) groups. The annual interval risks of PC decreased over time, with SAP and CP without AP groups showing no increased risk of PC after 3 or 4 years, respectively. However, the risk of PC remained elevated in the RAP and CP with AP groups for more than 8 years. Women with RAP, SAP, and CP with AP had higher risks of PC than men.

Conclusion: Our findings suggest that the risk of PC is higher in patients with RAP and CP with AP than in those with SAP or CP without AP. The risk of PC also persists for a longer time in patients with RAP and CP with AP. Our study provides insights into the incidence and risk of PC in patients with different subtypes of pancreatitis, which can help in the development of effective prevention and screening strategies for PC in this high-risk population.

Disclosure: Nothing to disclose.

PP1594

ASSESSMENT OF GLUCOSE AND HBA1C MONITORING IN A PANCREATIC CANCER SURVEILLANCE PROGRAM FOR HIGH-RISK INDIVIDUALS

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Introduction: Several studies suggest that new-onset diabetes mellitus (NOD) may be an early manifestation of pancreatic ductal adenocarcinoma (PDAC). Therefore, the international CAncer of the Pancreas Screening (CAPS) Consortium recommends glucose and HbA1c monitoring in high-risk individuals (HRIs) for PDAC. However, evidence that such monitoring improves the detection of PDAC is lacking.

Aims & Methods: The aim of this study was to investigate NOD, glucose and HbA1c values in relation to the development of PDAC in a screening program for HRIs. Analysis was performed on individuals participating in the Familial Pancreatic Cancer (FPC) surveillance study, in which HRIs with a hereditary predisposition for PDAC are followed yearly by MRI and/or EUS and blood sampling. Individuals who underwent fasting glucose and/or HbA1c monitoring at least once were included.

Results: In October 2021, the FPC cohort consisted of 463 HRIs, of which 404 had undergone at least one glucose or HbA1c measurement. Of these, 9 individuals developed PDAC and 4 non-PDAC individuals were diagnosed with NOD. Glucose levels ranged between 3.4-10.7 mmol/L (mean 5.4 ± 0.7), and HbA1c levels between 25-68 mmol/mol (mean 37.3 ± 3.6). The percentage of cases with at least one elevated value was comparable between the PDAC and non-PDAC group for glucose (33% and 27%, p=0.707) and HbA1c (22% and 14%, p=0.623).

Conclusion: In this large HRI surveillance cohort, measuring glucose and HbA1c values did not contribute to PDAC detection. Larger and longer term studies are needed to determine the final role of glucose and HbA1c monitoring in PDAC surveillance.

Disclosure: Nothing to disclose.

PP1595 WITHDRAWN

PP1596

EPIDEMIOLOGICAL, CLINICAL AND DIAGNOSTIC ASPECTS OF PANCREATIC CANCER: THE EXPERIENCE OF A UNIVERSITY HOSPITAL IN AN EMERGING COUNTRY

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Introduction: Pancreatic cancer (PC) is the 12th most common cancer in the world and the 7th leading cause of cancer death (Globocan 2020), and its incidence is higher in developed countries. Early diagnosis and surgical resection offer the best chance of potential remission, unfortunately, the majority of patients are diagnosed at an advanced stage due to the non-specific nature of symptoms.

Aims & Methods: This retrospective descriptive study aims to investigate the epidemiological and clinical aspects of pancreatic cancer in an emerging country.

Pancreatic cancer cases, diagnosed and treated at a University Hospital between January 2018 and December 2022, were analyzed using the SPSS Statistics version 20 program for data analysis

Results: A total of 197 new cases of pancreatic cancer were identified, with a mean age of 64.6 +/- 11.5 years, and a range of 33-91 years. The majority of patients (90.9%) were over 50 years old, and there was no significant difference in sex ratio (male 50.3%, female 49.7%). Diabetes was identified in 38.1% of cases, with 42.7% of these cases having new-onset diabetes, and 90.6% having uncontrolled diabetes at the time of diagnosis. Only 7.6% of cases were obese, while 22.8% reported chronic tobacco smoking, and 12.7% reported chronic alcohol consumption. The most frequent digestive symptoms reported by patients were abdominal pain (88.8%), jaundice (56.3%), vomiting (28.4%), constipation (7.1%), and diarrhea (3%). More than half of the patients (53.2%) had a score of 2 or more on the ECOG performance scale, and there was a significant association between ECOG score and cancer stage, with 65% of metastatic cancers having an ECOG score of 2 or more (p=0.02). 24% had a BMI of less than 18 kg/m2. Head cancer accounted for 80.7% of all cases, with corporal and caudal location accounting for 19.3%. 19.8% of cancers were resectable, 4.1% were borderline, 43.7% were locally advanced, and 32.5% were metastatic. CA 19-9 level was correlated with tumor stage, with 71.9% of metastatic tumors having a level greater than 100 U/ml (P=0.025). The predominant histological type was adenocarcinoma (96.4% of cases).

Conclusion: The study highlights the challenge of diagnosing pancreatic cancer at an early stage due to the nonspecificity of symptoms. The results highlight also that the recent onset of diabetes or the uncontrolled state of long-standing diabetes in elderly patients should raise suspicion for pancreatic cancer

Disclosure: None.

PP1597

THE IMPACT OF EUSFNB USING PROCORE NEEDLES FOR MICROSATELLITE INSTABILITY ASSESSMENT IN UNRESECTABLE PANCREATIC ADENOCARCINOMA

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Introduction: Pancreatic adenocarcinoma has a poor prognosis with an overall 5-year survival rate of 10% as most patients present with unresectable or metastatic disease. Evaluation of microsatellite instability (MSI) or deficient DNA mismatch repair (dMMR) status can tailor treatment to increase the efficacy of systematic therapy. However, the adequacy of tissue samples obtained by routine endoscopic ultrasound-guided fine needle biopsy (EUSFNB) of pancreatic adenocarcinoma for MSI/dMMR assessment remains unclear. This study evaluated the role of EUSFNB using the Procore (Cook Medical) biopsy needles for MSI/dMMR assessment. In recent years, a new 20G Procore needle has been developed to overcome the limitations of tissue acquisition of the smaller needles (22G,25G) and the rigidity of the larger one (19G). We also aimed to study the performance assessment between Procore 20G vs 22G needles in tissue acquisition for MSI/dMMR assessment.

Aims & Methods: This was a single-centre study reviewed patients with suspected pancreatic adenocarcinoma who underwent diagnostic EUS-FNB in a tertiary referral centre using either 20G or 22G Procore needles from January 2022 to March 2023. The newer 20G Procore needle was designed with a forward side-bevel, whereas the 22G needle had a reverse side-bevel, for tissue core acquisition. Clinical data and characteristics of lesions in all patients undergoing EUSFNB in the participating site are prospectively maintained in a registry for quality control and audit purposes. All cases of adenocarcinoma were tested for MSI/dMMR status by immunochemistry (MLH1, MSH2, MSH6 & PMS2). The primary study outcome measure was the adequacy of tissue samples for MSI/dMMR testing. Secondary outcomes were the rate of histological core tissue acquisition, the difference in the adequacy of tissue for MSI/dMMR testing between 20G and 22G Procore needles and the rate of MSI-high pancreatic adenocarcinoma. The impact of the use of these needles in obtaining adequate tissue on patient management was also evaluated.

Results: A total of 31 patients (mean age 68.2 SD± 8.17; 51% male) with pancreatic adenocarcinoma were included in the study. The mean size for the pancreatic mass was 33.17 SD±20.4 with most of the pancreatic mass located at the pancreatic head, uncinate, and neck region 70% (21/31). The histological yield of EUSFNB was 100%. Overall tissue adequacy rate for MSI/dMMR assessment was 80% (25/31), which was higher with 20G compared to 22G Procore needles (88.8%;16/18 vs 69.2%;9/13, p-value = 0.207). Two of the 23 patients with successful MSI/dMMR testing (8.7%) had MSI-high status. One received second-line treatment with pembrolizumab, and the other received the best supportive care due to worsening liver function and poor functional status.

Conclusion: This study affirmed the feasibility of routine MSI testing from specimens acquired by EUSFNB using the Procore EUSFNB needles. Our results also suggested that the larger 20G Procore needle with forward side-bevel had a higher yield for MSI testing than the 22G needle with reverse side-bevel, even though both needle types could obtain tissue cores for histology, and this should be reassessed by a further study with larger sample size that is adequately powered.

Disclosure: None.

PP1598

PROGNOSTIC SIGNIFICANCE OF PRE-THERAPEUTIC BLOOD-BASED BIOMARKERS IN PANCREATIC CANCER

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Introduction: Inflammation-based prognostic indicators have been developed to predict the prognosis in patients with pancreatic cancer. Neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR) and C-Reactive Protein/Albumin Ratio (CAR) have shown to be predictors of poor outcomes in various malignancies.

Aims & Methods: The aim of our study was to assess the role of NLR, PLR and CAR in predicting prognosis and sarcopenia in pancreatic cancer. We conducted a retrospective single-center study, including all patients diagnosed with pancreatic adenocarcinoma between 2014 and 2022.

Patient characteristics, inflammatory markers, tumor status and outcomes were collected. Baseline NLR, PLR and CAR were calculated for each patients. Radiologic sarcopenia was assessed by calculating the total psoas area index.

Results: In total, thirty patients were enrolled with a mean age of 61 ± 11 years and a sex ratio M/F of 4. The tumor was predominantly located at the head (66.6%). Regarding staging, the tumor was resectable in 11 patients (36%), locally advanced in 10 patients (33%) and metastatic in 9 patients (9%). Mortality rates at 6 months, 12 months and 36 months were 50%, 63.3% and 75% respectively. All the analyzed ratios were not associated to tumor locations or stages (p>0.05). High NLR was significantly higher in patients with sarcopenia compared to those without sarcopenia (4.7 ± 2.6 vs 2.9 ± 1.62 respectively, p = 0.02), Difference not found with PLR or CAR. When analyzing the receiver operating characteristic (ROC) curve, AUC of NLR, PLR and CAR in predicting 12 months survival were [0.838 (95% CI: 0.683–0.992, p=0.004)], [0.831 (95% CI: 0.671–0.992, p=0.005)] and [0.781 (95% CI: 0.601–0.961, p=0.018)], respectively.

Conclusion: In our study, pre-therapeutic NLR was significantly correlated with sarcopenia and showed better prediction of 12 months survival and thus associated to a poor prognosis. It is a simple, easly to calculate and valuable tool for assessment of prognosis in pancreatic cancer.

Disclosure: Nothing to disclose.

PP1599

SURGERY AFTER NEOADJUVANT THERAPY IS SUPERIOR TO UPFRONT SURGERY FOR PANCREATIC CANCER WITH VENOUS INVOLVEMENT

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Introduction: The benefits of neoadjuvant therapy for patients with pancreatic cancer (PC) with portal venous involvement are still a matter of debate.

The aim of this study is to compare the short- and long-term outcomes of surgery with or without neoadjuvant therapy (NAT) in patients with PC with suspicion of venous involvement.

Aims & Methods: A multicenter retrospective cohort study was conducted to compare patients who underwent upfront surgery (US) vs patients who underwent surgery after NAT for PC with suspicion of venous involvement between 2007 and 2017. The primary endpoints were short-term morbidity and mortality, overall survival and disease-free survival.

Results: We included 690 patients who underwent US and 361 patients with NAT from 9 centers. Patients with NAT had more suspicion of radiological SMV-PV involvement(83.6% vs 96.9%, p<0.001), but received fewer SMV-PV resections (79.3% vs 53.7%, p<0.001) and in the final pathology had less SMV-PV infiltration (65.9% vs 52.3%, p<0.001), perineural invasion (90.1% vs 75.2%, p<0.001), angioinvasion (76.7% vs 59.9%, p<0.001), lymph node involvement (83.6% vs 60.6%, p<0.001) and R1 resections (67.2% vs 44.7%, p<0.001).

In patients undergoing venous resection, there were no differences between the US and NAT patients in major postoperative complications (20.0% vs 22.8%, p<0.50) and reoperations (10.2% vs 11.4%, p<0,66). When venous resection was not performed, patients with NAT had significantly fewer (Clavien-Dindo ≥IIIb) postoperative complications (24.4% vs 10.8%, p=0.02), fewer reoperations (11.2% vs 3.0%, p=0.006), and less 90-day mortality (7.7% vs 2.4%, p=0.03). Furthermore, patients with NAT had a significantly better survival of 27.3 compared to 21.2 months in patients with US (p = 0.003).

	No venous resection			Venous resection		
	Upfront surgery (US)	Neoadjuvant therapy (NAT)	P value*	Upfront surgery (US)	Neoadjuvant therapy (NAT)	P value*
Total, n	143	167		547	194	
Complications, n (%)	78 (54.6)	83 (49.7)	0.39	341 (62.3)	137 (71.0)	0.03
Clavien dindo			0.02			0.50
I-IIIa	59 (75.6)	74 (89.2)		268 (80.0)	105 (77.2)	
IIIb-V	19 (24.4)	9 (10.8)		67 (20.0)	31 (22.8)	
Reoperation	16 (11.2)	5 (3.0)	0.006	53 (10.2)	21 (11.4)	0.66
Readmission	11 (7.7)	13 (7.8)	0.98	79 (15.9)	22 (12.2)	0.23
90-day mortality	11 (7.7)	4 (2.4)	0.03	27 (4.9)	6 (3.1)	0.28

Table. Short-term morbidity and mortality

Data are missing for some patients: complications (n=1), Clavien dindo (n=7), reoperation (n=36), readmission (n=62)

Conclusion: NAT should be considered in patients with PC with venous involvement, since it might allow a better selection of patients and is associated with less degree of major postoperative complications and better overall survival.

Disclosure: Nothing to disclose.

PP1600

A PILOT STUDY USING SINGLE MOLECULE COUNTING TECHNOLOGY PLATFORM TO SEARCH FOR BIOMARKERS OF PANCREATIC CANCER

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Introduction: Single-molecule fluorescence microscopy has been researched for diagnosis of disease and detecting drugs or substances at the molecular level. It is known to detect the target proteins more precisely than ELISA and has a higher multiple detection rate, with small sample volume and at low cost. Pancreatic cancer often presents at an advanced stage. So there is a demand for early detection.

Aims & Methods: The aim of this pilot study is to check the feasibility of this technique to diagnose the pancreatic cancer. From April 2016 to June 2021, 16 pancreatic cancer patients and 21 non-pancreatic cancer patients were enrolled in the study at Seoul National University of Bundang Hospital. 15 markers (CA19-9, CRP, CA-125, D-dimer, Lumican, Cathepsin-D, IL-6, LRG-1, IFN-r, Beta-2, CEA, Clusterin, TTR, IL-4, and C5a) were detected from blood sample using single-molecule fluorescence microscopy. To create a train and test set for our research, we split the enrolled patients into halves.

The primary outcome of the study is the accuracy, which is defined as the number of correct predictions, where patients are predicted as patients and controls are predicted as controls, divided by the total count. We analyzed the classification accuracy of each group and examined the accuracy based on the combination and number of markers used.

Although the sizes of the training set and the testing set were equal, we randomly split each sample into either the training or testing set, and repeated this process 1,000 times.

Results: Eight out of 16 pancreatic cancer patients were used for training and the remaining 8 for testing. For the non-pancreatic cancer patients, 11 of the 21 blood samples were used for training, and the other 10 for testing.

In the classification accuracy of diagnosis, we tested the accuracy by utilizing Gaussian Naïve Bayes and Support Vector Machine. In case of Gaussian Naive Bayes for the train set, the average accuracy was 99.2%, the standard deviation was 0.019. When applied to the test set, the accuracy was 86.3%, with a standard deviation of 0.074. In case of Support Vector Machine for the train set, the average accuracy was 75.6%, the standard deviation was 0.004. When tested on the test set, the accuracy was 77.6% with a standard deviation of 0.076.

For the accuracy according to the number of biomarkers used, the accuracy was calculated by adding one biomarker at a time in the order previously listed. Accuracy tended to increase as markers were added, the highest accuracy was achieved when using 10 biomarkers (88.4%), and adding more biomarkers from the 11th to 15th actually decreased the accuracy (lowest 85.5% to highest 87.8%).

Conclusion: In this pilot study, we identified that single molecule counting technology showed a feasibility for the new technique to differentiate the patients with pancreatic cancer from healthy control. Further studies with more samples and appropriate selection of biomarkers, and optimization of classification model are necessary to fit the best performance of this novel technique. Utilizing this novel technique with multiple biomarkers in combination is expect to enable low-cost, small-sample volume, and high- accuracy diagnosis in pancreatic cancer.

Disclosure: Nothing to disclose.

PP1601

ANGIOTENSIN SYSTEM INHIBITORS USE AND ITS IMPACT ON SURVIVAL IN PANCREATIC CANCER PATIENTS: USING THE KOREAN NATIONAL HEALTH INFORMATION DATABASE

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Introduction: Pancreatic cancer (PC) is one of the fatal malignant tumors, with a 5-year survival rate is approximately 6%, and is expected to become the second leading cause of cancer deaths by 2030. The poor prognosis of PC is associated with the tumour microenvironment, characterized by excessive fibrosis and extracellular matrix deposition, known as desmoplasia. PC's highly desmoplastic property not only increases the malignancy of the tumor but also inhibits the penetration and diffusion of anti-cancer drugs, related to drug resistance. Chauhan et al. demonstrated that the angiotensin inhibitor (ASI), losartan reduced stromal collagen and hyaluronan production, thus improving the efficacy of chemotherapy in PC models. Several retrospective studies have reported that the ASI usage group showed higher overall survival (OS) and progression-free survival compared to the non-ASI usage group in PC patients. However, most of the previous studies on ASI in PC patients were based on retrospective data from single institutions. Recently, real-world big data study could explain this subject.

Aims & Methods: In this study, we aimed to conduct whether ASI use in PC patients improve OS using National Health Information Database of the National Health Insurance Service, which represents the entire Korean population. We assessed 209,723 participants for eligibility, diagnosed with pancreatic cancer between 2002 and 2020. A total of 64,219 PC patients were enrolled and divided into 3 groups [chronic ASI users with hypertension (HTN), n=13,239; non-ASI users with HTN, n=5,963; non-HTN group, n=45,017]. We performed propensity score matching to balance the baseline characteristics of the 3 groups and to reduce potential confounders using a logistic regression model with adjustment for the following: age; sex; region of residence (urban or rural); household income; underlying disease of HTN, diabetes mellitus, cardiovascular disease, cerebrovascular disease, chronic kidney disease or chronic pancreatitis; Charlson Comorbidity Index (0, 1 or ≥2); concurrent use of aspirin, metformin, statin; PC surgery type; radiotherapy; and chemotherapy.

Results: Multivariate analysis using Cox regression analysis for matched cohort presented ASI usage, female, younger, history of chronic pancreatitis, CCI ≥2, concurrent use of statin, and receiving distal pancreatectomy were significantly associated with longer OS. In addition, Kaplan-Meier curve for OS of 3 groups according to ASI usage showed that chronic ASI users presented significantly longer OS than non-ASI users and non-HTN group [Hazard ratio, chronic ASI users (control) versus non-ASI users 1.447; chronic ASI users (control) versus non-HTN group 1.518; P value < 0.001].

Conclusion: We found that the use of ASI after PC diagnosis is associated with longer survival in PC patients. Additional well-designed randomized controlled studies are needed to confirm these findings in the future.

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PP1602

A BASAL-LIKE PANCREATIC CANCER MOLECULAR SUBTYPE CAN BE IDENTIFIED ON EUS-ACQUIRED TISSUE AND IS ASSOCIATED TO CURRENT SMOKING, LOWER CA19.9 EXPRESSION AND WORSE PROGNOSIS

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Introduction: Two pancreatic cancer(PDAC) transcriptome subtypes have been defined (basal-like and classical) that seem related to different prognosis. Nevertheless, RNA-extraction from pancreatic tissue is cumbersome and has been performed mainly on surgical samples, representative of <20% of cases. Most PDAC patients undergo Endoscopic-UltraSound(EUS)-guided tissue acquisition(EUS-TA), but RNA-sequencing on such samples has been rarely performed or limited to paraffin-embedded samples with low RNA quality.

Furthermore, the association between molecular subtype and patient-related factors such as BMI, smoking, drug use, tumor location and Ca19.9 expression is uninvestigated.

Aims & Methods: The aim was to correlate PDAC molecular subtypes identified by RNA-sequencing on EUS-TA samples with prognosis and evaluate whether they are associated to patients' factors.

Consecutive patients with non-metastatic PDAC who underwent EUS-TA at diagnosis were enrolled in a prospective biobanking study with snap-frozen samples. Those with adequate quantity and quality of RNA underwent RNA-sequencing with Illumina Nova-Seq. PURIST score was applied to define transcriptional subtype and association with patient-related factors and overall survival (OS) investigated. Categorical and continuous variables were investigated by Fisher's exact test or Mann-Whitney test, correlation analyses with Pearson test

Results: In 44/45 samples, RNA was of quantity and integrity allowing successful RNA-sequencing. According with PURIST score 3 patients were classified as basal-like (6.8%) and the other 41 as classical. Basal-like patients had a significantly lower median OS compared to classical (3 vs 16 months; p=0.01) and a basal-like phenotype was associated to increased risk of death (HR 7.79; p=0.006). PURIST score also significantly correlated inversely with OS (r=-0.6; p=0.0007). Concerning patients' variables, patients with basal-like tumors were more frequently current smokers (66.6% vs 12.2%; p=0.05) and had a lower baseline Ca19.9 (80 vs 1243 IU/ml; p=0.001). No differences were found concerning age, gender, BMI, diabetes history, disease stage, tumor location, use of aspirin or statins.

Conclusion: Molecular subtype identification on EUS-TA PDAC cases at diagnosis is feasible and a basal-like phenotype is rare but associated to worse prognosis. Furthermore, current smoking seems to be associated to a more aggressive molecular subtype, which in turn does not seem to express a high Ca19.9. Further studies on a larger cohort are needed to confirm such findings.

Disclosure: Nothing to disclose.

PP1603

NUTRITIONAL AND INFLAMMATION INDICES ARE INDACATORS OF INPATIENT ADVANCED PANCREATIC CANCER TREATMENT COURSE

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Introduction:

Systemic inflammation and nutritional parameters have been studied as possible prognostic factors in advanced pancreatic cancer (APC) treatment results predictors.

Aims & Methods: The study aimed to analyze the correlation between nutritional status parameters and indices and the number of multi-agent treatment courses received at the inpatient chemotherapy department. Pre-treatment parameters (Charlson comocrbidity index (CCI), complete blood count, total protein, albumin, bilirubin) were collected and nutritional ratios and indices (neutrophil-to-lymphocyte (NLR), platelete-to-lymphocyte (PLR), lymphocyte-to-monocyte (LMR), prognostic nutritional index (PNI), nutritional risk index (NRI), HALP (hemoglobin, albumin, lymphocyte, protein), prognostic immune nutritional index (PINI), systemic inflammation score (SIS), systemic immune-inflammation index (SII)), were calculated in 158 patients with APC. We used Kendall rank correlation coefficient test to assess the correlation between the aforementioned parameters and the amount of treatment courses received.

Results: Out of 158 patients, 72 were men (45.5%) and 89 had with metastatic disease (56.3%). Mean number of inpatient received courses was 7. Kendall rank correlation coefficient test was statistically significant for CCI (-0.15), hemoglobin (0.129), erythrocyte (0.129), total protein (0.174), and albumin levels (0.178) as well as for PNI (0.179), NRI (0.150), HALP (0.145), PINI (0.187), and SII (-0.13) (p<0.05). There was a trend to statistical significance also in neutrophil (-0.1, p=0.052) and lymphocyte counts (0.104, p=0.06) and LMR (0.101, p=0.067).

Conclusion: In advanced pancreatic cancer, nutritional and systemic inflammation indices may serve as a predictor of the number of multi-agent chemotherapy treatment courses received at the inpatient chemotherapy department.

Disclosure: Nothing to disclose.

PP1604

SARCOPENIA AS A PREDICTOR OF POSTOPERATIVE PANCREATIC FISTULA AND OTHER COMPLICATIONS AFTER PANCREATODUODENECTOMY IN PATIENTS WITH PANCREATIC CANCER

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Introduction: Sarcopenia can be considered a prognostic factor for the occurrence of postoperative pancreatic fistula, other postoperative complications and mortality after pancreatoduodenectomy in patients with pancreatic adenocarcinoma.

Aims & Methods: The aim of our study was to determine the impact of sarcopenia on the occurrence of postoperative pancreatic fistula, other complications and mortality after pancreatoduodenectomy in patients with pancreatic cancer. Retrospective study of treatment of 152 patients with pancreatic cancer, who underwent pancreaticoduodenectomy in our Institution in the period from 2017 till 2019, was performed. Preoperative computed tomography (CT) was performed for all patients. Sarcopenia was quantified using two approaches: the Total Psoas Index (TPI) and the Hounsfield Unit Average Calculation (HUAC). The measurements were conducted at the level of the third lumbar vertebral body (L3).

Results: In 66 (43.4%) patients sarcopenia was diagnosed using HUAC. Postoperative complications occurred in 41 (62.1%) patients in the group with sarcopenia and in 29 (33.7%) patients in the group without sarcopenia (c^2 = 12.1, p=0.0005). Mortality was 4 (6.1%) and 2 (2.3%) respectively (c^2= 1.3, p=0.24).

In patients with sarcopenia determing by HUAC infections complications occurred in 8 patients, pancreatic fistula Grade B or C in – 24 patients, haemorrhage – in 5, delayed gastric emptying – in 3 patients, chyle leak – in 1. In patients without sarcopenia infections complications occurred in 7 patients, pancreatic fistula Grade B or C in – 10 patients, haemorrhage – in 5, delayed gastric emptying – in 3 patients, chyle leak – in 4 patient. We didn't find any significant difference in the number of infections complications (c^2=0.04, p=0.8) and haemorrhage (c^2 = 1.6, p=0.2). The level of pancreatic fistula Grade B or C was significant higher in patients with sarcopenia (c^2= 3.9, p=0.04).

Sarcopenia was diagnosed in 78 (51.3%) patients using TPI, postoperative complications occurred in 53 (67.9%) patients, in patients without sarcopenia postoperative complications occurred in 17 (23.0%) patients (c^2=30.9, p=0.0001). Mortality was 5 (6.4%) and 1 (1.4%) respectively (c^2=2.6, p=0.1).

In patients with sarcopenia determing by TPI infections complications occurred in 10 patients, pancreatic fistula Grade B or C in – 26 patients, haemorrhage – in 5, delayed gastric emptying – in 6, chyle leak – in 6 patients. In patients without sarcopenia infections complications occurred in 5 patients, pancreatic fistula Grade B or C in – 8 patients, haemorrhage – in 3, delayed gastric emptying – in 1. The level of pancreatic fistula Grade B or C was higher (c^2 = 0.02, p=0.8) in patients with sarcopenia. We didn't find any significant difference in the number of infections complications (c^2 = 0.8, p=0.3) and haemorrhage (c^2 = 0.8, p=0.3).

Conclusion: Present results suggest that sarcopenia, determined by HUAC and TPI, is a reliable indicator of the level of postoperative complications. Patients with sarcopenia, determined by HUAC, had higher level of postoperative pancreatic fistula after pancreaticoduodenectomy.

Calculation of sarcopenia using HUAC can be used to predict the occurrence of postoperative pancreatic fistula before pancreatoduodenectomy in patients with pancreatic cancer and help surgeons to guide preoperative and intraoperative clinical tactics.

Disclosure: Nothing to disclose.

PP1605

FATTY PANCREAS IS A RISK FACTOR FOR PANCREATIC CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS OF 2,956 PATIENTS

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Introduction: Pancreatic cancer (PC) is one of the most lethal cancers in the world, and by 2050, it is expected to become the leading cause of cancer-related deaths. Fatty pancreas (FP) is defined by significant fatty infiltration of the pancreatic parenchyma in the absence of chronic, excessive alcohol intake. The link between FP and PC is not fully understood; however, as a possible modifiable risk factor, FP is suspected of contributing to PC development. The aim was to assess the association between PC and FP by conducting a systematic review and meta-analysis.

Aims & Methods: We systematically searched three databases on 21.10.2022: MEDLINE (via PubMed), Embase, and CENTRAL (PROSPERO no.: CRD42022369017). Case-control and cross-sectional studies reporting on patients where the intra-pancreatic fat deposition was determined based on modern radiology or histology were included. We investigated patients with PC and without PC. As primary outcome parameters, FP in PC patients and non-PC patients, and PC in FP and non-FP patients were measured. Proportion and odds ratio (OR) with a 95% confidence interval (CI) was used for the effect size measure.

Results: In total, 17 articles were identified, including 2,956 patients. The possibility of having FP among patients with PC was more than six times higher (OR 6.13; 95% CI 2.61-14.42) than in patients without PC. The presence of PC among patients with FP was 32% (OR 1.32; 95% CI 0.42-4.16). The proportion of FP among PC patients was higher (0.62; 95% CI 0.42-0.79) than in non-PC patients.

Conclusion: In conclusion, FP was identified six times more in PC patients. Among patients with identified predisposing factors for PC, proper patient management can result in better survival rates. The last two authors contributed equally.

Disclosure: None.

PP1606

VALIDATION OF THE PROGNOSTIC SIGNIFICANCE OF A NEWLY PROPOSED HISTOLOGICAL CLASSIFICATION OF PANCREATIC DUCTAL ADENOCARCINOMA WITH MOLECULAR RELEVANCE

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Introduction: Recent studies propose that pancreatic ductal adenocarcinoma (PDAC) can be morphologically classified into biologically relevant categories each associated with known molecular subtypes with prognostic and possibly predictive significance (1).

Two distinct morphological PDAC categories ('gland forming' and 'non-gland forming') and four morphological patterns were thus recognized. We aimed to validate the prognostic significance of the newly proposed morpho-molecular classification of PDAC.

Aims & Methods: We reviewed all tumour containing histological slides from 50 chemotherapy-naive PDAC resection specimens from 50 patients (32 male, median age 71, range 30-97) treated in our centre between 2016-2019 and followed up for up to 85 months (mean follow up 35.1 months, mean time to death 23 months). Cases were assessed for the presence of four morphological patterns (conventional, tubulopapillary, squamous and composite) that grouped into two categories "gland forming" and "non-gland forming" according to the presence of well or not of well-formed tubular or compact structures. Tumour histological grading and TNM staging according to WHO 2019 and AJCC 2017, respectively, was performed. Morphological patterns and tumour categories were correlated with clinical-pathological variables and patient overall survival. Statistical analysis was performed using Pearson correlation coefficient and chi-squared test and overall survival analysis was conducted using the log rank test and Kaplan Meier curves. The level of significance was set at p=0.05.

Results: Our PDAC cohort included 9(19.6%) grade 1, 17(37%) grade 2, 20(43.5%) grade 3 and 12(24.5%) pT1, 25(51%) pT2, 10(20.4%) pT3 and 2(4.1%) pT4 cases. There were 31(62%) gland forming and 19(38%) non-gland forming PDAC, subclassified in 21(42%) with conventional, 10(20%) with tubulopapillary, 2(4%) with squamous and 17(34%) composite pattern. Morphological patterns were positively correlated with lymph node status (r=0.384, p=0.008). The non-gland forming category was positively correlated with higher tumour grade (r=0.435, p=0.003) and inversely correlated with the presence of pancreatic intraepithelial neoplasia-PanIN (r=-0.394, p=0.006). A weak negative association was observed between vascular invasion and female sex (r=-0.301, p=0.034) and perineural invasion with increasing age (r=-0.328, p=0.021). There were no other significant correlations observed. At the end of follow up 12/44 (27.3%) patients were alive. The two morphological categories and four morphological patterns did not correlate with overall survival (log rank test p=0.732 and p=0.843, respectively).

Conclusion: We have confirmed the applicability of the newly proposed binary morphological classification in PDAC. In our cohort the most common morphological category is "gland forming" with the majority of PDAC showing conventional pattern while "non-gland forming" PDAC are of higher histological grade. The recently proposed prognostic significance of the binary morphological classification has not been confirmed. Further studies in cohorts with larger number of cases with molecular subtyping are required to further assess the prognostic implications of the morphomolecular classification in PDAC.

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Disclosure: Nothing to disclose.

PP1607

SAFETY AND EFFICACY OF ENDOSCOPIC ULTRASOUND-GUIDED RADIOFREQUENCY ABLATION FOR PANCREATIC INSULINOMA: A SINGLE-CENTER EXPERIENCE

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Introduction: Insulinomas are rare, functioning pancreatic neuroendocrine neoplasms (pNEN), whose gold standard therapy is surgical resection. Endoscopic ultrasound-guided radiofrequency ablation (EUS-RFA) has emerged as a minimally invasive therapeutic option for pancreatic lesions. This study aims at describing a series of patients with pancreatic insulinoma treated with EUS-RFA.

Aims & Methods: This single-center, retrospective study includes all consecutive patients with pancreatic insulinoma undergoing EUS-RFA because unfit for surgery or refusing surgery. EUS-RFA was performed by using a 19G RFA needle, and a dedicated current generator system with a RFA energy of 20 to 50W. Technical success (i.e., the achievement of complete ablation), adverse events rate, and radiologic response within 3 months after EUS-RFA (i.e., complete tumor necrosis) were evaluated. Follow-up was assessed by clinical monitoring and blood test evaluation at least every 6 months for the first year after the procedure. A descriptive statistical analysis was performed for all the variables.

Results: From March 2017 to September 2022, 10 patients (mean age: 67.1 ± 10.1 years; F:M 7:3) were included. The mean size of insulinomas was 11.9 ± 3.3mm. The median number of passes was 6 (1-14) with a median ablation duration of 15 (6-20) seconds per pass. Technical success, immediate post-procedural euglycemia, and complete radiological response by abdominal CT scan were achieved in all cases (100%). Mild procedure-related early adverse are shown in Table 1. Persistent euglycemia was assessed at 6 and 12 months for each treated patient.

Patients, n	10
Technical success, n (%)	10 (100)
Early adverse events, n (%)	
Mild abdominal pain	2 (20)
Bleeding	1 (10)
Late adverse events, n (%)	0 (0)
Euglycaemia within 24 hours	10 (100)
Radiologic complete response within 90 days, n (%)	10 (100)
Clinical remission at 6 months, n (%)	10 (100)
Clinical remission at 12 months, n (%)	9/9 (100)

Table 1.

Conclusion: Data from this case series suggest that EUS-RFA is a feasible and safe therapeutic approach for pancreatic insulinomas with mid-term efficacy.

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Disclosure: Nothing to disclose.

PP1608

EFFICACY AND SAFETY OF CAPECITABINE AND TEMOZOLOMIDE (CAPTEM) IN ADVANCED GASTRO-ENTERO-PANCREATIC NEUROENDOCRINE NEOPLASMS (GEP-NEN): A SYSTEMATIC REVIEW AND METANALYSIS

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Introduction: Gastro-entero-pancreatic neuroendocrine neoplasms (GEP-NEN) are heterogeneous tumors, with multiple therapeutic options for advanced stages. The combination of capecitabine and temozolomide (CAPTEM) is increasingly used for advanced GEP-NEN, but evidence on results is sparse.

Aims & Methods: We conducted a systematic review and meta-analysis to assess efficacy and safety of CAPTEM in advanced GEP-NEN. We included studies enrolling patients with any grade GEP-NENs undergoing CAPTEM. A meta-analysis with random effects model, progression-free survival (PFS) as primary endpoint and severe adverse events (SAEs) rate as secondary endpoint was performed. Different treatment schedules were considered. The heterogeneity (I^2) was interpreted by metaregression analysis considering the following covariates: study type and design, sample size, metastatic disease rate, rate of primary pancreatic NENs, previous treatments, and study quality.

Results: A total of 22 studies with 788 patients (age range 29-64 years; male proportion range 46.9-65%, primary pancreatic site range 14-100%) were included. All but 1 study, being a RCT, were retrospective. The median CAPTEM cycles number was 6.9 (IQR 4.5-8). The cumulative PFS was 14.7 months (12.9-16.5), with high heterogeneity (I^2=99%). Study type and design, previous treatments, and quality of the studies did not affect PFS. Although not significant, PFS was higher in patients with nonpancreatic primary tumors and in post-2017 trials. The pooled SAEs rate was 17.6% (10.1-25). There was no publication bias.

Conclusion: CAPTEM is an effective combination, with similar PFS and a safety profile compared to other agents. Further investigation in RCTs or in sequence studies is advisable.

Disclosure: Nothing to disclose.

PP1609

LONG-TERM QUALITY OF LIFE AFTER SURGERY IN PANCREATIC NEUROENDOCRINE NEOPLASMS: A SINGLE CENTER EXPERIENCE

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Introduction: Pancreatic Neuroendocrine Neoplasms (pNEN) often have a good prognosis in terms of survival. We evaluated health-related quality of life (HRQoL) after a pancreatic resection in open surgery for a pNEN.

Aims & Methods: 104 patients who underwent a pancreatic resection for a pNEN between May 1990 and April 2022 in our Center were enrolled. Clinical data (i.e. surgery, histology, comorbidity, and pancreatic function) were retrieved from clinical charts, while the QoL data were collected prospectively. The EORTC QoL questionnaires QLQ-C30, QLQ-GI.NET21 and QLQ-PAN26 were filled by the patients from September 2021 to December 2022 (at least six months after surgery).

Results were analyzed as suggested by the EORTC Group: in a scale from 0 to 100 (in percentage values), higher scores represent a better outcome in case of functional scales and a worse outcome for symptomatic scales. The results of each questionnaire, divided into common domains, were considered together as a final raw score. Six major clinical domains were selected as outcome variables: global QoL, physical function (PF2), social function (SF), disease related worries (DRW), pain and upper-GI symptoms. These domains were evaluated in relation to seven clinical variables: gender (male, female), age (<65 yrs, ≥65 yrs), comorbidities (no, single, multiple), type of pNEN (functioning, nonfunctioning), histological grade (1, 2), type of surgical resection (limited, standard), and pancreatic function (normal, diabetes mellitus, exocrine insufficiency). Wilcoxon and Kruskal-Wallis test were used for data analysis.

Results: There were 41 M/63 F, mean age 63 yrs (SD 13.5 yrs). 63.5% were affected by multiple comorbidities. 57% were non-functioning and 70% were G1 tumors. 54% underwent standard resection, 83% maintained a normal (or not impaired) pancreatic function after surgery. Data show good global HRQoL results (median 83.3%; IQR 58.3-100%). Regarding DRW, a good outcome with low concerns about their health status (median 26.7; IQR 13.3-33.3), while their physical (median 94.4; IQR 77.8-100) and social (median 88.9; IQR 77.8-94.4) functions were modestly affected. Pain (median 9.5; IQR 0-19.1) and upper GI symptoms (median 3.9; IQR 0-9.1) were rarely reported. We observed statistically significant results for QoL (worse in women, p=0.04, and in elderly, p<0.001), PF2 (worse in women, p<0.001, and in elderly, p<0.001), pain (worse in women, p=0.02, and in elderly, p=0.002); upper-GI symptoms were worse in elderly (p=0.016), and standard surgery affected both SF and DRW (p=0.03 and p=0.04, respectively).

Conclusion: In patients who underwent a pNEN resection, gender, age and type of surgery seem to slightly affect HRQoL; however, a good HRQoL was generally reported.

Disclosure: Nothing to disclose.

PP1610

EVALUATION OF TRANS-PANCREATIC SPHINCTEROTOMY COMPARED WITH DOUBLE GUIDEWIRE AND PRE-CUT TECHNIQUES DURING ERCP FAILURES: A SINGLE-CENTER RETROSPECTIVE STUDY OF EFFICACY AND SAFETY

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Introduction: ERCP fails for anatomical, surgical or neoplastic reasons. Apart from these situations, the risk of failed cannulation is 10%. Double guidewire (DGW) or precut papillotomy (PC) techniques are necessary and allow ERCP to be continued. However, these techniques are associated with higher complication rates and require expertise. Transpancreatic sphincterotomy (TPS) was described in 1999 but rarely used until 2018 in our center. Recent articles suggest superiority of this technique. Our team decided to introduce it as a first-line procedure when the pancreatic duct was cannulated twice instead of the common bile duct.

The aim of the study was to compare two successive periods without and with trans-pancreatic sphincterotomy in ERPC failures.

Aims & Methods: A single-center retrospective study was conducted in our endoscopy center. The procedures were performed by three experienced operators. All successive patients referred for biliary ERCP were reviewed and a selection of difficult ERCPs was made, according to ESGE criteria. Two inclusion periods were defined. In the first, between 2014 and 2018, PC and DGW were used for difficult cannulation. In the second period, between 2018 and 2021, TPS was preferred and other techniques were used only when necessary. The primary endpoint was the success rate of biliary cannulation. Post-RCP complications were also analyzed.

Results: One hundred patients were included (50% male, mean age 69.7 years). PC, DGW, and TPS were used in 28, 37, and 35 patients. The overall success rate for biliary cannulation was 77%. The specific rates for PC, DGW and TPS were 78%, 70% and 83% with no statistical difference (p=0.34). The overall complication rate was 16% (PC 14%, DGW 19%, TPS 14%) with no difference. Post-ERCP pancreatitis occurred in 8% (moderate pancreatitis) with no difference between groups. When the first technique failed (22/100), a second technique allowed 100% success with 5% complications.

Conclusion: Transpancreatic sphincterotomy in an expert center, allows 83% success in case of biliary cannulation failure, without significant difference with PC and DGW techniques. These techniques, in our study, have identical adverse event rates. Regarding the ease of use of TPS, this technique easily followed by prophylactic pancreatic stenting, should be preferred when the pancreatic duct is cannulated instead of the bile duct.

Disclosure: Nothing to disclose.

PP1611

SAME-SESSION ENDOSCOPIC DIAGNOSIS AND SYMPTOMS' PALLIATION IN PANCREATOBILIARY MALIGNANCIES: CLINICAL IMPACT OF RAPID-ON-SITE EVALUATION

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Introduction: Besides increasing adequacy, Rapid-on-Site Evaluation (ROSE) during Endoscopic Ultrasound (EUS) or Endoscopic Retrograde Cholangiopancreatography (ERCP) may have an impact on choices and timing of subsequent therapeutic procedures, yet unexplored.

Aims & Methods: We conducted a retrospective evaluation of a prospectively maintained database of a tertiary, academic centre with availability of ROSE and hybrid EUS-ERCP suites.

All consecutive patients referred for pathological confirmation of suspected malignancy and Jaundice or Gastric Outlet Obstruction (GOO) between Jan-2020 and Sep-2022 were included.

Results: Of 541 patients with underlying malignancy, 323 (59.7%) required same-session pathological confirmation (male: 54.5%; age 70 [62-77]; pancreatic cancer: 76.8%, cholangiocarcinoma 16.4%). ROSE adequacy was 98.9% for EUS and 50% for ERCP-guided sampling.

Amongst 302 patients with Jaundice, ERCP cannulation was successful in 83.7%, but final drainage was completed in 97.4% thanks to 37 EUS-CholedochoDuodenostomies and 5 EUS-HepaticoGastrostomies. Amongst 21 patients requiring GOO palliation, EUS-GastroEnterostomy was performed in 15 and duodenal stenting in 6. All 53 therapeutic EUS procedures occurred after adequate ROSE.

Amongst ERCP-guided placement of stents, the use of plastic stents was significantly higher amongst patients with inadequate ROSE (10/11 [90.9%] versus 14/240 [5.8%], p<0.0001, OR=161 [19-1352]).

Median hospital stay for diagnosis and palliation was 3 [2-7] days and median time to chemotherapy was 33 [24-47] days.

Conclusion: Nearly two-thirds of oncological candidates to endoscopic symptoms palliation requires contemporary pathological diagnosis. An adequate ROSE allows same-session state-of-the-art therapeutics standardly restricted to pathologically confirmed malignancies (e.g. uncovered SEMS or therapeutic EUS), potentially leading to shorter hospital stay and time to chemotherapy.

Disclosure: Nothing to disclose.

PP1612

MANAGEMENT OF MALIGNANT GASTRIC OUTLET OBSTRUCTION DUE TO PANCREATIC CANCER IN THE ERA OF EUS-GASTROENTEROSTOMY: AN INTERNATIONAL PRACTICE SURVEY AND CASE VIGNETTE STUDY

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Introduction: Malignant Gastric Outlet Obstruction (mGOO) has been standardly treated by surgical GastroEnterostomy (S-GE) or Endoscopic Stenting (ES). More recently, EUS GastroEnterostomy (EUS-GE) has emerged as a low-invasive alternative with surgical-range efficacy, supported by guidelines. Nevertheless, its worldwide diffusion is heterogeneous and advantages/disadvantages debated.

The aim of this survey is to assess clinical decision-making of international specialists regarding mGOO and to explore current opinion regarding EUS-GE use.

Aims & Methods: An online survey was created exploring centers' experiences and physicians' opinions regarding indications, contraindications, benefits and risks of available treatments; 2 case vignettes explored clinical decision-making in different scenarios. The survey was spread through social networks and the EPC newsletter.

Results: Overall, 290 pancreatologists from 44 countries (5 continents) responded, of whom 35% surgeons and 65% gastroenterologists, 44% from centers managing > 20 mGOO/year. The most frequently available treatment for mGOO was ES (91%), followed by S-GE, while EUS-GE was only available to 59% of responders, and only 10% declared proficiency in this technique.

68% referred an established gold-standard in their centers, but this differed by specialty, with ES, EUS-GE and S-GE being advised by 45%, 20% and 10% of gastroenterologists and 24%, 8% and 25% of surgeons.

For 51% of responders, EUS-GE will become the primary treatment for mGOO. This percentage increases among gastroenterologists and high-volume centers. For 14%, EUS-GE spread will be limited in the future, or used only when ES fails (19%), with higher rates among surgeons.

When choosing between alternatives, the main decision driver is life expectancy, followed by disease stage and patient's frailty, whereas potential future surgical resectability does not contraindicate any treatment for 3/4 of responders. The main perceived advantages of EUS-GE were minimally invasiveness and high clinical efficacy, while the learning curve remains its main disadvantage.

Conclusion: This survey revealed significant differences in the management of mGOO, depending on specialties, local expertise and treatment volume, suggesting the lack of standardized algorithms.

Despite great enthusiasm around EUS-GE, its availability remains suboptimal, with learning curve as the main barrier. Life expectancy and patients' frailty are likely to remain the main decision factors.

Disclosure: Nothing to disclose.

PP1613

EXPLORING THE CORRELATION BETWEEN VATER AMPULLA TYPE, SUCCEED RATE OF ERCP, AND INCIDENCE OF POST-ERCP PANCREATITIS: A COMPREHENSIVE ANALYSIS

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Introduction: There were conflicting results on the association between Vater ampulla type, success rate, and incidence of pancreatitis after Endoscopic Retrograde Cholangiopancreatography (ERCP). The objective of this investigation was to examine the frequency of pancreatitis characterized by ampulla of Vater type in patients undergoing endoscopic retrograde cholangiopancreatography (ERCP), as well as to assess the rate of success in treating such cases.

Aims & Methods: Between January 2021 to December 2022, a total of 517 ERCP-associated procedures were conducted in Sayyad Shirazi Hospital, Gorgan, Iran. Prior to the procedure as well as at 6-, and 24-hours post-procedure, levels of serum amylase were assessed.

Furthermore, the patient underwent an assessment to detect any indications of pancreatitis. Of all 517 individuals underwent ERCP, 69 patients were excluded due to a history of endoscopic sphincterotomy or papillary balloon dilatation in the past or who exhibited hyperamylasemia. Written informed consent was obtained from all included patients.

Results: A total of 448 patients with a mean (SD) age of 59.90 (16.03), and 57.1% being female met the inclusion criteria of the study (Table 1). The incidence of pancreatitis after ERCP in type 1, type 2, and type 3b Vater ampulla was 2.6% (5/191), 3.6% (1/28), and 12.5% (1/8), respectively. Post-ERCP pancreatitis was not observed in type 3a, type 4, and type D Vater ampulla. There was no statistically significant relationship between the type of Vater ampullar and the occurrence of post-ERCP pancreatitis (P-value= 0.259).

Moreover, the success rate of the procedure in type 1, type 2, type 3a, type 3b, type 4, and type D Vater ampulla was 90.1, 69.0%, 79.7%, 55.6%, 90.9%, and 88.9%, respectively (P-value < 0.005).The result of the final diagnosis based on the Vater Ampulla type is shown in Table 2.

Conclusion: There was a significant relationship between Vater ampulla type and ERCP success rate, while the Vater ampulla type was not associated with the incidence of post-ERCP pancreatitis.

Disclosure: Nothing to disclose.

PP1614

ENDOSCOPIC PAPILLECTOMY FOR AMPULLARY LESIONS OF MINOR PAPILLA

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Introduction: Ampullary lesions (AL) of the minor duodenal papilla are extremely rare. Endoscopic papillectomy (EP) is a routinely used treatment for AL of the major duodenal papilla but the role of EP for minor AL has not been elucidated yet.

Aims & Methods: We identified 20 patients with AL of minor duodenal papilla out of the multicentric database from the ESAP study that included 1422 EPs (prevalence of minor papillary lesions: 1.4%). We evaluated the procedural outcomes and safety of EP for minor AL.

Results: All patients with an AL of the minor duodenal papilla received an EP. The most common histological subtype was an ampullary adenoma in 12 Patients (3 low-grade dysplasia and 9 high-grad dysplasia). Five patients revealed non-neoplastic lesions. Invasive cancer (T1a), adenomyoma and neuroendocrine neoplasia each were found in one case. The rate of complete resection (R0) was 90%. There were no severe complications. After EP one patient had a bleeding that required an intervention and two patients had a recurrence that was detected in follow-up endoscopy. After EP the median follow up was 27.7 months (0-70).

Conclusion: EP is safe and effective in AL of the minor duodenal papilla. The management of these lesion seems to be similar to AL of the major duodenal papilla.

Disclosure: Nothing to disclose.

PP1615

ENDOSCOPIC ULTRASOUND-GUIDED FINE NEEDLE ASPIRATION/BIOPSY FOR SMALL PANCREATIC CANCER ≤ 10 MM AND ADDITIONAL SALVAGE BY PANCREATIC JUICE CYTOLOGY: A MULTICENTRE STUDY

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Introduction: In the context of pancreatic ductal adenocarcinoma (PDAC) ≤ 10 mm in diameter, the diagnostic performance of endoscopic ultrasound-guided fine needle aspiration/biopsy (EUS-FNAB) is relatively low. Pancreatic juice cytology (PJC) has recently gained attention because of its high sensitivity for small PDAC. However, the appropriateness of EUS-FNAB/PJC for small PDAC is still controversial.

Aims & Methods: This study aimed to clarify the true diagnostic ability of EUS-FNAB and the salvage ability of PJC in PDAC ≤ 10 mm. A retrospective analysis was conducted on 271 patients with pancreatic tumors ≤ 10 mm confirmed by EUS, who were undergoing attempted EUS-FNAB. For accurate evaluation of the ability of EUS-FNAB to distinguish PDAC, pancreatic metastasis/malignant lymphoma were excluded. The technical success of EUS-FNAB was defined as the possibility of needle puncture and the ability to obtain adequate specimens for cytological/histological assessment. The diagnostic ability of EUS-FNAB was analyzed using technical success cases. A positive cytological diagnosis was defined as cells with highly suspected adenocarcinoma/definite adenocarcinoma based on the Bethesda system in both EUS-FNAB and PJC examinations. EUS-FNAB histological diagnosis was considered negative if only atypical cells existed. The diagnoses made with EUS-FNAB were determined based on cytology and/or histological findings.

After eliminating technical failure or negative results by EUS-FNAB, patients with a strong likelihood of having PDAC from imaging characteristics underwent salvage PJC. The primary endpoint was clarifying the technical success rate/diagnostic ability of EUS-FNAB for PDAC ≤ 10 mm. In addition, the salvage ability of PJC for false-negative/technical failure EUS-FNAB cases was also examined.

Results: EUS-FNAB procedures were attempted for 271 patients with pancreatic tumors ≤ 10 mm. Overall, 80.8% of patients with pancreatic tumors (median lesion size of 8 mm [range, 3–10 mm]) achieved technical success. The reasons for technical failure were the inability to puncture due to anatomical inaccessibility (3.3%), unclear visibility for a puncture (5.2%), and inadequate specimen retrieval for cyto-histological analysis (10.7%). Actual diagnostic ability of EUS-FNAB in the diagnosis of PDAC ≤ 10 mm. In patients who achieved EUS-FNAB technical success, PDAC ≤ 10 mm was detected in 28.3% (62/219) of the patients with surgical resection/clinical follow-up.

The sensitivity, specificity, and accuracy of comprehensive EUS-FNAB was 82.3%, 94.9%, and 91.3%, respectively. In the diagnostic ability comparison using AUC, comprehensive EUS-FNAB had naturally higher diagnostic ability than EUS-FNAB cytology alone/EUS-FNAB histology alone ($P = 0.002$, $P < 0.001$, respectively).

In addition, EUS-FNAB cytology had higher diagnostic capability than EUS-FNAB histology alone (P = 0.034). Thirty-five patients were diagnosed with PDAC ≤ 10 mm from among the 212 patients who encountered technical failure/negative diagnosis by EUS-FNAB. Among these patients with PDAC ≤ 10 mm, 74.3% were additionally diagnosed by salvage PJC accurately (PJC positive and final diagnosis of PDAC ≤ 10 mm). The overall accuracy of PJC was 81.6% in this study. The other nine patients with PDAC ≤ 10 mm, who had not been accurately diagnosed by EUS-FNAB/PJC, were finally diagnosed by surgical resection/clinical follow-up based on their imaging findings.

Conclusion: The true technical success rate/sensitivity of EUS-FNAB for PDAC ≤ 10 mm was relatively low. EUS-FNAB followed by PJC may be ideal for diagnosing PDACs ≤ 10 mm in diameter.

Disclosure: Conflicts of interest: None declared.

PP1616

ENDOSCOPIC ULTRASOUND SHEAR WAVE FOR ASSESSING CHRONIC PANCREATITIS AND SOLID PANCREATIC NEOPLASM: A NESTED CASE-CONTROL STUDY

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Introduction: The retroperitoneal location of the pancreas represents a challenge for the early identification of chronic pancreatitis (CP) and pancreas neoplasms (PN). Imaging and endoscopic ultrasound (EUS) with elastography are helpful resources with variable accuracy. EUS-guided shear wave elastography (EUS-SW) measures tissue elasticity by shear waves inside the organ through acoustic radiation force impulse. Its accuracy has not been assessed for CP and solid PN.

Aims & Methods: We aim to estimate the diagnostic accuracy of EUS-SW for CP and solid PN. Cases with a recently confirmed diagnosis of CP or PN who underwent EUS-SW (12/2020-11/2022) were included. Cases that required EUS for subepithelial lesion assessment comprised a third study group (controls, CG). Age, gender, body mass index (BMI), diabetes, fatty liver disease, alcohol, and tobacco consumption were recorded. An expert endoscopist (RVZ) performed EUS, assessed fatty pancreas score, strain ratio (SR), histogram (SH), and ten measurements of EUS-SW elasticity (SWE) and dispersion (SWD) per case. SWE and SWD variation were based on quotient among interquartile range (IQR) and median.

In cases with <30% variation, the association of SWE and SWD was estimated with study groups, baseline and EUS data through multivariate ANOVA regression. SWE and SWD cut-off values were calculated with Youden's index. Data was analysed in R v4.0.

Results: 88 cases were enrolled (37 CG, 14 CP, 37 PN), median age of 62.5 (IQR 53-70), 47.7% female. The proportion of fatty pancreas score II and III was similar in CG (37.8% and 56.8%) and CP (57.1% and 42.9%); there was a significant difference in PN, with a score II, III, and IV of 24.3%, 40.5%, and 29.7%, respectively (p<.001). Median SR was also similar among CG (3.6; IQR 2.9 - 4.3) and CP (3.9; IQR 3.6 - 4.7) but significantly different compared with PN (7.6; IQR 5.3 - 11.1; p<.001). Median SWE and SWD were 10.5 kPa (7.3 - 16.6) and 1.9 [m/s]/kHz (1.6 - 2.4), with a <30% variation in 27 (30.7%) and 57 (64.8%), respectively (Table 1).

Study groups (CG/CP/PN) and diabetes were associated to a higher SWE and SWD (p<.05). Predicted SWE were significantly different among PN vs CG (-13.1; -24.4 to -1.7; p=.0242) (figure 1). An SWE ≥17.4 diagnosed PN with a sensitivity, specificity, positive and negative predictive values of 75% (19-99), 91% (72-99), 60% (27-99) and 95% (63-99); while an SWD ≥2.31 predicted PN with a diagnostic accuracy of 54% (25-81), 70% (55-83), 35% (21-66), 84% (60-91), respectively.

Conclusion: EUS-SW constitutes an objectively valuable measuring tool for CP and PN diagnostic workups. Larger multicentric diagnostic trials are needed to confirm these findings. NCT05095831.

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PP1617

COMPARISON OF FORK-TIP AND FRANSEEN NEEDLES FOR ENDOSCOPIC ULTRASOUND-GUIDED FINE NEEDLE BIOPSY

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Introduction: There is no unanimity regarding the most appropriate needle to use for endoscopic ultrasound-guided fine needle biopsy (EUS-FNB). To date, new types of FNB needles have been designed, including the Fork-tip and Franseen needles. The Fork-tip is characterized by two sharp tips on opposite sides of the lumen, and the Franseen needles are characterized by three symmetric cutting tips. This study primarily aimed to compare the diagnostic utility and histological quality between the use of the Fork-tip and Franseen neesles in EUS-FNB for solid pancreatic lesions.

Aims & Methods: We retrospectively analyzed 187 patients at our center for solid pancreatic lesions, 75 of whom underwent EUS-FNB using a 22 G Franseen needle and 112 using a 22 G Fork-tip needle, from December 2019 to October 2022.

Results: After propensity-matched analysis, each group was adjusted to 66 cases. The results revealed that sex, age, route for puncture, and tumor size, site, and tumor type were not different between the Franseen and Fork-tip groups. Both groups were not significantly different in terms of number of punctures, procedure time, core tissue score, blood score, and technical success rate. From the histological findings, the most common final diagnosis was adenocarcinoma (107 patients), which was followed

by a benign lesion (19 patients), and finally, the NET (6 patients). In this study, no adverse events during the procedure were encountered. The diagnostic accuracy of the Fork-tip group (92.4%; 61/66) was similar to that of the Franseen group (90.9%; 60/66) (P >0.99). The outcomes of the two groups were similar for the distinction between benign and malignant lesions.

The rate of changes of operators from a trainee was significantly less in the Fork-tip group (9.1%, 6/66) than in the Franseen group (24.2%, 16/66) (P = 0.03). The reasons for operator changes were as follows: In the Franseen group, there were ten cases of difficulty in adjusting the puncture route from the second part of the duodenum, six cases of difficulty in penetrating the gastric wall from the stomach.

In contrast, in the Fork-tip group, there were two cases of difficulty in adjusting the puncture route from the second part of the duodenum, two cases of difficulty in penetrating the gastric wall from the stomach, two cases of difficulty in avoiding vessels. All cases were successfully punctured after an expert took over.

	Propensity-matched patients		
	Franseen group	Fork-tip group	*P*
Number of punctures, median (IQR)	2 (2–2)	2 (2–2)	0.85
Change from trainee to expert	16/66 (24.2%)	6/66 (9.1%)	0.03
Diagnostic accuracy, n (%)	60/66 (90.9%)	61/66 (92.4%)	>0.99
Sensitivity	89.3% (50/56)	91.2% (52/57)	0.76
Specificity	100% (10/10)	100% (9/9)	
Positive predictive value	100% (50/50)	100% (52/52)	
Negative predictive value	62.5% (10/16)	64.3% (9/14)	

Table 1. Comparison of procedure outcome and histological material between Franseen and Fork-tip groups

Conclusion: Although in both groups, the diagnostic accuracy and other outcomes of procedures conducted, were not significantly different, the rate of changes of operator from a trainee to an expert was significantly less in the Fork-tip group than in the Franseen group. Thus, the Fork-tip needle was observed as good choice for trainees and the appropriate needle must be selected according to the situation.

Disclosure: Nothing to disclose.

PP1618

EUS-GUIDED FINE-NEEDLE BIOPSY VERSUS FINE-NEEDLE ASPIRATION WITH WET SUCTION IN THE DIAGNOSIS OF SOLID LESIONS

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Introduction: Endoscopic ultrasound (EUS) guided fine-needle biopsy (FNB) seems to have a greater diagnostic capacity when compared with needle aspiration biopsy (FNA), but whether it has advantages over FNA using wet suction (WS) is uncertain.

Our aim was to compare FNA-WS technique wit FNB-WS in solid lesions and to identify predictors associated with inadequate samples.

Aims & Methods: Retrospective study including all patients with solid lesions submitted to EUS-FNA or EUS-FNB between 01/2020 and 12/2022.

Results: A total of 227 patients were included (271 biopsies – 131 FNA-WS and 140 FNB-WS). 132 (49%) lesions corresponded to adjacent organ lesions (pancreas, liver and adrenal gland), 70 (26%) to subepithelial lesions (SLE) of the digestive tract and 69 (26%) to adenopathies. The mean number of needle passes was similar between FNA and FNB (2.66 vs 2.73, p=0.637).

Diagnostic samples were adequate in 236 procedures (87% - 89% in FNA vs 86% in FNB, p=0.487). Younger age, 25G (vs 22G) needle and non-malignant lesions were associated with inadequate sampling (p<0.05), with diagnosis of non-malignant lesion (p<0.001) and younger age (p<0.041) identified as independent risk factors for inadequate sampling. Lesion size, needle type (FNA vs FNB), number of needle passes and lesion type (organ lesion vs adenopathies vs LSE) had no influence.

EUS-guided FNA and FNB (22G) were adequate in 93% and 86% respectively (p=0.063). For adenopathies FNA-WS was superior (93% vs 84%, p=0.026), while in pancreatic lesions and SLE, the diagnostic capacity of FNA and FNB was similar (91% vs 84% p=0.273 and 86% vs 88% p=0.771).

Conclusion: With the use of the WS technique there were no differences in the diagnostic capacity of the biopsy with FNA and FNB.

Disclosure: Nothing to disclose.

PP1619

INTRATUMORAL VASCULAR ENHANCEMENT PATTERN AND DOPPLER IMAGE ON CEH-EUS IN PREDICTION OF CHEMOTHERAPY RESPONSE OF ADVANCED PANCREATIC CANCER PATIENTS

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Introduction: Contrast-enhanced harmonic endoscopic ultrasonography (CEH-EUS) has been a widely used imaging modality to characterize, differentiate, and stage pancreatic cancer. A previous study reported that avascular areas on contrast-enhanced ultrasonography (CE-US) are associated with fibrosis and necrosis within pancreatic cancer.

In this study, we examined the usefulness of CEH-EUS for evaluating therapeutic responses in PC by analyzing the relation between intra-tumoral vascular enhancement and Doppler image on the CE-EUS and the response of chemotherapy in advanced pancreatic cancer.

Aims & Methods: This is the retrospective study of Samsung Medical Center and Hallym University Kangnam Sacred Heart Hospital in Seoul, South Korea from Mar. 2015 to DEC. 2023. A total of 150 patients with unresectable advanced pancreatic cancer underwent CE-EUS. Patients were treated with gemcitabine-based chemotherapy. Three months after the completion of chemotherapy, the responsiveness of chemotherapy was assessed by Computed Tomography.

The aim of this study is to evaluate therapeutic responses in PC by analyzing the relation between intra-tumoral vascular enhancement and Doppler image on the CE-EUS and the response of chemotherapy in advanced pancreatic cancer.

Results: CEH-EUS showed an enhanced (with vascular) group in 73 patients, and a non-enhanced group in 77 patients. The response of the 3 months of chemotherapy was associated with the contrast enhancement of the EUS (p < 0.05). The response rate of the enhanced group (84.7%) was higher than the non-enhanced group (69.2%) in pancreatic cancer chemotherapy.

Conclusion: The current results demonstrate that CEH-EUS may be useful in assess the prognosis of patients with unresectable advanced pancreatic cancer who receive systemic che- motherapy.

Evaluation of intratumoral collateral vessel flow by doppler image could be useful for predicting chemotherapy response in patients with pancreatic cancer. Thus, CEH-EUS combined with doppler image may be useful

for evaluating therapeutic responses in pancreatic cancer. Further clinical study should be performed to target larger number of patients.
Disclosure: Nothing to disclose.

PP1620

COULD FROZEN SECTION EVALUATION INCREASE PREDICTIVE DIAGNOSTIC YIELD OF ENDOSCOPIC ULTRASONOGRAPHY GUIDED FINE NEEDLE BIOPSY (EUS FNB) FOR PANCREATIC SOLID LESION?

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Introduction: The prediction of positive results of endoscopic ultrasonography guided tissue acquisition (EUS TA), including EUS fine needle aspiration(EUS FNA) and EUS fine needle biopsy (EUS FNB), has changed from rapid on-site evaluation(ROSE) to macroscopic on-site evaluation (MOSE). The average predictive positive rate is about eighties percent under MOSE. The intraoperative frozen section evaluation has been widely used by the surgeons. We conducted the study to evaluate if there is any benefit of intraoperative frozen section evaluation for increasing the predictive diagnostic yield of EUS FNB.
Aims & Methods: Aims: We compared the yield rate of EUS FNB for pancreatic solid lesions between MOSE and intraoperative frozen section evaluation and MOSE only.
Methods: The study was conducted at a single tertiary referral center from Aug. 2021 to Mar. 2023.
The patients who were indicated for EUS FNB were enrolled into the study. During EUS FNB we sent the specimens from the first two passes for the frozen section after we considered adequate macroscopic visible tissue core. Later we would obtain other specimens from later passes for the permanent section (MOSE + Frozen group (MF group)). As for the control group we sent the specimens for the permanent section only (MOSE only group (M group)).
We compared the histological results of frozen and permanent sections and divided them into three subgroups as the frozen section being equal, inferior and superior to the permanent one.
The p-value <0.05 was defined as statistically significant.
Results: Total one hundred ninety four patients were enrolled into the study and ninety seven patients were divided into each group equally. Demographic characters were as the followings with MOSE with frozen group versus MOSE only one:
age 62+-14 vs 63+-12 years old
gender male to female 1.6: 1 vs 1.6 : 1
diagnosis of pancreatic solid lesion adenocarcinoma : neuroendocrine tumor : chronic pancreatitis 71:5:2 vs 41:5:12
average size of lesion 37.2+-16 vs 34.3+-13 mm
location of lesion uncinate process: head: neck: body: tail 4:32:5:20:11 vs 5:22:0:16:13
the most common location of lesion was head of pancreas on both groups
As for the results of EUS FNB, the pass for permanent section was 5.5 versus 5.8 (MF group vs M group, p=0.018) and the transgastric puncture route was 51 versus 53 patients and transduodenal route was 46 vs 44 patients (MF group vs M group).
About the yield rate the MF group was 92.8% and the M group was 79.4% (p=0.006).
When comparing the histological results of frozen and permanent sections the frozen section was equal, inferior and superior to the permanent one as 63 (65%), 33 (34%) and 1 (1%) patient(s)(Table).

	MOSE + Frozen (n= 97)	MOSE only (n=97)	p value
EUS FNB			
pass for permanent section	5.5	5.8	
puncture route (%)			
transgastric	51 (53)	53 (55)	0.018
transduodenal	46 (47)	44 (45)	
Yield rate (%)	92.8	79.4	0.006
frozen vs permanent section (%)			
equal	63 (65)		
inferior	33 (34)		
superior	1 (1)		

Table.

Conclusion: When performing EUS FNB for pancreatic solid lesions, it seems to increase the predictive yield rate if we combine MOSE and intraoperative frozen section evaluation. There are some pitfalls about combined MOSE and intraoperative frozen section evaluation, such as prolonged procedure time and increased medical expenses due to frozen section evaluation.
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Disclosure: Nothing to disclose.

PP1621

NOVEL CATHETER DEDICATED FOR ENDOSCOPIC TRANSMURAL NECROSECTOMY OF PANCREATIC WALLED-OFF NECROSIS: EXPERIENCES FROM A TERTIARY REFERRAL CENTER

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Introduction: The need for endoscopic necrosectomy (EN) has increased dramatically, as endoscopic EUS-guided drainage has become gold standard for treatment of pancreatic walled-off-necrosis (WON)[1,2].
Although snares and baskets are commonly used in EN procedures, they can be ineffective and dedicated instruments specifically designed for EN are scarce. Recently, an innovative powered endoscopic debridement system (EndoRotor, Interscope Inc., Northbridge, MA, USA) designed to excise and remove necrotic tissue within the WON was introduced specifically for EN with promising results[3,4].
While the first generation EndoRotor catheter was limited to 3.2 mm diameter, a larger catheter that fits into a large-channel gastroscope with a working channel of 6.0 mm has now been introduced. This study evaluates the clinical outcomes, safety, and feasibility of the novel 6.0 catheter for EN of WON.
Aims & Methods: This retrospective study was performed using prospectively collected data from all patients who underwent EN with the 6.0 catheter between December 2021 and March 2023 at Gastro Unit, Copenhagen

University Hospital Hvidovre, a tertiary referral center in Denmark. All patients with symptomatic WON and need for necrosectomy were considered eligible for this study. Technical feasibility, safety, and clinical outcomes were evaluated.

Results: Sixteen patients underwent a total of 25 EN procedures with the 6.0 catheter. The mean age of the patients was 51.8 years (SD 17.7 years) and 11 (68.8%) were male. The etiology of the acute necrotizing pancreatitis was alcohol in 4 patients (25.0%), gall stones in 7 patients (43.8%), post-endoscopic retrograde cholangiopancreatography (ERCP) in 3 patients (18.8%), and idiopathic in 2 patients (12.5%). The mean size of the WON was 27.5 cm (SD 10.5 cm). The median computed tomography severity index (CTSI) was 8.5 (P25-P75: 6.0-9.0) and median modified CTSI (mCTSI) was 9.0 (P25-P75: 8.0-10). Two patients did not achieve clinical resolution (12.5%), as they died from multisystem organ failure before resolution of the WON was achieved. The median length of stay in hospital for the patients who achieved clinical resolution was 56.0 days (P25-P75: 36.5-96.0 days) and the median number of necrosectomy procedures performed to achieve clinical resolution was 5.0 (P25-P75: 2.0-8.5). All patients had EN procedures performed with snares in addition to the procedures with the powered debridement system. Five patients had necrosectomy performed with the 3.2 catheter (31.0%) as well as the 6.0 catheter. The median duration of EN with the 6.0 catheter was 60.0 minutes (P25-P75: 45.0-100 minutes) per procedure.

A device-related adverse event was noted in one instance (4.0%). The patient exhibited symptoms of peritoneal reaction in the hours following the procedure, which may have been caused by perforation of the WON into the peritoneal cavity. The patient was treated with laparoscopic peritoneal lavage and drainage and recovered without further interventions. No other procedure-related adverse events were identified. Malfunction of the catheter was observed in 7 procedures (28.0%).

Conclusion: To perform necrosectomy procedures optimally, dedicated endoscopic instruments designed for debridement of pancreatic WON are required. This study suggests that EN with the novel EndoRotor 6.0 catheter is safe and feasible with promising clinical results for EN of pancreatic WON. To assess the efficacy relative to standard techniques, comparative studies are warranted.

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Disclosure: Nothing to disclose.

PP1622

RAPID DIAGNOSIS BY A PATHOLOGIST USING HE STAINING DURING EUS-TA FOR PANCREATIC DISEASE ENABLE A RAPID AND HIGH ACCURACY, AND MAKE IT POSSIBLE TO DIAGNOSE NON-IDC AT THE STAGE OF RAPID DIAGNOSIS

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Introduction: Rapid on-site evaluation at EUS-TA is often performed by a cytotechnologist. In our hospital, a pathologist makes a rapid diagnosis using HE staining during EUS-TA. It is unclear whether rapid diagnosis by a pathologist using HE staining is useful.

Aims & Methods: Aim: The aim of this study is to clarify the accuracy of rapid diagnosis performed by pathologists and whether non-IDC can be differentiated at the stage of rapid diagnosis. Design: A single center retrospective study. Method: Patients who underwent EUS-FNA for pancreatic disease at our hospital between 2020 and 2022 were included. When EUS-TA was performed, the slow-pull technique and standard suction technique were combined in all cases. Puncture was added when immunostaining was deemed necessary. IDCs include adenocarcinoma, adenosquamous carcinoma, mucinous carcinoma, anaplastic carcinoma, and IPMC, non-IDCs include NEN (neuroendocrine neoplasia), ACC (acinar cell carcinoma), SPN (solid-pseudopapillary neoplasm), GCT (granular cell tumor), and metastasis.

Results: Two hundred and thirty-nine patients were included, including 37 benign, 179 IDC, and 23 non-IDC cases. 25G needles were used for 178 cases (74.5%). There were 188 FNA needles and 51 FNB needles. The average number of punctures was 3.2. The accuracy for distinguishing between benign and malignancy was 96.7% for rapid diagnosis and 97.9% for final diagnosis of EUS-TA. Of the 77 surgical cases, 11 were non-IDC, and all were diagnosed as non-IDC at the rapid diagnosis stage. Discussion: At our hospital, it is extremely rare for the rapid diagnosis and the final diagnosis of EUS-TA to diverge. In the case of IDC, it is possible to hold an in-hospital conference when the results of rapid diagnosis are available and to start treatment early. Furthermore, since many cases of IDC or non-IDC can be diagnosed at the stage of rapid diagnosis,

Conclusion: Rapid diagnosis by pathologists using HE staining enabled a rapid and high accuracy rate, and made it possible to diagnose non-IDC at the stage of rapid diagnosis.

Disclosure: Nothing to disclose.

PP1623

THE ROLE OF CONTRAST ENHANCED ENDOSCOPIC ULTRASOUND POST TISSUE ACQUISITION: ENLIGHTENING OR EXCESSIVE??

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Introduction: Contrast enhanced endoscopic ultrasound (CE-EUS) has emerged as an invaluable real time tool in the characterisation and diagnosis of gastrointestinal(GI) lesions but application in therapeutic EUS (post tissue acquisition) remains under evaluated. Bleeding post EUS tissue acquisition(TA) is usually mild, self limiting though serious complications can still occur.

We aim to review if application of real time CE-EUS to assess and quantify severity of bleeding has any impact on the clinical outcome and need for intervention.

Aims & Methods: This was a retrospective study of 1597 consecutive patients who underwent tissue acquisition at a single tertiary centre between March 2018 to March 2023. Patients with new onset fluid collection/haemorrhage post tissue acquisition who underwent CE- EUS using Sonazoid contrast agent were included. Information on baseline demographics, pre/post laboratory tests, EUS procedural findings and clinical outcomes were collected. Video recordings of the CE-EUS were reviewed and graded according to the extent of perfusion with presence/absence of contrast extravasation and pseudo-aneurysm.

Severity EUS findings of the fluid/hematoma post CH-EUS injection (observed for at least 90s)

Grade 0 No perfusion noted

Grade 1 Perfusion noted < 50% of total area

Grade2 Perfusion noted > 50% of total area

Grade 3 100% perfusion of the area of concern

Results: 60/1597 (4.4%) patients had hematoma/new onset fluid collection post EUS-TA with CE-EUS performed. Overall intervention rate post EUS-TA was 5/1597 (0.31%). 29 patients were subsequently analysed based on video availability and divided into no leak(grade 0) and active leak group(grade1-3). There were no significant differences in the median age (53 vs 64, p = 0.13), Charlson Co-morbidity index (3.5 vs 3, p = 0.561) and antiplatelet usage. There were also no significant differences between lesion size (24.6 vs 31.6, p= 0.246), needle sizes and the number of passes(3 vs 2, p= 0.34). 53% (8/17) of the active leak group had final diagnosis of neuroendocrine/cystic lesions as compared to the non active leak 3/12(25%). Fisher's exact test used did not show any statistically significant association between haemoglobin drop, need for intervention and death (p=0.413) respectively with the CE-EUS results.

Conclusion: Post EUS Tissue acquisition bleeding is mostly mild and self-limiting. More studies are required to see if CE-EUS can play a objective role in predicting adverse outcomes.

Disclosure: Nothing to disclose.

PP1624

NOVEL TECHNIQUE OF ENDOSCOPIC ULTRASONOGRAPHY FOR DIFFERENTIAL DIAGNOSIS OF GALLBLADDER LESIONS AND INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS: A SINGLE-CENTER PROSPECTIVE STUDY

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Introduction: Endoscopic ultrasonography (EUS) is the most reliable and efficient diagnostic modality for pancreatobiliary disease owing to its high spatial resolution, which allows the detection of small lesions. There is difficulty in making differential diagnosis based on EUS imaging characteristics alone, however, because the majority of lesions are hypoechoic. Assessment of vascularity is another approach that can be used for differential diagnosis. Doppler imaging modalities, such as color-Doppler EUS, power Doppler EUS, and e-FLOW EUS, are used in real-time checking of vascularity. Of these methods, e-FLOW EUS is a directional power Doppler ultrasonography method that has better spatial and temporal resolutions than the others.

However, conventional EUS Doppler modes, including e-FLOW EUS, are not suited to visualization of fine vessels and slow flow. Contrast-enhanced EUS (CE-EUS) is better for detecting blood flow and does not have some of these limitations. Assessment of the utility of CE-EUS for detecting intraductal papillary mucinous neoplasms (IPMNs) and gallbladder lesions has been reported.

However, the use of contrast agents means that there are some caveats concerning its use, and recent advances in technology have led to the development of detective flow imaging EUS (DFI-EUS) to overcome the problems associated with conventional Doppler mode EUS. Few reports have examined its clinical utility because the method is so new.

Aims & Methods: We evaluate its utility for differential diagnosis of gallbladder lesions and intraductal papillary mucinous neoplasms (IPMNs). Enrolled were patients who underwent DFI-EUS, e-FLOW EUS, and contrast-enhanced EUS for gallbladder lesions or IPMNs. Detection of vessels on DFI-EUS and e-FLOW EUS was compared with that on contrast-enhanced EUS and pathological findings. The vessel pattern was also categorized as regular or irregular. Of the 33 lesions included, final diagnoses were 13 IPMNs and 20 gallbladder lesions.

Results: DFI-EUS was significantly superior to e-FLOW EUS for discriminating between mural nodules and mucous clots and between solid gallbladder lesions and sludge with presence or absence of vessel detection in lesions (P = 0.005). An irregular vessel pattern was a significant predictor of malignant gallbladder lesions (P = 0.002). DFI-EUS is more sensitive than e-FLOW-EUS for vessel detection and differential diagnosis of gallbladder lesions and IPMNs.

Conclusion: Vessel evaluation using DFI-EUS may be a useful and simple method for differentiating between mural nodules and mucous clots in IPMN, between solid gallbladder lesions and sludge, and between malignant and benign gallbladder lesions.

Disclosure: Nothing to disclose.

PP1625

THE BIGGER, THE BETTER? – A PROSPECTIVE CONTROLLED TRIAL COMPARING THE DIAGNOSTIC ACCURACY OF 19G AND 22G FRANSEEN-TIP EUS-FNB NEEDLES IN SOLID PANCREATIC LESIONS

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Introduction: Endoscopic ultrasound-guided fine-needle biopsy (EUS-FNB) is about to become the standard procedure to distinguish solid pancreatic lesions and is typically performed using a 22G needle. Although smaller needles may be more flexible for positioning, larger needle diameters might produce bigger tissue cores and thus improve histological and molecular analysis.

The aim of this single-institution, prospective, controlled study was to compare the sample adequacy and diagnostic yield of solid pancreatic lesions using the 19G and 22G Franseen-tip EUS-FNB devices (Boston Scientific Acquire™).

Aims & Methods: The study was approved by the LMU Munich IRB and registered to German Clinical Trial Registry (DRKS00021088). Adult patients with solid pancreatic lesions on imaging (CT, MRI or ultrasound) were prospectively recruited between April 2019 and April 2022. Diagnostic EUS-FNB was performed by experienced investigators utilizing both needle sizes with 1-2 needle passes each. A blinded pathologist graded the diagnostic quality of the samples and diagnostic accuracy was calculated.

Results: The mean age at presentation was 67 years (IQR: 59 -77.5) with a ratio of 1.2:1 of male to female. Of 119 included patients, 19 had to be excluded. In 85 out of the remaining 100 patients, only one needle could be used in the lesion due to technical difficulties or complications. The final diagnoses included pancreatic cancer (68.6%), neuroendocrine tumors (4.7%), lymphoma (1.2%), extrapancreatic malignancies (11.6%), chronic pancreatitis (7.0%), autoimmune pancreatitis (2.3%) and others (4.7%). The overall EUS-guided sampling sensitivity for the 22G-needle was 74.2% and for the 19G-needle 77.2%. The diagnostic sensitivity in malignant lesions was similar in both needles (22G: 78.9%, 19G: 79.1%) and was 82.0% (22G) and 78.6% (19G) when regarding only cases with pancreatic ductal adenocarcinoma (PDAC). Post-procedural bleeding occurred in 8 cases whereas in 3 patients' further intervention was necessary.

Conclusion: In this prospective, controlled study, the use of a 19G EUS-FNB needle did not result in a higher diagnostic accuracy of solid pancreatic lesions compared to the standard size 22G.

Disclosure: Nothing to disclose.

PP1626

PERFORMANCE AND SAFETY OF EUS-ABLATION TECHNIQUES FOR PANCREATIC CYSTIC LESIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Pancreatic cystic lesions (PCL) represent an increasingly diagnosed condition with significant burden to patients' lives and medical resources. Endoscopic ultrasound (EUS)-ablation techniques have been utilized to treat focal pancreatic lesions. This systematic review with meta-analysis aims to assess the efficacy of EUS-ablation on PCL in terms of complete or partial response and safety.

Aims & Methods: A systematic search in Medline, Cochrane and Scopus databases was performed until April 2023 for studies assessing the performance of the various EUS-ablation techniques. The primary outcome was complete cyst resolution, defined as cyst disappearance in follow-up imaging. Secondary outcomes included partial resolution (reduction in PCL size), and adverse events rate. A subgroup analysis was planned to evaluate the impact of the available ablation techniques (ethanol, ethanol/paclitaxel, radiofrequency ablation (RFA), lauromacrogol) on the results. Meta-analyses using a random effects model were conducted and the results were reported as percentages with 95% Confidence Intervals (95%CI).

Results: Fifteen studies (840 patients) were eligible for analysis. Complete cyst resolution after EUS-ablation was achieved in 44% (95%CI: 31-57; 352/767; I2=93.7%), and the respective partial response rate was 30% (95%CI:20-39; 206/767; I2=86.1%). Adverse events were recorded in 14% (95%CI: 8-20; 164/840; I2=87.2%) of cases, rated as mild in 10% [(95%CI: 5-15); 128/840; I2=86.7%]; and severe in 4% (95%CI: 3-5; 36/840; I2=0%). The subgroup analysis for the primary outcome revealed rates of 70% (95%CI: 64-76; I2=42.3%) for ethanol/paclitaxel, 44% (95%CI: 33-54; I2=0%) for lauromacrogol, 32% (95%CI: 27-36; I2=88.4%) for ethanol and 13% (95%CI: 4-22; I2=95.8%) for RFA. Considering adverse events, the ethanol-based sub-group rated the highest percentage [16% (95%CI: 13-20; I2:91.0%)].

Conclusion: EUS-ablation of pancreatic cysts provides acceptable rates of complete resolution and low incidence of severe adverse events, with chemoablative agents yielding higher performance rates.

Disclosure: Nothing to disclose.

PP1627

FUSION EUS IMAGING: IS IT READY FOR PRIME TIME?

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Introduction: Endoscopic ultrasound (EUS) fusion imaging with cross sectional imaging (CT or MR) has been proposed as a method for co-registration of structures visible through different imaging techniques, with localization and tracking of the position of biopsy tools or therapeutic devices. Although initially developed for transabdominal [1] or endorectal [2] applications, the method seams feasible also for EUS [3], as tested with an initial prototype system [4].

The aim of our paper was to report on the testing of a second generation EUS fusion imaging based on electromagnetic (EM) navigation.

Aims & Methods: The equipment used consisted of Hitachi Noblus US system, Pentax linear scope, Custom made model and Aurora NDI magnetic-navigation. In order to create a porcine model we used an artificial "esophagus" and a porcine stomach. Beyond that, we attached to the model "gallbladder filled with stones" and a "pseudocyst" with the aim of simulating interventional procedures such as EUS-guided fine needle aspiration / biopsy (EUS-FNA/B) or EUS-guided pseudocyst / gallbladder drainage.

Additionally, one EM 6 degrees of freedom (DOF) positioning sensor was placed on the "patient" chest and scanned by CT. Furthermore, the 3D rendering of the model and registration with the pre-procedure data using the sensor have been performed.

The last step was placing a catheter with an EM 6DOF sensor mounted inside, in the working channel of the endoscope close to the distal tip in order to fuse live EUS images with the pre-procedure CT.

Results: The system displayed in real-time both EUS image and corresponding CT cross-section. Small registrations errors due to the differences between the pre-operative data and real model anatomy at the procedure time occurred but they have been overcome.

Thus, the rotation correction between EUS scan and corresponding CT cross section can be done by the doctor during endoscopic procedure operating a special designed catheter handle and adjusting the angle of the catheter tip inside the endoscope.

Conclusion: The purpose of incorporating image fusion into pancreaticobiliary pathology is to boost the quality of diagnostic and therapeutic strategies not only by improving and speeding up the learning curve of EUS, but also by enhancing the accuracy of preoperative assessment regarding tumor resectability or by increasing the safety of therapeutic EUS procedures.

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PP1628

EVALUATION OF DIAGNOSTIC PERFORMANCE AND RISK FACTORS FOR ADVERSE EVENTS OF EUS-GUIDED THROUGH-THE-NEEDLE BIOPSY FOR PANCREATIC CYSTS IN A LARGE NUMBER OF COHORTS

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Introduction: The incidence of pancreas cysts is increasing, and the use of EUS-guided through-the-needle-biopsy (EUS-TTNB) is gradually increasing for accurate diagnosis. However, studies including a large number of patients on clinical outcomes and safety of EUS-TTNB for pancreatic cysts are still lacking. In this study, we evaluated the diagnostic yield, adverse events(AE), and risk factors of AE related to EUS-TTNB in a large number of cohorts.

Aims & Methods: We reviewed the prospectively collected EUS-TTNB for pancreatic cysts database at Asan Medical Center, between January 2019 and December 2022. We analyzed technical success rate, diagnostic yield, AE, and risk factors for AE.

Results: A total of 248 patients were analyzed. Technical success could be achieved in 247 patients, except one patient (100%). Among them, 191 patients had a specific histologic diagnosis (diagnostic yield, 77.3%). There was no significant difference in diagnostic yield according to the number of biopsy specimen, the presence of septation in the cysts, the size of cysts, and location of cysts. AE occurred in 41 patients (16%), and there was no serious AE. Acute pancreatitis was the most common AE (12/248, 12%) following cyst hemorrhage (7/247, 3%). In univariate analysis on the risk factors of acute pancreatitis related to EUS-TTNB, male (HR 2.22, 95% CI: 1.02-4.83, P=0.045) and IPMN (HR 3.08, 95% CI: 1.35-7.03, P=0.01) were statistically significant. In multivariate analysis, IPMN (HR 2.75, 95% CI: 1.24-6.11, P=0.01) was the significant risk factor of acute pancreatitis after EUS-TTNB.

Characteristics	Univariate analysis			Multivariable analysis		
	OR	95% CI	P value	Adjusted OR	95% CI	P value
Age > 70 years	2.52	0.85 – 7.49	0.09			
Male sex	2.22	1.02 – 4.83	0.045			
Needling > 2	1.25	0.56 – 2.77	0.58			
Biopsy > 4	1.93	0.86 – 4.31	0.11	1.89	0.84 – 4.27	0.13
IPMN	3.08	1.35 – 7.03	0.01	2.75	1.24 – 6.11	0.01

Note. OR, odds ratio; CI, Confidence interval;

Table. Risk factors of acute pancreatitis after TTNB.

Conclusion: EUS-TTNB showed a relatively high technical success rate and diagnostic yield. IPMN was the most significant risk factor of AE related to EUS-TTNB.

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Disclosure: Nothing to disclose.

PP1629

DIFFERENTIAL DIAGNOSIS OF SOLID PANCREATIC TUMOURS BY EUS-GUIDED DETECTIVE FLOW IMAGING (DFI): AN ACCURATE ADVANCED IMAGING TECHNIQUE

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Introduction: Differential diagnosis of solid pancreatic tumours (SPT) is a clinical challenge. Development of advanced imaging techniques associated with EUS, such as elastography and contrast enhancement, has been a step forward in this context. EUS-guided detective flow imaging (DFI) is a very recent technology allowing the evaluation of microvascularization and low-velocity blood flow without the need of contrast agents.
Aims & Methods: Aim of our study was to evaluate the findings obtained by EUS-DFI in SPT and compare them with contrast enhanced harmonic EUS (CEH-EUS).
Methods: A prospective, single-centre, observational study in patients who underwent EUS for the evaluation of SPT was designed. Procedures were performed with a linear echoendoscope (Fujifilm 740UT) attached to the ultrasound system Arietta 850. Lesions were characterized according to the vascularization pattern (hypervascular, isovascular and hypovascular) described with both methods. Final diagnosis was based on histology after EUS-guided biopsy. Data area shown as mean ± SD and percentage.
Results: 44 patients were included (mean age 67 years, range 24-88, 23 males). Mean tumour size was 26.1 ± 15.7 mm. Fourteen (31.8%) lesions were located in the head of the pancreas, 19 (43.2%) in the body, 9 (20.5%) in the tail and 2 (4.5%) in the uncinate process.
Final diagnosis was adenocarcinoma in 24 patients (54.5%), neuroendocrine tumour in 13 (29.5%), inflammatory mass in 3 (6.8%), autoimmune pancreatitis in 1 (2.3%), pancreatic necrosis in 1 (2.3%), accessory spleen in 1 (2.3%) and lipoma in 1 (2.3%).
Agreement regarding the vascular pattern of SPT between CEH-EUS and EUS-DFI was reached in 97.7% of the cases. All adenocarcinomas were hypovascular, inflammatory masses and autoimmune pancreatitis isovascular, pancreatic necrosis avascular, and accessory spleen and lipoma hypervascular at both CEH-EUS and EUS-DFI. All 13 neuroendocrine tumours were hypervascular at CEH-EUS, 12 of them (90%) at EUS-DFI.
Conclusion: EUS-DFI allows evaluating the microvascular pattern of SPT with a similar accuracy than CEH-EUS, but without the need of using contrast agents.
Disclosure: Julio Iglesias-Garcia. Advisor Pentax, FujiFilm, Mediglobe.

PP1630

STRAIN RATIO VS STRAIN HISTOGRAM FOR THE ELASTOGRAPHIC EVALUATION OF NON-CALCIFIC CHRONIC PANCREATITIS (CP). A PROSPECTIVE, SINGLE-CENTRE, COMPARATIVE STUDY

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Introduction: Strain elastography (SE) allows quantifying the degree of pancreatic fibrosis in CP. Two methods of measuring pancreatic fibrosis by SE, the strain ratio (SR) and the strain histogram (SH) are available. No study has compared so far, these two methods for the diagnosis of CP.
Aims & Methods: Aim of our study was to evaluate the diagnostic yield of SR and SH for non-calcific CP.
Methods: A prospective, comparative study of the diagnostic accuracy of SR and SH for CP was designed. Patients undergoing EUS for the evaluation of CP were included. Patients with calcifying CP were excluded. Procedures were performed with linear echoendoscopes (Pentax 34J10, 38J10, and Fujifilm 740UT) and the ultrasound system Arietta 850. Rosemont EUS criteria for CP were evaluated. An area of the pancreatic body (A) was selected for SR and SH measurement.
A soft extrapancreatic area was additionally selected as reference area for SR (B), being the quotient B/A the SR result. Data are shown as percentages, mean (95%CI), and analyzed by ANOVA and linear regression. The diagnostic accuracy of SR and SH were evaluated using the Rosemont classification as the reference method. STARD criteria for studies of diagnostic accuracy were followed.
Results: 164 patients were included (mean age 48 years, range 17-85, 78 males). 27 (16.5%) patients presented a normal pancreas, 69 (42.1%) indeterminate findings for CP and 68 (41.5%) suggestive for CP. SR was 2.02 (1.89-2.15), 3.17 (3.02-3.32), and 4.46 (4.20-4.70), and SH 145.47 (136.25-154.69), 101.13 (96.31-105.96), and 80.04 (76.23-83.84) in normal pancreas, indeterminate and suggestive of CP, respectively ($p<0.0001$).
Number of EUS criteria correlated significantly with the degree of pancreatic fibrosis as evaluated by SR ($r=0.774$, $p<0.0001$) and SH ($r=0.770$, $p<0.0001$). A SR > 2.45 showed sensitivity of 92.0% and specificity of 92.3% for the diagnosis of CP, with an area under the ROC curve of 0.978.
Similarly, a SH <115 showed sensitivity of 87.7% and specificity of 100%, with area under the ROC curve of 0.967.
Conclusion: The quantification of pancreatic fibrosis by SR and SH during pancreatic EUS-SE show a very high and similar diagnostic accuracy in patients with suspected CP.
Disclosure: Julio Iglesia-Garcia. Advisor Pentax, FujiFil, & Mediglobe

PP1631

PANCREATIC DUCT WALL THICKENING ON ENDOSCOPIC ULTRASOUND: NOTABLE FINDING IN THE DIAGNOSIS OF AUTOIMMUNE PANCREATITIS

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Introduction: It is sometimes difficult to distinguish between autoimmune pancreatitis (AIP) and pancreatic neoplasm. In imaging diagnostic examination, long or multiple strictures, or segmental/focal narrowing of pancreatic duct without marked upstream dilatation in endoscopic retrograde pancreatography is important finding to diagnose as AIP.

It has been speculated that the narrowing of pancreatic duct is attributed to periductal lymphoplasmacytic infiltration characteristic of histology in AIP. We reported a resected case of AIP in which branch pancreatic duct wall thickening demonstrated by endoscopic ultrasound (EUS) reflected periductal lymphoplasmacytic infiltration[1)].

EUS that provides high resolution image of pancreas can delineate periductal lymphoplasmacytic infiltration as pancreatic duct wall thickening.

Aims & Methods: The aim of this study is to determine whether pancreatic duct wall thickening on EUS contributes to the diagnosis of AIP. From March 2017, when we began focusing on pancreatic duct wall thickening in AIP, to March 2023, there were 24 consecutive patients diagnosed with AIP in our department.

EUS was performed in all of them, and the presence of pancreatic duct wall thickening was noted on the EUS report. Pancreatic duct wall thickening was focused on a thickened wall with symmetry, irregular luminal caliber, and a smooth hyperechoic layer covering the surface[1)].

The international consensus diagnostic criteria for AIP were applied. The detection rate of pancreatic duct wall thickening on EUS, characteristics according to pancreatic duct wall thickening, and the change of pancreatic duct wall thickening after steroid therapy were investigated.

Results: All patients were diagnosed with type 1 AIP (definitive type 19, probable type 2). Median age was 70 years (range: 55-82), and male was 18 patients. The median serum IgG4 level at diagnosis was 446 mg/dL (range: 147-2600). The detection rate of pancreatic duct wall thickening on EUS was 83.3% (20/24). Localization was diffuse in 12 patients and segmental/focal type in 12 patients.

Other organ involvement was observed in 13 patients. There was no difference in the above factors depending on the presence or absence of pancreatic duct wall thickening. Twenty patients underwent steroid trial. Among them, 7 patients who underwent EUS after steroid trial showed improvement in pancreatic duct wall thickening.

Conclusion: Pancreatic duct wall thickening on EUS was often seen in patients with AIP and improved with steroid therapy. Focusing on this imaging finding may be useful in the diagnosis of AIP.

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Disclosure: Nothing to disclose.

PP1632

EUS-GUIDED BALLOON-OCCLUDED GASTROJEJUNOSTOMY BYPASS FOR MALIGNANT GASTRIC OUTLET OBSTRUCTION -A SINGLE CENTER CASE SERIES INCLUDING LONG-TERM OUTCOMES

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Introduction: Endoscopic ultrasonography-guided gastroenterostomy (EUS-GE) is emerging as a new and minimally invasive endoscopic treatment method for gastric outlet obstruction (GOO). In EUS-GE, it is important that stents can be safely and reliably deployed and that there is no stent migration.

As the optimal method, we have developed the EUS-guided balloon-occluded gastrojejunostomy bypass (EPASS) and have performed it as a clinical study.

Aims & Methods: We retrospectively evaluated the results of EPASS including long-term outcomes. The EPASS procedure was performed under conscious sedation. The endoscope was used to reach the site of obstruction. The stricture was cannulated with a 0.025-inch guidewire and the guidewire was used to negotiate beyond the site of obstruction under endoscopic and fluoroscopic guidance. The double balloon tube was then inserted on the guidewire beyond the duodenal–jejunal flexure using an overtube. The two balloons of the occluder were inflated with 30–40 mL normal saline and constrast. 200–300 mL of methyleneblue-stained saline was then injected to distend the occluded segment of duodenum. A linear echoendoscope was then inserted into the stomach. A site in the posterior wall of the body of the stomach was punctured directly by the delivery system of the lumen apposing metal stent. A 20 x 10 or 15 x 10 mm stent was used.

The distal flange of the stent was deployed under EUS guidance, followed by deployment of the proximal flange under endoscopic or EUS guidance. Stent position was confirmed with the drainage of methylene-blue-stained saline, the endoscopic view of the proximal flange and also the fluoroscopic image. Thirty-six consecutive patients with symptomatic GOO who were not refractory to surgical gastrojejunostomy were enrolled in the study.

The primary endpoint was technical success rate. Secondary endpoints included procedure time, GOO scoring system (GOOSS) scores at 7 days and 1 month after EPASS, clinical success rate (improvement in GOOSS scores at 7 days after EPASS), procedure-related adverse events (AEs) rate, overall survival (OS) after EPASS in the 23 patients with long-term follow-up, and stent patency rate.

Results: The mean age was 70.6 years (range 47-91), 16 (44%) were female, and the underlying diseases were 18 pancreatic cancer, 9 gastric cancer, 3 duodenal cancer, 4 gallbladder cancer, 1 breast cancer, and 1 chondrosarcoma. The technical success rate was 94.4% (34/36), mean procedure time was 26.9 minutes (range 14-40), mean time to double-balloon tube insertion was 9.8 minutes (range 6-28), mean pre-GOOSS score was 0.42, mean GOOSS score was 2.08 and 2.21 at 7 days and 1 month after EPASS, and the clinical success rate was 88.9% (32/36).

The incidence of procedure-related AE was 16.7% (6/36), including 2 cases of fever, 2 cases of abdominal pain, and 2 cases of worsening ascites. The mean overall survival after EPASS was 183.8 days, all patients died of primary disease, and there were no events such as stent occlusion or stent deviation (stent patency was 100%).

Conclusion: EPASS is a safe and reliable EUS-GE method and may be a useful treatment for symptomatic malignant GOO.

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Disclosure: Lecture fee : Boston Scientific Japan, Olympus Japan

PP1633

EXPLORING A NOVEL COMPOSITE METHOD USING NON-CONTRAST EUS ENHANCED MICROVASCULAR IMAGING AND CYST FLUID ANALYSIS TO DIFFERENTIATE PANCREATIC CYSTIC LESIONS

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Introduction: Differentiating pancreatic cystic lesions (PCLs) remains a diagnostic challenge. The use of high-definition imaging modalities which detect tumor microvasculature have been described in solid lesions.
We aim to evaluate the usefulness of cystic microvasculature when used in combination with cyst fluid biochemistry to differentiate PCLs.
Aims & Methods: We retrospectively analyzed 110 consecutive patients with PCLs from 2 Italian Hospitals who underwent EUS with HFlow and EUS fine needle aspiration to obtain cystic fluid. The accuracy of fluid biomarkers was evaluated against morphological features on radiology and EUS. Gold standard for diagnosis was surgical resection. All cysts fluid cutoff values were assigned from previous literature: CEA>192(ng/ml), CA19.9>37(U/L), amylase>250(U/L), lipase>336(U/L), glucose<50(mg/dl).
Results: Of 110 patients, 65 were diagnosed as mucinous, 41 as non-mucinous neoplasms (4 patients excluded). Fluid analysis alone yielded 76.7% sensitivity, 56.7% specificity, 77.8 positive predictive value (PPV), 55.3 negative predictive value (NPV) and 56% accuracy in diagnosing pancreatic cysts alone. Our composite method yielded 97.3% sensitivity, 77.1% specificity, 90.1% PPV, 93.1% NPV, 73.2% accuracy.
Conclusion: This new composite method which utilizes high-definition microvasculature imaging on EUS is superior to that of the stand-alone analysis of cyst fluid biochemistry. It can be applied to the holistic approach of combining cyst morphology, vascularity, and fluid analysis alongside endoscopist expertise.
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Disclosure: Nothing to disclose.

PP1634

DYNAMIC CONTRAST ENHANCED HARMONIC ENDOSCOPIC ULTRASOUND (CEH-EUS) FOR THE DIAGNOSIS OF FOCAL PANCREATIC MASSES. INFLOW-TIME MAPPING - A NOVEL SIMPLISTIC OBJECTIVE APPROACH: A PILOT STUDY

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Introduction: Contrast-enhanced harmonic endoscopic ultrasound (CEH-EUS) is one of the best imaging modalities to visualize tumor blood flow, but conventional observation can sometimes be insufficient, particularly in lesions characterized by rapid changes in blood flow. Inflow-time mapping (ITM) is a colored parametric display of time-to-peak enhancement for each pixel in the display that allows a better differentiation of tissues by their speed of contrast agent uptake. ITM is a simple, easily reproducible computer-aided color parametric imaging (CPI) technique that can bring a more objective approach to CEH-EUS analysis and further improve the differential diagnosis of pancreatic masses.
Aims & Methods: To investigate the potential advantages and limitations of Inflow-time Mapping - a novel computer-aided color parametric imaging technique - in assessing focal pancreatic lesions using contrast-enhanced harmonic endoscopic ultrasound.
A total of 15 patients including 8 cases of pancreatic ductal adenocarcinomas (PDAC), 3 cases of chronic pancreatitis, 2 cases of pancreatic neuroendocrine tumors (NETs), one case of serous cystadenoma (SCA) and one case of intraductal papillary mucinous neoplasm (IPMN) were enrolled. CEH-EUS and ITM examinations were performed for the frames obtained during the arterial phase. All CEH-EUS and ITM images were retrospectively reviewed and two sets of criteria were assigned: (1) Routine CEH-EUS alone, focusing on the degree and pattern of enhancement, and (2) CEH-EUS and ITM, focusing on differentiating pancreatic lesions based on their speed of ultrasound contrast agent (UCA) uptake, compared to adjacent tissue. Final diagnosis was based on EUS-guided tissue fine needle aspiration biopsy (EUS-FNAB).
Results: Based on CEH-EUS, 11 pancreatic lesions were initially considered PDAC based on their hypoenhanced appearance. ITM analysis could not provide additional information in 8 patients due to insufficient vascularization. In 3 patients, by showing no difference in the speed of UCA uptake in the enhanced regions of the lesion compared to the surrounding parenchyma, ITM analysis was able to correctly identify chronic pancreatitis, as proven by histology. Among the 2 hyperenhanced pancreatic le-

sions described on CEH-EUS, ITM analysis was able not only to correctly diagnose but also to provide an extensive characterization of 2 pancreatic NETs by showing a greater speed of UCA uptake in the lesion and a typical pattern of the parametric map. ITM analysis also proved useful in objectively highlighting the speed and pattern of enhancement (septal/mural) of 2 included cystic lesions, IPMN and SCA.

Conclusion: ITM is a promising tool for an objective, simplistic approach, in the assessment of hypervascular pancreatic lesions, particularly pancreatic NETs. It can also become an important step in the evaluation of focal pancreatic masses in patients with chronic pancreatitis, where parenchymal inhomogeneity and altered local perfusion might influence the purely visual assessment of CEH-EUS.

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Disclosure: Nothing to disclose.

PP1635

DYNAMIC CONTRAST-ENHANCED ULTRASOUND (D-CEUS) TO PREDICT BIOLOGICAL BEHAVIOR IN PANCREATIC CANCER: MONOCENTRIC STUDY PRELIMINARY RESULTS

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Introduction: Pancreatic cancer (PC) is one of the most lethal tumors worldwide, and in 2030 it will become the second leading cause of cancer related death (1–3). Computed tomography (CT) and magnetic resonance imaging (MRI) are the gold standards to stage the disease (4). Nevertheless, these imaging modalities are unable to provide real-time information on biological characteristics of tumors, such as vascularity, which is proportional to angiogenesis, growth rate, and necrosis (5,6). Dynamic contrast-enhanced ultrasound (D-CEUS) allows qualitative and quantitative microvascular perfusion assessment in real-time (7).

Aims & Methods: This study aimed to evaluate the role of D-CEUS in the characterization of PC. Thirty-eight patients with suspected PC were prospectively enrolled between October 2022 and March 2023. All patients underwent endoscopic ultrasound guided biopsy for histological diagnosis and CT or MRI for staging. According to these modalities, patients were divided into three categories: resectable PC (R-PC), locally advanced PC (LA-PC), and metastatic PC (M-PC). D-CEUS was performed the same day of lesion biopsy and time-intensity parameters were compared among tumor categories. The diagnostic performances of selected parameters was evaluated by receiver operating characteristic (ROC) analysis.

Results: PC was diagnosed in 36 (94.7%) patients and classified as R-PC, LA-PC and M-PC in 5 (13.9%), 13 (36.1%) and 18 (50%) patients, respectively. Among perfusion parameters, time to peak (TTP) showed a trend to increase in LA-PC patients (median 18.03 sec, interquartile range [IQR] 14) compared to R-PC group (median 12.9 sec, IQR 3.05) ($p = 0.05$) and it was significantly higher in LA-PC group compared to M-PC group (median 12.35 sec, IQR 4.08) ($p = 0.03$). A cut-off value < 11.6 sec showed a good accuracy to distinguish LA-PC from M-PC (area under the ROC curve = 0.74) with maximal specificity (100%) but low sensitivity (50%).

Conclusion: Quantitative perfusion parameters extracted from D-CEUS seem to be useful in distinguishing the invasiveness of PC. In particular TTP, a parameter related to blood flow was higher in LA-PC compared to M-PC, suggesting different microvascular characteristics of the tumors. Further studies on larger population are needed to confirm these findings and to explore the biological basis for this phenomenon.

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Disclosure: Nothing to disclose.

PP1636

CLINICAL AND TECHNICAL SUCCESS OF EUS-GUIDED ANTEROGRADE DRAINAGE FOR NON-NEOPLASTIC OBSTRUCTED BILIARY AND PANCREATIC DUCTS: A SINGLE-CENTER EXPERIENCE

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Introduction: The first-line treatment for obstructed biliary or pancreatic ducts is endoscopic retrograde cholangiopancreatography (ERCP), yet access may fail (even in expert hands) in 10-15% of cases due to inability to cannulate the papilla or a challenging narrow anatomy. Endoscopic ultrasound-guided biliary drainage (EUS-BD) or EUS-guided pancreatic duct drainage (EUS-PDD) have emerged as direct duct accesses alternate to the percutaneous or surgical approach, both which carry high morbidity and mortality.

Aims & Methods: We aim to assess the anterograde's drainage clinical and technical success in non-neoplastic obstructed biliary and pancreatic ducts. Data from patients with a history of obstructed biliary or pancreatic ducts between January 2021 and October 2022 was analyzed retrospectively. Clinical and technical success were the primary endpoints. Adverse events, re-stenosis, and re-intervention were also evaluated.

Results: A total of twenty patients were included (15/20 EUS-BD and 5/20 EUS-PDD), median age of 46 (IQR 24-77), 70% female.

A) EUS-BD: inability to cannulate the papilla was due to stenosis secondary to: 6/15 laparoscopic cholecystectomy, 7/15 conventional cholecystectomy, 1/15 gallbladder neoplastic plastron, and 1/15 Y-Roux. In 4/15 a previous attempt was performed (1/4 balloon dilation, 1/4 percutaneous transhepatic biliary drainage, and 2/4 stenting). Anterograde drainage was

performed in 7/15 using a single pigtail stent, 5/15 double pigtail stents and 3/15 lumen-apposing metal stent (LAMS). Stomach puncture was the preferred approach site in 13/15. A 15/15 (100%) technical success was achieved, but a 9/15 (60%) clinical success based on bilirubin decrease. During follow-up, adverse events were documented in 3/15 cases: upper bleeding, cholangitis, and subhepatic fluid collection. Stent migrated in 3/15 cases. There was no restenosis, but reintervention was necessary on 8/15. One patient died.

B) EUS-PDD: anterograde drainage was decided due to acute or chronic pancreatitis and choledocholithiasis in 2/5, 1/5, and 2/5 cases, respectively; 2/5 patients were under non-opioids therapy before the procedure for pain management, and 4/5 were prescribed pancreatic enzyme supplementation. In 3/5 cautery-assisted dilation was required. In 1/5, balloon dilation was also necessary. Used stents included: single and double pigtail stents, LAMS, and self-expandable metal stents (SEMS). Technical and clinical success was achieved in 5/5 (100%), with no adverse events.

Conclusion: Anterograde EUS-BD and EUS-PDD for the management of non-neoplastic biliary and pancreatic duct drainage are valuable alternatives in patients where ERCP is not feasible. Further prospective studies are necessary to confirm the observed results.

Disclosure: Carlos Robles-Medranda is a key opinion leader and consultant for Pentax Medical, Boston Scientific, Steris, Medtronic, Motus, Microtech, G-Tech Medical Supply, CREO Medical, EndoSound, and mdcons-group. The other authors declare no conflicts of interest.

PP1637

A META-ANALYSIS OF EARLY VS. DELAYED EUS-GUIDED DRAINAGE FOR POSTOPERATIVE PANCREATIC FLUID COLLECTIONS

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Introduction: Post-operative pancreatic fluid collections (POPFCs) are common adverse events after pancreatic surgery and may need interventions. Endoscopic ultrasound (EUS)-guided drainage for POPFCs is increasingly reported, but its appropriate timing has not been fully elucidated.

Aims & Methods: The aim of this meta-analysis was to evaluate treatment outcomes of POPFCs according to the timing of EUS-guided drainage. Using PubMed, Embase, Web of Science, and the Cochrane database, we identified clinical studies published until December 2022 with data comparing outcomes of early and delayed EUS-guided drainage for POPFCs. We pooled data on adverse events (AEs), mortality, and technical and clinical success rates, using the random-effects model.

Results: From 1,415 papers identified in the initial literature search, we identified 6 retrospective studies, including 128 and 107 patients undergoing early and delayed EUS-guided drainage for POPFCs. The threshold of early and delayed drainage ranged from 14 to 30 days. Distal pancreatectomy was the major cause of POPFCs, ranging from 44 to 100%. Reported AE rates of EUS-guided drainage of POPFCs ranged from 4% to 46%, and the pooled odds ratio (OR) for adverse events was 0.81 (95% confidence interval [CI], 0.40-1.64, P = 0.55) comparing early to delayed drainage. There was no evidence on heterogeneity between the studies ($P_{heterogeneity}$ = 0.93 and I^2 = 0%). There was no procedure-related mortality, and technical success was achieved in all cases. Clinical success rates were reported as 90 to 97% and were comparable between early and delayed drainage groups with a pooled OR of 0.60 (95% CI, 0.20-1.83, P = 0.37).

Study	Early / Delayed, n	Technical success (%)	Clinical success (%)	Adverse event (%)	Bleeding (%)	Infection (%)	Stent migration (%)
Varadarajulu	4/6	100/100	100/83	0/0	0/0	0/0	0/17
Tilara	17/14	100/100	100/100	6/7	6/7	0/0	0/0
Caillol	22/19	100/100	86/100	45/47	27/16	14/21	0/11
Storm	42/33	100/100	93/94	21/30	5/6	0/3	0/3
Fujimori	14/16	100/100	93/100	7/6	7/6	0/0	0/0
Oh	29/19	100/100	97/95	7/0	7/0	0/0	0/0

Table. Clinical outcomes of early and delayed EUS-guided drainage for postoperative pancreatic fluid collection.

Conclusion: POPFCs can be managed by early EUS-guided drainage without an increase in AEs.

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PP1638

COMPARISON BETWEEN ENDOSCOPIC ULTRASOUND-GUIDED RADIOFREQUENCY ABLATION AND SURGICAL RESECTION FOR PANCREATIC INSULINOMA: A SINGLE-CENTER, RETROSPECTIVE ANALYSIS

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Introduction: Insulinomas are rare, functioning neuroendocrine neoplasms that cause non-ketotic hypoglycemia due to hyperinsulinism. Surgery is considered the gold-standard treatment, although endoscopic ultrasound-guided radiofrequency ablation (EUS-RFA) has been recently described as a less invasive, efficient therapeutic option for these tumors. In this study, we aim to compare post-procedural outcomes of surgical resection versus EUS-RFA for pancreatic insulinomas.

Aims & Methods: All patients who underwent surgical resection or EUS-RFA for pancreatic insulinoma in our Institution were included in the study, and data from all procedures were retrospectively recorded and statistically analyzed. EUS-RFA was indicated for all subjects either unfit for surgery or unwilling to undergo surgical treatment. Patients' baseline characteristics, location, size of insulinomas, procedural time, and intra- and postoperative outcomes were compared.

Results: From April 2012 to July 2022, 11 and 10 patients with pancreatic insulinoma underwent surgical resection and EUS-RFA, respectively. The median age was 65.5 (51-84) and 37 years (28-72, p<0.001) for the EUS-RFA and surgery cohorts, respectively. As a whole, 15 (71.4%) out of 21 were female. The median tumor size was 15mm (8-30) for the surgical group and 11mm (8-19) for the EUS-RFA group (p=0.17). The majority of the insulinomas were located in the pancreatic body (28.6%) and tail (28.6%), with no statistical difference between the two groups (p=0.16). Operative time was significantly longer in the surgical population (280min, 120-372) as compared to the endoscopic one (28min,18-40, p<0.001). Clinical success, defined as the normalization of glucose blood levels, was reached in all cases. The complication rate was significantly higher in the surgical group compared to the endoscopic group (7-63.6% vs 1-10%, p=0.01). Specifically, 7 patients in the surgical cohort developed a pancreatic fistula while one patient in the EUS-RFA population had self-limiting bleeding after the procedure. One patient of the surgical cohort underwent reoperation for an infected abdominal fluid collection.

Variable	EUS-RFA N=10	Surgical resection N=11	p value
Median age-adjusted CCI, points	4.5 (2-6)	2.0 (2-5)	0.002
MEN-1, n (%)	2 (20.0)	0 (0.0)	0.119
Hypoglycemic symptoms, n (%)	10 (100)	11 (100)	/
Positive fasting test, n (%)	9 (90.0)	10 (90.9)	0.943
Median operative time, min (range)	28 (18-40)	280 (120-372)	<0.001
Procedure-related AE, n (%)	1 (10.0)	7 (63.3)	<0.001
Postoperative euglycemia, n (%)	10 (100)	11 (100)	/
Median follow-up time, months (range)	15 (6-62)	51 (6-126)	0.670

Legend: AE: adverse events; EUS-RFA: endoscopic ultrasound-guided radiofrequency ablation; CCI: Charlson Comorbidity Index; MEN-1: multiple endocrine neoplasia type 1.

Table 1. Characteristics of patients classified by treatments.

Conclusion: As compared to surgical resection, EUS-RFA for pancreatic insulinomas may be considered a safe and efficient treatment option with a shorter operative time and a lower rate of related complications. Prospective comparative studies are needed to ascertain the role of EUS-RFA as a treatment of choice for selected patients with pancreatic insulinoma.

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Disclosure: Nothing to disclose.

PP1639

A NEW STEP-UP DUAL ENDOSCOPIC APPROACH FOR LARGE SIZE INFECTED PANCREATIC NECROSIS: PERCUTANEOUS ENDOSCOPIC NECROSECTOMY FOLLOWED BY TRANSLUMINAL ENDOSCOPIC DRAINAGE/NECROSECTOMY

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Introduction: Acute pancreatitis in 10%–20% of cases can be associated with necrosis of the pancreatic gland, peripancreatic tissue, or both. Expert multidisciplinary care by gastroenterologists, surgeons, interventional radiologists, and specialists in critical care medicine, infectious disease, and nutrition is required to successfully manage these patients.

The current accepted invasive treatment for patients with necrotizing pancreatitis is the so-called "step-up" approach, which includes an initial percutaneous catheter drainage (PCD) followed by endoscopic, surgical, or laparoscopic necrosectomy, if necessary.

We report a case series of a new endoscopic approach to treat infected pancreatic necrosis (IPN).

Aims & Methods: Consecutive patients with IPN, extended from perigastric area up to the paracolic gutters or into the pelvis, were prospectively studied from January 2017 and June 2022.

Treatment protocol was radiological percutaneous drainage as first step followed by fully covered metal stent placement (FC-SEMS) in the track of the catheter. Percutaneous endoscopic necrosectomy (PEN) was performed 2-4 days later using a flexible endoscope through the percutaneous tract.

About 2-4 weeks later when, a matured sac was visible, EUS-guided endoscopic transluminal drainage (ETD) with lumen-apposing metal stents (LAMS) was performed.

Control of sepsis with resolution of collection(s) was primary outcome measure.

Results: We included 18 patients, males in 50% of cases with age 60 ± 12 years old. The most frequent cause of pancreatitis was biliary (7 cases) followed by alcoholic in 6 cases; in 3 cases pancreatitis was caused by hyperlipemia and in 2 cases was idiopathic. The mean size of WON was 18 ± 2 cm. For PEN, the SEMSs used were oesophageal FC-SEMS. LAMS used for ETD were Hot Axios, Hot Spaxus, and Nagistent. The mean time of endoscopic intervention for PEN and ETD was 18 ± 3 days and 37 ± 4 days respectively. In 5 cases adverse events occurred: 3 cases of overinflations resolved with the introduction of Verres needles in the abdomen. In 2 cases post procedural GI bleeding required endoscopic intervention.

The median time of resolution of WON was 3.5 weeks (minimum 2, maximum 6 weeks), with a median of 2 sessions for PEN (minimum 2, maximum 3) and 2 sessions for ETD (minimum 2, maximum 4) at an interval of 7 days (range: 4-9 days) were needed to achieve resolution of fluid collection. In all cases control of sepsis was reached together with resolution of collections. No cases of deaths were observed.

Conclusion: The combined step-up dual approach of initial PCD after 2-3 weeks of illness followed by early PEN and delayed ETD is a safe and effective alternative treatment for patients with large size IPN, extended from the pancreatic lodge into paracolic gutters or the pelvis.

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PP1640

NEW THROUGH-THE-NEEDLE BRUSH FOR PANCREATIC CYSTS ASSESSMENT: A RANDOMIZED CONTROL TRIAL

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Introduction: Current endoscopic ultrasound technologies (EUS) are suboptimal in the assessment of pancreatic cystic lesions (PCLs). We developed a new through-the-needle brush, the “loop brush”, to improve the cellular yield, and thereby sensitivity, of EUS fine needle aspiration (EUS-FNA) of pancreatic cysts.

Aims & Methods: We aim to evaluate the “loop brush” safety, robustness, and efficacy.

We performed an in-vivo randomized controlled trial in pigs using artificial cysts. In one group, the loop brush was deployed through a 22G EUS-FNA needle into the cysts. In the control group, cystic punction was performed with standard EUS-FNA. Loop brushes were visually inspected post-procedure. Cytological assessment, cell counting, and hemoglobin analysis were performed in samples from both groups.

Results: Artificial cysts (n=114) were punctured in six pigs, 57 in each group. Neither adverse events nor significant device malfunction occurred during loop brushing. Samples collected with the brush had non-detectable concentrations of hemoglobin in 72% (41/57) of cases, and 26% (16/57) had less than 0.6 g/dL, with no significant difference to the controls (p=0.32). Brushing cell counts were associated with significantly increased cell counts (11.7× median difference, p<.0001). Cytological smears were diagnostic in 77% of cases in the brushing group, while 54% in the control group (p=0.01, Fisher’s exact test; p=0.006, Chi-square test).

Conclusion: The new loop brush procedure appears to be safe, causing neither significant bleeding nor device malfunction. Samples obtained with the loop brush were suitable for cytological analysis and showed significantly higher cell yield than controls. Further clinical studies are warranted.

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Disclosure: FM, WW, UA, NR, and FBS have patent applications for the brush technology and are co- founders of Lucky LoopMedical AB, a company commercializing technology for improved sampling in EUS-FNA. UA has received a research grant from Boston Scientific and is a consultant to Boston Scientific, Medtronic, and Ambu. IS declares no conflict ofinterest.

PP1641

EFFICACY AND SAFETY OF ENDOSCOPIC DRAINAGE VERSUS PERCUTANEOUS DRAINAGE FOR PANCREATIC FLUID COLLECTION; A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Pancreatic fluid collections (PFC) are debris or fluid of the pancreas that need to be drained out. This may result from surgery or necrotizing pancreatitis. This meta-analysis compared the outcomes of PFC through endoscopic and percutaneous interventions.
Aims & Methods: A medical database was searched up to June 2022, comparing the outcomes of endoscopic drainage (ED) and percutaneous drainage (PD) for the PFC. Eligible studies reporting clinical and technical success and adverse events were selected.
Results: Seventeen studies with 1170 patients were included for meta-analysis, of which 543 patients underwent ED and 627 underwent PD. Odd ratio (OR) of technical success was 0.81 (95% confidence interval (CI) 0.31, 2.1) and clinical success was in the favor of ED group at OR 2.23 (95% CI 1.45, 3.41). Adverse events OR 0.62 (95% CI 0.27, 1.39) and stent migration OR 0.61 (95% CI 0.10, 3.88) were the same in both groups, but hospital stay pooled mean difference of 15.02 days (95% CI 9.86, 20.18), mortality OR 0.24 (95% CI 0.09, 0.67), and re-interventions OR 0.25 (95% CI 0.16, 0.40) favored ED.
Conclusion: ED is safe and efficient for PFC with higher clinical success, lower mortality rate, hospital stay, and re-interventions compared with PD.
Disclosure: Nothing to disclose.

Poster presentations
COVID-19

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COVID-19

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COVID-19

PP1642

MICROBIOME MODIFICATION AND IMPROVEMENT OF SIGNS AND SYMPTOMS OF COVID-19: ILEOCOLONIC-RELEASE NICOTINAMIDE IN A PROSPECTIVE, DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED TRIAL

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Introduction: Infection with SARS-CoV-2 leads to pronounced changes in the intestinal microbiome and also decay of tryptophan that are both related to disease severity. Supplementation of tryptophan metabolism using ileocolonic-release nicotinamide may stabilize the microbiome and alleviate COVID-19 symptoms.

Aims & Methods: This prospective, double-blind, randomized, placebo-controlled trial evaluated safety and efficacy of a 4-week intervention with a novel oral formulation of nicotinamide (1,000 mg/d) in symptomatic, unvaccinated, non-hospitalized outpatients with PCR-proven early COVID-19.

The primary outcome was full recovery from reduced physical performance after 2 weeks in the prespecified symptomatic primary analysis population with at least one risk factor for severe COVID-19. Stools from a part of the patients (4 timepoints) were submitted to 16S rRNA (n=70) and shotgun metagenomics (n=18) sequencing.

Results: Screening of 7,013 patients resulted in randomization of 900 participants (nicotinamide or placebo (1:1), from which 867 received the investigational product and 500 qualified for the acute disease analysis population. 110 of 191 patients (57.6%) receiving nicotinamide and 80 of 188 patients receiving placebo (42.6%) recovered from their performance drop at week 2 (absolute difference, 15.0 percentage points; odds ratio, 1.33; 95% confidence interval, 1.03 to 1.70; P=0.004).

Nicotinamide was also superior in the secondary endpoints ability to perform normal activities (P=0.009) and shortness of breath (P=0.012). Substantial effects on gut microbiome constitution were seen counteracting COVID-19 related changes.

Reduction of tryptophan biosynthesis in the microbiome in placebo patients was restored and NAD salvage pathways were activated in nicotinamide-treated individuals. No relevant safety signals were observed.

Conclusion: Oral treatment with nicotinamide stabilized the gut microbiome against COVID-19 related changes and led to faster recovery of physical performance in symptomatic patients at risk for severe Covid-19. (Funded by the German Research Foundation [DFG], the State of Schleswig-Holstein and the UEG Research Prize; ClinicalTrials.gov number: NCT04751604)

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PP1643

PERI-OPERATIVE COVID-19 INFECTION AND SUBSEQUENT MORTALITY DURING THE COVID-19 PANDEMIC

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Introduction: Initial reports suggested a high mortality associated with peri-operative COVID-19 infection resulting in delayed surgery and a global change in surgical pathways. The impact of COVID-19 variants and vaccinations on surgical outcomes is yet to be described.

Aims & Methods: We aimed to define the risk of COVID-19 infection in the 30 days following surgery and the associated mortality. With the approval of NHS England we identified all registered adult patients in an OpenSAFELY-TPP primary care general practice within England whilst having an abdominal, obstetric, orthopaedic, thoracic or vascular procedure defined using OPCS codes between 01/02/2020 and 01/03/2022.COVID vaccinations and COVID waves were defined. Crude 30 day risks were calculated using Kaplan Meier curves.

A competing risks Cox proportional survival analysis was used to adjust the cumulative risk of COVID-19 infection by the competing risk of death and subsequent non COVID-19 emergency readmissions.

Primary care records managed by the GP software provider TPP were linked to ONS death data, Hospital Episodes Statistics, and Second Generation Surveillance System Public Health England test data through OpenSAFELY.

All data were linked, stored and analysed securely within the OpenSAFELY platform: https://opensafely.org/. Data include pseudonymised data such as coded diagnoses, medications and physiological parameters. No free text data are included. All code is shared openly for review and re-use

under MIT open license https://github.com/opensafely/PostOpCovid. Detailed pseudonymised patient data is potentially re-identifiable and therefore not shared.

This study was approved by the Health Research Authority [REC reference 21/EE/0278] by the East of England Research Ethics Committee.

Results: We identified 1,213,890 patients within the study period who underwent at least one surgical procedure. Following surgery 11,950 (0.9%) patients developed COVID-19 infection within 30 days. Post-operative COVID infections were greatest in wave 4 with 2.5% of patients having a post-operative infection. Adjusting for all factors post-operative COVID infection risk was 4.9 (aHR 4.88 95% CI 4.65-5.12) fold greater in the fourth wave compared to the first wave.

Within 90 days of surgery there were 820 (0.06%) deaths. A recent COVID infection increased crude morality to 1.42%, and a post-operative COVID infection increased crude mortality to 1.82%. The risk of death reduced following a first and second vaccination (aHR 0.11 95% CI 0.09-0.13). A recent COVID infection (7-42 days prior to admission) increased mortality 4 fold (aHR 3.84 95% CI 3.31-4.45) and a post-operative COVID infection increased mortality 8 fold (aHR 8.49 95% CI 7.6-9.48) compared to those without a COVID-19 infection. This increased 90 day mortality risk was highest in the second wave following a post-operative COVID infection, but then decreased to the non-covid baseline for both emergency and elective procedures in the 3rd and 4th waves.

Conclusion: The risk of post-operative COVID infection is low but has increased as strains have been become more transmissible. The absolute risk of death following peri-operative COVID-19 infection is greater than those who have not had infection however this risk has become attenuated during the latter waves of the pandemic.

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PP1644

TREATMENT MODALITIES FOR POST-COVID-19 ESOPHAGO-GASTRIC JUNCTION DISORDERS

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Introduction: Among the constellation of symptoms attributed to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, dysphagia emerged as a rather rare manifestation. This post-COVID-19 dysphagia seems to arise from esophago-gastric junction (EGJ) disorders either triggered or fueled by SARS-CoV-2 infection. New-onset dysphagia is associated with EGJ-outflow obstruction (EGJ-oo) whereas post-COVID-19 aggravation of dysphagia is associated with Achalasia. Available evidence to guide treatment for patients with post-COVID-19 dysphagia are currently lacking.

Aims & Methods: To offer an evidence-based therapeutic approach for patients presenting with post-COVID-19 dysphagia. Patients presenting with post-COVID-19 dysphagia between January 2021-December 2022, underwent esophagogastroduodenoscopy, esophagram, computed tomography and two esophageal high-resolution manometry (HRM) studies 4-8 months apart. The Chicago classification 4.0 was used for HRM diagnosis. SARS-CoV-2 infection was documented through at least one positive reverse transcriptase polymerase chain reaction (RT-PCR) test. Demographics, history of anti-SARS-CoV-2 vaccination, Eckardt scores (ES) were also recorded. A step-up therapeutic approach was applied and evaluated.

All patients received proton pump inhibitor (PPI-20mg rabeprazole od) therapy as a first step. If dysphagia and/or vomiting persisted or the patient experienced bolus impaction then pneumatic dilatation (PD) with a rigid 30mm balloon was applied. If dysphagia persisted despite PD then the patient underwent 35mm-PD or per-oral endoscopic myotomy (POEM), based on personal preference and anesthesia eligibility. In the occurrence of type III Achalasia, POEM was offered as second-line treatment. Informed consent was obtained from all patients.

Results: Thirty-two patients (23 females; mean age±SD: 61±8years) were included, eighteen with new-onset dysphagia (median ES:6) and fourteen with aggravation of pre-existing dysphagia (median ES:8 vs 3). All patients with new-onset dysphagia had EGJ-oo whereas those with pre-existing dysphagia exhibited either type II (N=13) or type III (N=1) Achalasia. A female predominance was evident in the EGJ-oo group (female:male ratio of 2.7:1). Achalasia patients exhibited higher median IRP values compared to the EGJ-oo group: 23.1(1.5) vs 17.4(1.7) (P<0.001). In patients with EGJ-oo, dysphagia resolved under PPI treatment over a median(IQR) of 4(2.2) months: IRP 13.4(1.2) vs 17.4(1.7) at baseline (P<0.05). PPI treatment was not effective in the group with pre-existing dysphagia (P=0.8) therefore PD at 30mm was applied in 13 patients and POEM in one patient with type III Achalasia.

Interestingly, all patients within the PD-treated Achalasia group required further treatment escalation either PD at 35mm (N=6) or POEM (N=7) for resolution of symptoms. In the 35mm-PD group ES dropped from 8 to 3 (P<0.05) whereas in the POEM-treated group ES dropped from 8 to 1 (P<0.05). POEM was more effective in reducing symptoms compared to 35mm-PD (P=0.003).

Conclusion: Based on HRM, two post-COVID-19 dysphagia phenotypes can be identified each requiring different management. New-onset dysphagia is associated with EGJ-oo and seems to resolve under PPI over time. On the contrary, post-COVID-19 aggravation of dysphagia corresponds to type II or III Achalasia and requires aggressive endoscopic treatment either PD with a larger caliber balloon or POEM, with the latter yielding more favorable results.

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Disclosure: None.

PP1645

GUT MICROBIOTA IS ASSOCIATED WITH PERSISTENCE OF LONGER-TERM VACCINE IMMUNOGENICITY AFTER TWO DOSES OF BNT162B2

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Introduction: Gut dysbiosis reduces immunogenicity of non-COVID-19 vaccines. While immunogenicity of BNT162b2 wanes with time, factors influencing durability of vaccine immunogenicity are underinvestigated.

Aims & Methods: Aim: We aimed to investigate association between gut microbiota composition and longer-term immunogenicity of BNT162b2. Methods: This was a prospective cohort study recruiting adult BNT162b2 two-dose recipients from three vaccination centers in Hong Kong. Exclusion criteria included prior COVID-19, gastrointestinal surgery and immunocompromised status. Blood samples were collected at baseline and day180 after first dose, and tested for neutralising antibody (NAb) against receptor-binding domain (RBD) of wild type SARS-CoV-2 virus using chemiluminescence immunoassay. NAb seroconversion (defined as >=15 AU/mL) was determined at day180. Those with NAb 75th percentile and <75th percentile were classified as high- and low-responders, respectively. Stool samples were collected at baseline, followed by DNA extraction and shotgun metagenomic sequencing by Illumina NovaSeq 6000 platform. Relative abundances of microbial taxa were compared between high- and low-responders. Alpha-diversity was estimated by observed species, Shannon and Simpson indices, and compared between the two groups using Wilcoxon signed-rank test. Beta-diversity was compared by non-metric multidimensional scaling (NMDS). Linear discriminant analysis (LDA)-Effect Size (LEfSe) was performed to identify stool bacterial species and metabolic functional pathways with LDA score >=2. Multivariable logistic regression adjusting for clinical factors (including age, sex, diabetes mellitus, overweight/obese) was used to derive adjusted odds ratio (aOR) of persistently high vaccine response with bacterial species.

Results: Of 242 BNT162b2 recipients (median age:50.2 years [IQR:42.5-55.6];male:85 [35.1%]), 232 (95.9%) remained seropositive at day180. 61 (25.2%) of vaccine recipients were persistent high-responders (median NAb level:205.4 AU/mL; IQR:164.6-291.3) while 181 (74.8%) were low-responders (median NAb level:40.9 AU/mL; IQR:25.8-66.4). The baseline demographics were comparable between the two groups (all p>0.05). There was no difference in the alpha and beta diversity between the two gropus (all p>0.05). Ruminococcus bicirculans, Parasutterella excrementihominis, and Streptococcus salivarius were more abundant in high- than low-responders (0.9% vs 0.1%, 0.08% vs 0.02%, 0.06% vs 0.04%, respectively), while Bacteroides thetaiotaomicron was less abundant (1.1% vs 2.1%). Consistently, LEfSe showed that R. bicirculans (log_{10}LDA score=3.65), P. excrementihominis (score=2.82), and S. salivarius (score=2.31), were enriched in persistent high-responders, while B. thetaiotaomicron was enriched in low-responders (score= –3.70). On multivariable analysis, bacterial species including R. bicirculans (aOR:1.87;95% CI:1.02-3.51), P. excrementihominis (aOR:2.20;95% CI:1.18-4.18) and S. salivarius (aOR:2.09;95% CI:1.13-3.94), but not clinical factors, were associated with persistent high response. R. bicirculans positively correlated with metabolic pathways enriched in persistent high-responders, including superpathway of L-cysteine biosynthesis (score=2.25) and L-isoleucine biosynthesis I (score =2.16), which are known to benefit immune system.

Conclusion: Potential microbial markers for longer-term BNT162b2 immunogenicity were R. bicirculans, P. excrementihominis, S. salivarius and B. thetaiotaomicron. Quantitative polymerase chain reaction (qPCR) will be performed in a validation cohort.

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PP1646

THE EFFECT OF HEPATOSTEATOSIS AND LIVER FIBROSIS ON THE PROGNOSIS OF HOSPITALIZED COVID-19 PATIENTS

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Introduction: Non-alcoholic Fatty Liver Disease (NAFLD), is a state of hyperinflammation which is associated with release of pro-inflammatory cytokines. Obesity, diabetes and metabolic syndrome, which are usually accompanied by hepatosteatosis, are risk factors for severe Covid-19 infection.

Aims & Methods: We aimed to investigate the association of hepatosteatosis and liver fibrosis by non-invasive markers (FIB-4 and APRI) with the prognosis of Covid-19 disease among hospitalized patients. In this retrospective and observational study, 500 patients with the diagnosis of Covid-19 between March 2020 and March 2022 and underwent Thorax Computed Tomography (CT) were included. Demographics, clinical characteristics and laboratory data at admission were recorded. Liver-spleen attenuation value difference (CT_{L-S}) was obtained from CT images and non-invasive fibrosis markers as APRI and FIB-4 scores were calculated (1). Advanced fibrosis was defined as FIB-4>2.67, APRI≥1. Severe outcomes were defined as either intensive care unit (ICU) admission or mortality.

Results: Among the patients, 129 (25.8%) were admitted to the ICU, and mortality occurred in 53 (10.3%) cases. According to CT_{L-S} value, hepatosteatosis was in 32.6% of the cases. 82.8% of cases with hepatosteatosis were male, mean age was 52.6±13.5, 82% were overweight or obese. Hypertension and diabetes were the most common comorbidities. Among ICU patients, hepatosteatosis was found in 41.8% and ICU admission was associated with hepatosteatosis (p=0.002). Of the patients with hepatosteatosis, 58% of patients have FIB-4>1.3 and of these, FIB-4 and APRI score were significantly high in patients with ICU admission and mortality (p=0,001). Of the patients both with hepatosteatosis and advanced fibrosis, 71% were admitted to the ICU, mortality was seen in 32.5%. Mortality was significantly higher in patients with hepatosteatosis and advanced fibrosis according to the FIB-4 score (p=0.001). In the ROC analysis, combination of FIB-4 score and attenuation had highest sensitivity (sensitivity: 88.37%; Negative Predictive Value 90.85%; p=0.001) in determining the need for ICU need. The need for ICU follow-up was found to be 5 times higher in patients with a high FIB-4 score and low attenuation value [(Odds ratio (OR) 5.101; 95% Confidence Interval (CI): 2.865-9.083)]. The risk factors for the need for intensive care in patients with hepatosteatosis were advanced age, presence of fibrosis, high ferritin and IL-6 level in univariate analysis, whilst only high ferritin level was defined as a risk factor in multivariate analysis. Inflammation markers such as IL-6 and ferritin were significantly higher in patients with hepatosteatosis and fibrosis.

FIB-4		<1,30	1,30-2,67	>2,67	p
ICU follow up, n (%)	+	14 (20.3)	18 (28.6)	22 (71.0)	0,001 *(Fisher Freeman Halton Test)*
Mortality, n (%)	+	3 (4.3)	2 (3.2)	10 (32.3)	0,001 *(Fisher Freeman Halton Test)*
Duration of hospitalization, days	*Median*	8 (2-35)	10 (1-87)	24 (6-70)	0,001 *(Mann Whitney U Test)*

Table 1: Duration of hospitalization, ICU admission and mortality according to FIB-4 score in patients with hepatosteatosis.

Conclusion: Hepatosteatosis and fibrosis determined by non-invasive tests were found to be associated with severe Covid-19 infection. Hepatosteatosis and fibrosis may increase inflammation-related markers such as ferritin and IL-6 and may create a synergistic effect with infectious conditions. Likewise high ferritin level in Covid-19 patients with hepatosteatosis is a risk factor for severe disease. $CT_{L\text{-}S}$ and fibrosis scores have strong negative predictive value in the diagnostic evaluation for severity of Covid-19 disease.

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PP1647

LIVER AND COVID-19 - NEW INSIGHTS AND EARLY PROGNOSTIC MARKERS

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Introduction: COVID-19, as a systemic disease, critically affects the liver and biliary system. Secondary sclerosing cholangitis (SSC) is an increasing complication in critically ill patients. After severe COVID-19 infection, the occurrence of bile duct changes resembling the picture of SSC has been increasingly observed. The early prognosis of COVID-19-associated SSC has not been adequately studied.

Aims & Methods: The aim of this study is to investigate the effects of COVID-19 on the liver in relation to previous hepatic disease, as well as to identify early prognostic markers for the course of disease in patients and the development of any complications. 261 patients treated in intensive care units of the University Hospital Regensburg and suffering from COVID-19 were analyzed in different groups. The classification was based on the presence and type of previous hepatic disease. Laboratory and clinical parameters collected during hospitalization included values at the time of admission and maximum values that developed during hospitalization. These were evaluated concerning mortality rates and the development of COVID-19-associated SSC in the different patient groups.

Results: Patients with pre-existing chronic liver disease had a hazard ratio for death of 2.045 (p=0.0446) compared to patients without chronic liver disease. The hazard ratio for death was higher for patients with pre-existing chronic liver disease than for patients with malignant disease (HR=1.986, p=0.0135) or dialysis requirement on ICU admission (HR=1.732, p=0.034). In all groups, mortality was also significantly correlated with an increase in liver enzymes during hospitalization. High bilirubin (p=0.002) or INR (p=0.018) levels on admission also correlated with increased mortality, independent of pre-existing hepatic disease. Among the entire cohort, the cause of death was associated with COVID-19 in 90.8%. In addition, the risk of developing COVID-19-associated SSC increased with the duration of ECMO therapy and correlated significantly (p=0.004) with high AP levels on admission.

Conclusion: This study demonstrates the potent effects of COVID-19 on the liver and biliary system and potential complications in patients with and without pre-existing chronic liver disease. Bilirubin and INR could serve as predictive factors for mortality. AP could be considered an early predictor for the development of COVID-19-associated SSC in patients with COVID-19. In the future, this will provide crucial clues for an optimized treatment strategy, including ventilation and sedation.

Disclosure: Nothing to disclose.

PP1648

CHANGES IN THE MICROBIOME AND THE EFFECTS OF A SYNBIOTIC INTERVENTION IN HOME-QUARANTINED PATIENTS WITH MILD SARS-COV-2 INFECTION: A RANDOMIZED, DOUBLE-BLIND, PLACEBO CONTROLLED, TELEMEDICINE STUDY (SYNCOV STUDY)

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Introduction: The novel coronavirus (SARS-CoV-2) not only caused respiratory infections but led to gastrointestinal manifestations in a considerable amount of cases, with diarrhea being the most common symptom. Due to the intestinal involvement in the course of the disease, probiotics were suggested as potential adjuvant treatment.

Therefore, we conducted a totally remote telemedical study in patients with COVID-19 disease in home quarantine in order to investigate COVID-19-related microbiome changes and test the effect of a multispecies synbiotic on respiratory symptoms, gastrointestinal quality of life and the microbiome composition.

Aims & Methods: Thirty patients were randomized to a 30-day intervention with Ecologic AAD (Winclove, Amsterdam, The Netherlands) or a placebo in a 2:1 ratio. Respiratory and gastrointestinal symptoms were documented in 2-10 day intervals via an online survey tool using the acute respiratory tract infection questionnaire (ARTIQ) and the gastrointestinal quality of life index (GIQLI), respectively. Five stool samples were taken during the study period. Patients were asked to conserve the sample in provided DNA stabilizer tubes and return them via mail at the end of the study for 16S sequencing.

Results: Of 30 recruited patients, 26 finished the study per protocol, 10 of these patients were allocated to the placebo group (4 male/6 female; 34.1±9.6 years), and 16 patients to the synbiotics group (6 male/10 female; 39.4±13.1 years). Patients reported respiratory symptoms and a decreased in their gastrointestinal quality of life which both improved significantly during the study irrespective of the synbiotic intervention. The microbiome composition showed significant alterations in comparison to non-infected controls during the pandemic (p=0.002). These alterations were mainly characterized by an increase in Bacteroidetes and a decrease in Christensenellaceae, Ruminococcaceae and Gammaproteobacteria taxa. Although the synbiotic intervention showed a significant modulation of beta-diversity in treated patients (p=0.001) and a stable introduction of the probiotic strain E. faecium W54, COVID-19-related taxa were not affected.

Conclusion: Patients with mild COVID-19 disease in home quarantine showed respiratory symptoms, reduced gastrointestinal quality of life and changes in the microbiome, but did not benefit clinically from a synbiotic intervention in this phase of the disease.

Disclosure: AH and VS received travel bursaries, speaker honoraria and/or research grants form Winclove.

PP1649

SEVERE COVID-19 INFECTION CAUSES LONG-TERM ALTERATIONS OF THE GUT-LIVER AXIS

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Introduction: A proportion of patients who contracted a severe COVID-19 infection suffer from post-acute disease.

Aims & Methods: In order to understand the role of the gut-liver axis in this setting, we compared a large panel of patient reported outcomes and biomarkers related to respiratory symptoms, gastrointestinal and health-related quality of life, routine blood work, gut permeability, innate and adapted immune response as well as the intestinal microbiome and metabolome of patients who previously suffered from severe COVID-19 disease (sCOV, n=21) to patients after mild COVID-19 disease (mCOV, n=10) in a crosssectional study.

Results: sCOV patients were studied on average 318 days after the infection, mCOV patients after 221 days (p=0.013) and even after this period of recuperation, sCOV patients reported lower general health (p=0.026), physical functioning (p<0.01) and more lower-airways symptoms (p=0.031) in validated questionnaires compared to mCOV patients.

In general, sCOV patients were older (p=0.031), had more comorbidities (p=0.02), higher BMI (p<0.01), and higher rate of arterial hypertension (p=0.023) although being physically more active (p=0.035), had lower serum albumin (p<0.01), total protein (p<0.01), serum calcium (p=0.02), and estimated glomerular filtration rate (p=0.022), but higher fasting glucose levels (p<0.01) compared to mCOV patients.

Increased serum diamine oxidase levels (p=0.017) indicated increased intestinal permeability, impaired neutrophil function with impaired directedness of chemotaxis (p=0.035), and lower ROS production in response to E. coli (p<0.01) indicated a dysfunction of the innate immune system. Higher of effector memory cells (p=0.009), terminally differentiated effector memory cells (0.035), CD3+ CD4+ T - cells (p=0.013) and CD45RA negative memory cells (p=0.028) and on the other hand and lower marginal zone B cells (p=0.021), central memory cells (p=0.024), immature T helper cells (p=0.031) and CD161 positive cytotoxic T cells (p=0.04) in sCOV compared to mCOV patients indicated an altered adaptive immune response. Gut microbiome sequencing revealed lower microbial richness (p<0.01) and reorganization of Ruminococcaceae and Lachnospiraceae families, potentially a long-term sequelae of the acute disease.

Serum metabolome analysis showed higher glycoprotein to supramolecular phospholipid composite ratio (p<0.05), indicating inflammation, and lower levels of small-medium sized HDL particles (p<0.05) in sCOV patients. Stool metabolome analysis showed lower glycine and lactulose levels (p<0.05), and higher asparagine (p<0.001) and glycocholic acid (p<0.01) levels in sCOV patients. Multi-omics factor analysis showed higher VLDL particle number and predicted higher glucose and mannose metabolism capacity in sCOV patients.

Conclusion: This study highlights the differences in biomarkers of the gut-liver axis in patients who previously had severe COVID-19 disease. The gut-liver axis may be a potential source of biomarkers and a therapeutic target in COVID-19 disease.

Disclosure: AH and VS received speaker honoraria and research grants from Institut Allergosan.

Poster presentations

Health economics / Digitalisation in GI / Education In GI / Gender and diversity

Poster Presentations
Health economics / Digitalisation in GI / Education In GI / Gender and diversity

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Health economics / Digitalisation in GI / Education In GI / Gender and diversity

PP1650

HOW TO RAISE AWARENESS AND FIND OUR WAY TO MORE SUSTAINABLE GI ENDOSCOPY

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Introduction: The healthcare sector generates millions of tonnes of waste worldwide each year and GI endoscopy is one of the largest contributors (1).

Despite the proven negative health and environmental impacts of incineration, many European public health agencies and national governments still require incineration as the only safe waste management solution for hospitals' waste (2).

In November 2022, we started a project around waste management in our endoscopy unit. Until then we did not segregate any of our waste except dangerous medical material such as needles, medication and potentially infectious and toxic products. Moreover, even this segregation, seemed to have different interpretation rules in different hospital departments.

This lack of segregation and separate waste streams causes that the quantity of waste categorised as hazardous is unnecessarily much higher than it needs to be, increasing not only the environmental impact of disposal methods, but also the financial costs of disposal and treatment.

The large majority of waste produced by the healthcare sector (approximately 85%), however, is actually non-hazardous and similar to domestic waste i.e. much of it can be easily recycled. Over 50% of non-hazardous waste from hospitals is paper, cardboard, and plastics, while the rest comprises discarded food, metal, glass, textiles, and wood (3).

Aims & Methods: We want to raise awareness about the amount of waste produced in a GI endoscopy room and its environmental impact. Moreover, we want to investigate whether most non-hazardous waste from our department is potentially recyclable or compostable.

Finally, we would like to promote practices that reduce the volume of waste generated and ensure we can do a proper waste segregation in our endoscopy rooms.

We planned on measuring the amount of residual waste during 3 months in 3 different endoscopy rooms and kept track of the procedures that were done during that period. After these 3 months, we would start to segregate waste and measure again our different bins. To make this segregation possible we placed in every endoscopy room 3 different bins: 1 for residual waste, 1 for plastics and 1 for non-confidential paper and cardboard.

By measuring and calculating the difference, we would like to motivate our medical and nursing staff to continue doing this small effort with enormous results.

Results: In December 2022, January 2023 and February 2023 we collected 205,98 kg, 197,3 kg and 205,22 kg for 606, 583 and 545 endoscopies, respectively. We have now closed our first segregation month, March 2023 and we measured 190,8 kg for 565 endoscopies from which 144,78 kg was residual waste, 38,7 kg were plastics and 7,32 kg was non-confidential paper and cardboard.

The biggest problem we encountered was the training of our staff how to choose the right bin since there is a big difference between munipicial and hospital waste. We will continue to measure for another 3 months and provide training and workshops to our staff.

Conclusion: After one month of segregation, we found that we were able to lower residual waste by 24%. Problems we encountered during our process were the training of our staff and the different segregation policies we have, in combination with the fact that certain categories of waste require specific approaches. The current sustainability metrics and guidelines, though confusing sometimes, offer a unique opportunity to take the first step to the so needed sustainability transformation. Sustainability reporting allows a company to first observe its environmental footprint and then improve its business model and operations.

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Disclosure: Nothing to disclose.

PP1651

OPTIMIZING EFFICIENCY IN ADVANCED ENDOSCOPY: DISCOVERING INTERNATIONAL BEST PRACTICES THROUGH A COLLABORATIVE STUDY ON TURNOVER TIME

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Introduction: As the demand for advanced endoscopy procedures grows worldwide, endoscopy units specializing in these procedures face significant challenges in meeting this demand with limited resources. Consequently, there is an urgent need to optimize endoscopy unit efficiency. Previous studies have highlighted non-procedural factors, including room turnover, as a key area to improve efficiency.

However, turnover time in advanced endoscopy units varies considerably across the world. To address this issue, our study aims to compare turnover time in different regions globally to identify best practices for enhancing endoscopy unit efficiency.

Aims & Methods: We conducted a retrospective chart review of endoscopic procedures performed between January 2022 and November 2022 in five centers (two in the US, one in Italy, and one in Ecuador) to collect data. Both inpatient and outpatient procedures were included. We categorized the procedures into three groups based on their regions: US, Europe, and Latin America.

Turnover time was defined as the time elapsed from one patient leaving the room until the next patient entering the room. Procedure time was defined as the duration from the first scope being inserted to the last scope being removed. We used t-tests to compare the turnover time between the different regions.

Results: Our study analyzed a total of 1,200 cases from three different regions: US (n=910), Italy (n=107), and Ecuador (n=183). Some patients underwent multiple procedures during the same session (Table 1).

Among the US group, 34% of procedures were ERCP, 23% were EUS, 23% were EGD, and 14% were colonoscopies. Out of the 910 cases, 655 (73%) were performed on an outpatient basis.

The average turnover time for the US group was 39.5 minutes, and the average procedure time was 45 minutes. In the Italy group, 35% of procedures were ERCP, 47% were EUS, and 8% were EGD. Out of the 107 cases, 61 (57%) were performed on an outpatient basis.

The average turnover time for the Italy group was 11.6 minutes, and the average procedure time was 42 minutes. Within the Ecuador group, 31% of procedures were ERCP, 32% were EUS, and 4% were EGD. Out of the 183 cases, 141 (77%) were performed on an outpatient basis.

The average turnover time for the Ecuador group was 15.7 minutes, and the average procedure time was 131 minutes. In 47 cases (25.7%), more than one endoscopy procedure was performed during the same session. Comparing the results, the US group had a significantly higher turnover time by over 20 minutes compared to the other regions ($p < .00001$). However, there was no significant difference in the number of EUS and ERCP procedures between the groups.

Country	US (N = 910)	Italy (N=107)	Ecuador (N = 183)
Advanced Endoscopy Procedures	884 (97%)	41 (38.3%)	119 (65%)
General Endoscopy Procedures	25 (3%)	66 (61.7%)	64 (35%)
Inpatient	246 (27%)	46 (43%)	42 (23%)
Outpatient	655 (73%)	61 (57%)	141 (77%)
ERCP (Including EUS/ERCP)	307 (34%)	37 (35%)	57 (31%)
EUS	212 (23%)	50 (47%)	58 (32%)
EGD	208 (23%)	8 (8%)	82 (45%)
Colonoscopy	125 (14%)	12 (11%)	72 (39%)
Other	58 (7%)	0	3 (2%)
Turnover time (min)	39.5	11.6	15.7
Scope in-out time (min)	45	42	131

Conclusion: The results of our study demonstrate a significant difference in turnover time between the US and Italy/Ecuador despite similar numbers of EUS and ERCP procedures and comparable or lower procedure times. With a difference of over 20 minutes, this highlights the urgent need for optimizing the efficiency of endoscopy units in the US. To achieve this, further comparative studies between the US and international centers are necessary.

Our findings provide a valuable starting point for developing best practices and strategies to enhance endoscopy unit efficiency and meet the growing demand for these procedures.

Disclosure: Nothing to disclose.

PP1652

EXPLORING THE ASSOCIATION OF ANXIETY AND DEPRESSION WITH GASTROINTESTINAL DISEASES IN THE CONTEXT OF BEHAVIORAL TRAITS AND SOCIOECONOMIC STATUS

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Introduction: Individuals affected by anxiety and depression are more likely to be affected by gastrointestinal (GI)diseases. Understanding the mechanisms underlying the association between mental and GI diseases can have critical translational implications across different scenarios.

In this study, we designed an observational trial to explore the association of anxiety and depression with gastrointestinal diseases in the context of behavioral traits and socioeconomic status.

Aims & Methods: We recruited patients undergoing screening GI endoscopy from September 22, 2022 in Renmin Hospital of Wuhan University, investigated their anxiety and depression level by questionnaires including Patient Health Questionaire-9 (PHQ-9) and Generalized Anxiety Disorder (GAD-7), and collect their baseline information, including behavioral traits, socioeconomic status, and H. pylori infection, etc.

The including criteria included:

1. Patients who can read, understand and sign informed consent forms;
2. Patients who receive gastrointestinal endoscopy examinations;
3. Patients who can understand the study, and are willing and able to complete all the procedures with follow-up visits.

The excluding criteria included:
1. Patients who have been diagnosed with gastrointestinal tumors before this endoscopy (esophagus, stomach: low grade neoplasia, high grade neoplasia, cancer; colorectal: high grade neoplasia, cancer);
2. Patients with other serious physical diseases (such as severe cardiovascular and cerebrovascular diseases, organ failure, etc.);
3. Patients who have had major stress incidents in the past two weeks;
4. People who are addicted to drugs, alcohol or drugs.
After GI endoscopy, all the endoscopic diagnosis of patients were collected. Finally, patients with different levels of anxiety and depression were compared according to their endoscopic diagnosis with behavioral traits and socioeconomic status using chi-square test and t-student test.

Results: From September 22, 2022 to March 23, 2023, 4947 patients who met the including criteria were recruited in Renmin Hospital of Wuhan University with 156 patients excluded according to the excluding criteria. Finally, 4791 patients were included for analysis. 3109 patients received upper GI endoscopy while 1682 patients received lower GI endoscopy. Patients with depression disorder were associated with higher incidence of gastric polyp (18.88% vs. 23.58%; PHQ-9≤4 vs. 4<PHQ-9≤9; p=0.030), colorectal polyp (52.78% vs. 65.79%; PHQ-9≤4 vs. 9<PHQ-9; p=0.027) and a higher body mass index (23.03 vs. 23.85; PHQ-9≤4 vs. 9<PHQ-9; p=0.009). Patients with anxiety disorder were associated with higher incidence of reflux esophagitis (16.20% vs. 27.78%; PHQ-9≤4 vs. 9<PHQ-9; p=0.023). Patients who suffering from colorectal polyps tended to be male (52.79% vs. 42.69, p=0.000) with obesity (BMI 23.89 vs. 22.99, p=0.000). And a relatively lower income was also associated with higher incidence of colorectal polyps (p=0.032).

Conclusion: Individuals affected by anxiety and depression are more likely to be affected by GI diseases like reflux esophagitis and colorectal polyps. And different socioeconomic status can also devote to several GI disease like colorectal polyps. Even though current evidence was dependent on endoscopy diagnosis, it helps us to understand the interplay among psychiatric disorders, behavioral traits, socioeconomic status in GI disorders and to develop more efficient programs to reduce the risk of GI diseases.

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Disclosure: Nothing to disclose.

PP1653

OPEN ACCESS UPPER GASTROINTESTINAL ENDOSCOPY: A 4-YEAR EXPERIENCE AT AN ACADEMIC MEDICAL CENTRE

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Introduction: Open access oesophagogastrodudenoscopy (OAO) is defined as the performance of oesophagogastrodudenoscopy procedures requested by referring physicians without a prior gastroenterology clinic consultation. With the ever increasing demand for specialist outpatient clinic appointments, the use of OAO have increased to reflect the drive to reduce healthcare costs via decreasing potentially unnecessary clinic visits. This also allows endoscopy to be scheduled and performed in a more timely fashion.

Aims & Methods: The aim of this study is to highlight and evaluate our experience in providing OAO services to patients with non-alarming dyspepsia symptoms under the age of 60 years old.

The records of patients scheduled for OAO from Jan 2019 to Dec 2022 at Singapore General Hospital (SGH) Department of Gastroenterology & Hepatology were reviewed and analyzed.

The inclusion criteria for OAO included patients within the age of 21 to 60 years old with non alarming dyspepsia symptoms such as reflux, heartburn, recurrent abdominal pain and bloating. Exclusion criteria include patients who are physically unfit, patients at higher risk of endoscopy (severe ischemic heart disease/cardiac devices/heart valve replacements, severe pulmonary disease, poorly controlled hypertension or diabetes, acute coronary syndrome or stroke within the last 6 months, difficult airway issues, anticoagulation users) or those that require urgent endoscopy (signs of gastrointestinal bleeding).

Results: A total of 569 patients were scheduled for OAO and 436 patients underwent the procedure. The mean age of patients was 45.7 (SD = 10.9) years old. 36% were males while 64% were females and in terms of racial demographics, there were 82.9% Chinese, 4.3% Malay, 7.7% Indian and 5.1% Others.

The median waiting time to endoscopy was 23 days (IQR 16-36) and there were no major adverse events reported. More than half of the endoscopies were unremarkable (231, 53%). There were 25 (5.7%) patients with major findings, 3 had gastric/oesophageal adenocarcinoma, one had incidental varices and 21 had peptic ulcer disease. There were 180 minor findings which includes gastritis, hiatal hernias, esophagitis, polyps, duodenitis. Rapid urease test was conducted for 409 patients and 55 (13.4%) returned positive. One-fifth of the patients were given a Gastroenterology follow-up appointment (85, 19.5%) after the oesophagogastrodudenoscopy.

Fifteen patients, representing only 2.6% of the total patients referred, were rejected over the last 4 years as they did not meet the inclusion criteria for OAO.

Scheduled OAO	569
Actualized OAO	436
Median actual scope time (IQR)	23 (16-36) days
Normal Findings	231
Major Findings	25
Gastric/Oesophageal Adenocarcinoma	3
Varices	1
Peptic Ulcer Disease	21
Minor Findings	180
Adverse Events	0

Table 1: Outcome Measures & Findings.

Conclusion: OAO is a safe and effective strategy in providing timely oesophagogastrodudenoscopy to low risk patients at our centre. Of the 436 patients that underwent OAO, 5.7% had major findings. There were no major adverse events. Compliance to our inclusion and exclusion criteria was also good. Hence, polyclinics are encouraged to refer patients under 60 years with non-alarming dyspepsia to OAO.

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Disclosure: Nothing to disclose.

PP1654

PROPOFOL-BASED SEDATION MANAGED BY GASTROENTEROLOGIST VERSUS DEEP SEDATION DURING ENDOSCOPIC PROCEDURES IN LOW ANESTHESIOLOGICAL RISK PATIENTS (ASA I-II): A PROPENSITY SCORE-MATCHED COMPARISON IN A SINGLE TERTIARY CENTER

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Introduction: Propofol administration managed directly by the gastroenterologist is a sedation regimen, which is broadly spreading, in clinical practice in Endoscopy Units (EU) all over the world [1]. This is primarily due to a very high patient and endoscopist satisfaction. Moreover, fears associated with propofol use by non-anesthesia providers are based on sound theoretical principles. Non-anesthesiologist-administered-propofol (NAAPS) managed by the gastroenterologist is an issue still controversial for many anesthesiologist societies.

Aims & Methods: This study aims to analyze safety outcomes between NAAPS sedation and anesthesiologist-assisted deep sedation during endoscopic procedures for low-risk patients. We retrospectively assessed data from low anesthesiologist risk-patients (American Society of Anesthesiologists I-II), undergone esophagogastroduodenoscopies (EGDs) and colonoscopies under NAAPS sedation, and assisted anesthesiologist-deep sedation, between May 2019 and October 2021, in a tertiary center.

Primary outcome was to compare sedation related-adverse events rates between NAAPS and deep sedation. Propensity score matching analysis was performed using sex, age, Body Mass Index (BMI), smoking, comorbidities and time examination in order to standardize baseline variables.

Results: Overall, in colonoscopies subset, 2491 patients were managed under NAAPS and 257 patients under deep sedation, whereas in EGDs subset, 2439 patients were managed under NAAPS and 282 patients under deep sedation. In unmatched analysis, no difference was shown in terms of adverse events rates between NAAPS and deep sedation, both in EGDs and colonoscopies subsets (1.8% vs 3.5%; p=0.202 and 1 vs 0,4%, p=0.815, respectively).

After matching, EGDs subset analysis comprised 282 procedures in NAAPS group versus 188 in deep sedation group, whereas colonoscopies subset included 256 patients in NAAPS group and 174 in deep sedation group. Matched analysis revealed non-different adverse events rate between moderate and deep sedation groups (colonoscopies 3.5% vs 0.6%, p=0.249 and EGD 0.4% vs 1%, p=0.452, respectively).

Conclusion: NAAPS during endoscopy represents a safe sedation modality, comparable with safety outcomes of anesthesiologist-assisted deep sedation. Cost-efficacy analyses are needed, in order to highlight economic advantages of non-anesthesiologist management of propofol during endoscopy.

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Disclosure: Prof.Silvio Danese has served as a speaker, consultant, and advisory board member for Schering-Plough, AbbVie, Actelion, Alphawasserman, AstraZeneca, Cellerix, Cosmo Pharmaceuticals, Ferring, Genentech, Grunenthal, Johnson and Johnson, Millenium Takeda, MSD, Nikkiso Europe GmbH, Novo Nordisk, Nycomed, Pfizer, Pharmacosmos, UCB Pharma and Vifor. The other authors declare no conflict of interests.

PP1655

HEALTHCARE UTILISATION AND COSTS FOR HYPERMOBILE EHLERS-DANLOS SYNDROME PATIENTS WITH CONCOMITANT FUNCTIONAL DYSPEPSIA AND IRRITABLE BOWEL SYNDROME

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Introduction: Disorders of Gut-Brain Interactions (DGBIs), such as functional dyspepsia (FD) or Irritable Bowel Syndrome (IBS) are common in patients with Hypermobile Ehlers-Danlos Syndrome/Hypermobile Spectrum Disorder (hEDS/HSD)[1]. Healthcare utilisation (HCU) is high in DGBIs but no study to date has looked at HCU or healthcare costs (HCC) in patients with hEDS/HSD and these DGBIs.

Aims & Methods: To calculate the healthcare costs associated with patients with hEDS/HSD and FD and/or IBS.

A cross-sectional study was performed. Patients completed a ROME IV, SF6 (quality of life questionnaire) and HCU questionnaire. The latter was adapted from the IBD Boost study[2] and included consultations, admissions, clinically assisted nutrition and hydration (CANH), medications and personal expenses over 6 months. Costs were calculated based on the National Schedule of NHS Costs[3] and NHS Business Services Authority Prescription Cost Analysis[4]. Patients were grouped based on ROME IV diagnoses of FD and IBS. Chi-squared was used for categorical data. The Kruskal-Wallis test was used for continuous variables. A multivariate regression analysis was performed to see what healthcare characteristics were the strongest predictors of rising HCCs. In view of the multiple comparisons p<0.005 was considered significant.

Results: 660 hEDS/HSD patients completed the study; 92.9% were female, median age 39 years. 90(13.2%) had IBS only, 197(29.0%) had FD only, 212(31.2%) had both FD and IBS and 161(23.7%) had neither IBS nor FD. Table 1 describes and compares HCU across the 4 groups. There were significantly more outpatient visits, admissions and CANH use in patients

with FD±IBS. Total HCC per patient was significantly higher in patients with both FD and IBS (£3622.15) and FD only (£3782.82) compared to IBS only (£1610.12,p<0.001) and neither IBS nor FD (£1376.34,p<0.001). Consultations and admissions contributed to the majority of total HCC (31.3% and 27.4% respectively). Rheumatology and Gastroenterology were the commonest secondary/tertiary services used. CANH was used in 37.6% of patients with FD only and 29.2% of patients with both FD and IBS and accounted for 11% and 7% of total HCC in these DGBI groups respectively. The 10 highest HCCs (£21,653.80-£99,983.90) were in patients with FD±IBS, and they all required an inpatient admission.

The average SF6 in patients with FD±IBS (0.253) was significantly lower than in patients with IBS only (0.511,p<0.001) or those with neither IBS nor FD (0.519,p<0.001). 22.0% of the entire cohort had a score less than 0, which is a quality of life worse than death.

The adjusted R^2 value of the regression model used to determine what factors independently correlated with rising HCCs was 0.527. The variables significantly predicted rising HCCs, F(31,557)=3.775, p<0.001. ‚Polypharmacy' and ‚Employment Status' were the greatest predictors of rising healthcare costs (β=-0.209, p<0.001 and β=-0.121,p=0.003 respectively).

	Neither IBS nor FD (n=161)	IBS only (n=90)	FD only (n=197)	Both FD and IBS (n=212)	p-value (comparing differences across all groups)
Median number of outpatients visits per patient(range)	4(0-104)	7.5(0-84)	9(0-135)	9(0-102)	<0.001
Number(%) with ≥1 admission	8(5)	2(2.2)	33(16.8)	26(12.3)	<0.001
The median number of investigations per patient(range)	2(0-12)	3(0-8)	2(0-10)	2.5(0-11)	0.742
Number(%) on CANH	16(9.9)	8(8.9)	74(37.6)	62(29.2)	<0.001
The median number of medications per patient(range)	6(0-18)	7(1-17)	6(1-17)	7(1-23)	0.132

Table 1: Comparison of HCU in hEDS/HSD with and without FD and IBS over 6 months.

Conclusion: In hEDS/HSD patients, those with FD±IBS had the highest HCU and HCC highlighting the need to prioritise the development of cost-effective services for those with foregut disorders.

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Disclosure: Nothing to disclose.

PP1656

INTERNATIONAL DELPHI CONSENSUS STUDY ON DISPOSABLE SINGLE-USE ENDOSCOPY: A PATH TO CLINICAL ADOPTION

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Introduction: Increasing infectious rate estimates and low microbiological surveillance affect safety of gastrointestinal endoscopy globally. Single use endoscopes and accessories have been claimed to improve safety, but there is lack of data on their indication and sustainability.

We aimed to identify a series of best practice recommendations for the use of single use endoscopes and accessories using a modified Delphi.

Aims & Methods: Consensus statements for the use of single use endoscopy and accessories were developed using a modified Delphi process, utilizing an international endoscopist expert panel of 62 experts from 33 nations. The main steps in the process were selecting the consensus group, conducting systematic literature reviews, developing statements, and anonymous voting on the statements until consensus was reached. High-risk patients were defined as those with multi-drug-resistant infections, immunosuppressive medication or chemotherapy, post-transplantation, or with severe neutropenia.

Results: Twenty-six statements were voted upon through two rounds, the statements were categorised as single use accessories, clinical indication for single use endoscopes, technical factors, environmental issues, and financial implications addressing relevant areas of patient safety, infection, climate change and cost. Of the 26 statements, 17 statements reached consensus.

Category 1: single use accessories (8 statements), related to defining recommendations for the use of single use accessories in all patient populations or high-risk patients.

Category 2: clinical indication for single use endoscopes (9 statements), including indications to high-risk patients, protecting the endoscope apparatus and contamination measures in endoscopy units.

Category 3: technical factors (4 statements), related to superior performance and technical specifications with the new innovation.

Category 4: environmental issues (2 statements), concerning mechanisms that reduce the detrimental burden to the environment.

Category 5: financial implications (3 statements), related to healthcare policies, cost neutrality and other financial associations of single use endoscopy.

Conclusion: This is the first international initiative in determining clinical indications for single use endoscopy and accessories.

The study's findings should serve as a framework for future physicians to guide future research and aid the proper evidence-based indications for the implementation of single use endoscopes in clinical practice.

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Disclosure: Cesare Hassan: Consulting fees for Fuji, and Medtronic. Alessandro Repici: Consulting fees for Fuji, Olympus, and Medtronic and receiving research grant and speaker fees from Boston Scientific, ERBE, Alfasigma, Norgine. Pradeep Bhandari: Research support from Fujifilm Europe, Boston Scientific, Pentax and Olympus Medical. Other authors declare no competing interests.

PP1657

DOES THE CLINICAL ASSESSMENT SERVICE HELP WITH OUTPATIENT CAPACITY AND PATIENT PATHWAY?

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Introduction: A clinical assessment service (CAS), was introduced replacing choose and book for primary care referrals. The CAS service involves assessment of referrals letters from primary care and triaging to see consultants in the outpatient department (OPD), or arranging diagnostic investigations and a virtual review of the investigations to decide on the management plan thereafter.
Aims & Methods: We describe the initial experience of this new service with aims to enhance the patient pathway, reduce unnecessary outpatient appointments and speed up diagnosis and treatment.
A single centre, retrospective analysis of all routine OPD referrals to the gastroenterology department at a district general hospital in North London triaged via CAS from January to end December 2022, were scrutinized. During this period, 1-2 CAS clinics (24 patients triaged per clinic)/week was undertaken. Triage outcomes included : straight to test (STT), clinic review, redirect to an alternative service or discharge back to GP. A template outcome letter was sent to GPs and patients.
Electronic Patient Record (EPR) was interrogated for : reason for referral, triaging outcome, investigations requested, and investigation outcomes.
Results: 2265 patients were assessed.
CAS triage outcomes were : 680 patients (30%) were triaged to receive an OPA; 68 patients (3%) were redirected to another service. 20 patients were discharged back to their GP, having already been investigated for the same indication by another department. The remainder were sent for an investigation.
The commonest investigations were : gastroscopy (684), colonoscopy (288), combined gastroscopy and colonoscopy (171), CT scan (198), MRI (45).
959 patients (42%) required a first OPA either from point of triage or after they have had an initial STT investigation.
973 patients (43%) were discharged from the pathway following STT without requiring a clinic appointment.
The most common reasons for referral were: abdominal pain, dyspepsia, reflux symptoms or diarrhoea.
Conclusion: From this study we conclude, CAS model helps streamline the patient pathway with nearly 70% of patient triaged STT without requiring an OPD appointment. 43% of patients were discharged back to care of their GP after investigations without the need for an OPD appointment increasing capacity for OPD appointments. We endorse the use of this model of care for gastroenterology patients referred within the routine pathway.
Disclosure: Nothing to disclose.

PP1658 WITHDRAWN

PP1659

A DEEP LEARNING-BASED, REAL-TIME IMAGE REPORT SYSTEM DURING LINEAR ENDOSCOPIC ULTRASOUND

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Introduction: EUS is one of the most important tools for imaging and accessing the pancreatic biliary system. The followed endoscopic reports are essential but varied in quality, which impacted the diagnosis and the follow-up clinical decision. We aimed to construct a real-time endoscopic ultrasound automatic image report system (EUS-AIRS) for generating high-quality image reports.
Aims & Methods: Eight Deep Convolutional Neural Networks (DCNN) models were integrated to achieve four main functions for EUS-AIRS. The four models of standard station capture module are optimized on the basis of previous work. For lesion capture and Fine-Needle Aspiration (FNA) biopsy procedure capture function, 27807 images were used to train and test. 53344 image pairs from 80 patients were applied to trian and test the three-mode classification model to realize the differentiation of benign and malignant lesions.
Results: In video verification, EUS-AIRS achieved 86.40% accuracy and 79.55% coverage rate in capturing standard stations. In image verification, the accuracy of lesion capture model, FNA biopsy procedure capture model and were 91.4% and 79.8%, respectively. The accuracy of the three-mode differential model for benign and malignant lesions was 82.9%. The design diagram for the AI report is shown in Figure 1.
Conclusion: EUS-AIRS could generate qualified image reports in real-time. It could be a powerful tool to help ultrasonic endoscopists to generate high-quality endoscopic reports in real clinical practice.
Disclosure: Nothing to disclose.

PP1660

AN IMPROVED MEASURE OF AUTOMATIC SPEECH RECOGNITION PERFORMANCE IN CLINICAL SETTINGS

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Introduction: Clinicians in a number of disciplines work in an overburdened healthcare system that leads to difficult working environments and an epidemic of physician burnout [1].

AI-related technologies have the potential for improving efficiency on repetitive tasks, therefore increasing both patient throughput and decreasing physician burnout. For example, physicians often spend as much time doing paperwork as with patients [2].

Automatic Speech Recognition (ASR) could be leveraged to reduce the amount of the paperwork. However, the adoption of speech technology in the medical community has been slow [3].

The most common metric for measuring ASR performance, Word Error Rate (WER), has significant practical drawbacks.

First, all mistakes are treated equally. In clinical settings, however, medical words are more important (e.g. “had complete resection” -> “had complete c-section” is a worse mistake than -> “has complete resection”, but both have equal WER).

Second, some mistakes affect the overall intelligibility more than others (e.g. “was no perforation” -> “was no puffer age” vs “was not any perforation”). Although researchers have proposed alternatives to the WER, no metric combines medical domain knowledge with recent AI advances in language understanding.

In this work, we present a new metric for evaluating the usability of medical transcription and show that it outperforms existing metrics on clinically relevant sentences.

Aims & Methods: Our proposed metric, the Clinical BERTScore (CBERTScore), combines the BERTScore [5] and the medical subset of the Knowledge Graph in a novel way. We inject medical information into this metric in two ways. First, we compute a weighted score on a subset of words involving medical terms, as determined by the Knowledge Graph [4]. Second, we tune the weight of the clinical term penalty to best match a clinician transcript dataset (CTP) that we collected.

The CTP is a collection of 18 clinician preferences on 150 medical phrases. The phrases were derived from what gastroenterologists said when dictating their procedures (ex. “We see a sessile 3mm hyperplastic polyp.”). Clinicians were shown a ground truth phrase and two “transcripts,” both with different mistakes. In this initial study, two clinicians were each asked which transcript was more useful, or whether they were equally useful. We measure the performance of CBERTScore and other metrics by how well they agree with clinician preferences.

Results: CBERTScore agreed with clinician preferences the most (75.4% agreement), as compared to BERTScore (66.7%), METEOR (53.4%), BLEU (24.6), and WER (10.5%). Notably, WER is the worst at determining which transcript clinicians think will be more useful. In addition, CBERTScore was not worse on non-medical text, indicating that it is useful for evaluating transcripts in a general setting. We make the preference dataset publicly available.

Conclusion: CBERTScore, a novel metric that combines medical domain knowledge and recent advances in AI, may more closely indicate clinically relevant ASR accuracy than other existing metrics. This metric warrants further validation towards becoming the primary metric to train and evaluate speech features in clinical settings.

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Disclosure: Authors work at Verily Life Sciences Israel, Verily Life Sciences USA, MIT, and Google.

PP1661

IS COMBINATION OF DEEP LEARNING AND ENDOSCOPIC ULTRASONOGRAPHY A VALID ADJUNCT TO THE DIAGNOSIS OF MEDIASTINAL AND INTRA-ABDOMINAL LYMPHADENOPATHY? A RETROSPECTIVE SINGLE-CENTER TRIAL

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Introduction: The prediction of mediastinal and intra-abdominal lymphadenopathy poses a significant challenge, and definitive diagnosis is essential for treatment selection. Physicians performing endoscopic ultrasonography (EUS) can face difficulties in targetting suspicious lymph nodes, and lead unnecessary punctures when multiple lesions are present.

Aims & Methods: The aim of this study is to investigate the value of deep learning (DL) in aiding differentiating lymphadenopathy with EUS images. The retrospective single-center study included patients who underwent EUS for mediastinal or intra-abdominal lymphadenopathy from September 2016 to January 2023. Lymphadenopathy areas were outlined on EUS images for machine learning. UNet was selected for segmentation, and the classification was finished by k-Nearest-Neighbor approach and convolutional neural networks including ResNet 50, 101, 152 and DenseNet 121, 169, 201. Experts collected features of each lymph node for binary logistic regression analysis. The physician group, consisting of two experts and two beginners, reviewed EUS images from the validation set of the DL model and made respective diagnosis. Diagnostic efficacy was evaluated among these groups.

Results: A total of 200 suspicious lymph nodes with 630 EUS images from 93 patients were enrolled, and105 images were randomly selected as the validation set. ResNet 50 achieved a sensitivity of 95.38%, a specificity of 70.00%, an accuracy of 85.71%, and an area under the curve (AUC) of 0.827. The kappa statistic (kappa value=0.683) indicated substantial agreement compared to the final diagnosis. The logistic regression model

achieved a sensitivity of 81.54%, a specificity of 60.00%, an accuracy of 73.33%, and an AUC of 0.708. The kappa statistic (kappa value=0.424) indicated moderate agreement compared to the final diagnosis. The diagnosis by experts achieved a sensitivity of 73.85%, a specificity of 65.00%, an accuracy of 70.47%, and an AUC of 0.694. The kappa statistic (kappa value=0.383) indicated fair agreement compared to the final diagnosis. The diagnosis by beginners achieved a sensitivity of 58.46%, a specificity of 55.00%, an accuracy of 57.14%, and an AUC of 0.575. The kappa statistic (kappa value=0.129) indicated slight agreement compared to the final diagnosis. Paired sample comparisons of their receiver operating characteristic curves (ROC) showed that ResNet 50 outperformed the other three groups (P<0.05).

Conclusion: DL has certain reliability and feasibility in assisting differentiating mediastinal and intra-abdominal lymphadenopathy with EUS images, which effectively supplements the diagnosis from clinical experience and yields benefits.

Disclosure: Nothing to disclose.

PP1662

MIXED-REALITY HOLOGRAPHIC SCREENS AS THE REPLACEMENT FOR MONITORS IN THE ENDOSCOPY SUITE: A PILOT STUDY

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Introduction: In recent years, various novel technologies have emerged to aid health care providers in optimizing patient management. Mixed Reality (MR) is an interactive, real-time processed, three-dimensional (3D) registered spatial computing technology that combines virtual (VR) and augmented reality (AR). Advantageous features of MR in endoscopy are the gesture operation and 3D spatial guidance, allowing more comfortable ergonomic interactions for GI endoscopists (translation and rotation) avoiding the need for touching monitors, increasing situational awareness, with a potential reduction or even replacement of monitors in the endoscopy suite.

Aims & Methods: We aim to evaluate the feasibility of mixed-reality holographic monitors in terms of interconnectivity and user's experience during endoscopic procedures. A non-blinded, non-randomized, interventional trial to assess the added utility and user's experience with MR was performed from November 2022 to March 2023 in a single tertiary center. The GI endoscopists used an MR system, a dedicated processor and software, paired with VR lenses during diagnostic procedures in adult patients. The primary outcomes were device technical assessment (interconnectivity and frame rate) and user's acceptance (comfort, functionality, and learnability), measured by the specialized platform and Likert scale, respectively.

Results: 30 operators used the dedicated software as replacement of the surgical monitors. 86.7% of the operators were males and the median age was 36 years (31 – 37). Fifteen esophagogastroduodenoscopies (50.0%), three cholangioscopies (10.0%), ten colonoscopies (33.3%), and two endoscopic ultrasounds (6.7%) were performed. One hologram was used in 90.0% of the procedures, two procedures used two holograms (6.7%), and one cholangioscopy used three holograms (3.3%). The operators' acceptance in terms of comfort, functionality, and learnability is summarized in table 1. The mean latency was 89.7 ± 2.87ms and the holograms performed at a 58.50 ± 1.11 frames per second (FPS).

	Very bad	Bad	Acceptable	Good	Very good
Gestures functionality	-	-	3/30 (10.0%)	18/30 (60.0%)	9/30 (30.0%)
Holographic Image Quality	-	3/30 (10.0%)	5/30 (16.7%)	16/30 (53.3%)	6/30 (20.0%)
Surgical field image through the lenses	-	-	4/30 (13.3%)	14/30 (46.7%)	12/30 (40.0%)
	Very bad	Hard	Acceptable	Easy	Very easy
Gestures learnability	-	-	3/30 (10.0%)	20/30 (66.7%)	7/30 (23.3%)
	Totally Disagree	Disagree	Neither agree nor disagree	Agree	Totally agree
Lenses Comfortability				22/30 (73.3%)	8/30 (26.7%)
Posture Comfortability		2/30 (6.7%)		23/30 (76.7%)	5/30 (16.7%)

Table 1. Summary of the Likert scales evaluating the users' acceptance for Mixed-Reality Holographic Screens in terms of comfortability, functionality, learnability, and image quality.

Conclusion: This dedicated system can replace surgical monitors within endoscopy units with good interconnectivity and FPS rate. Operators indicated that the software and hardware were comfortable and easy to use. Prospective studies assessing more cases with remote assistance and risk of potential complications should be performed for real-world evaluation of this MR system. NCT05640401.

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PP1663

MIND THE (DOMAIN) GAP: EVALUATING AND IMPROVING ROBUSTNESS OF ARTIFICIAL INTELLIGENCE SYSTEMS IN ENDOSCOPY

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Introduction: In recent years, there has been a surge in the development of artificial intelligence (AI) systems for endoscopic applications, such as Barrett's neoplasia detection and polyp characterization. While these systems have shown promising results, the vast majority is trained and validated on small, retrospective, single-center or expert-acquired data sets. Current AI systems are particularly prone to a so-called domain-shift: a system only performs well on data it has been trained on. As real-world scenarios in the endoscopy suite can be complex and diverse, the risk of poor generalization of AI should not be underestimated.

Aims & Methods: In this study we aim to provide a quantitative analysis of this domain shift and propose several strategies to improve generalization to clinical practice. We trained three AI systems for commonly used applications in gastrointestinal endoscopy, using publicly available data sets with high quality standards. In order to identify the limitations of these systems, all test sets were artificially degraded in a stepwise manner with clinically prevalent artifacts: blur, inadequate exposure and color variability. These degradations represent the heterogeneity of image quality in daily clinical practice. Severity of degradation was clinically calibrated by a panel of expert endoscopists.

Two levels of degradation were identified:

1. Mild degradation, still considered as high quality data;
2. Moderate degradation, considered as image quality that could still be encountered in daily clinical practice.

The trained models were subsequently evaluated for their appropriate performance metrics on the gradually degraded test sets. After implementation of several training strategies to mitigate potential performance loss, the models were re-evaluated on the same test sets.

Task (data set)	Training strategy	No degradation (AUC)	Mild degradation (AUC, percentage loss)	Moderate degradation (AUC, percentage loss)
Barrett neoplasia detection (in-house data set)	Standard training protocol	92.0%	87.4%, -4.6%	76.8%, -15.2%
	Domain-specific pretraining	95.1%	91.1%, -4%	80.9%, -14.2%
	Ensemble model	93.9%	89.9%, -4%	78.3%, -15,6%
Polyp detection (Kvasir)	Standard training protocol	84.9%	83.4%, -1.5%	74.5%, -10.4%
	Domain-specific pretraining	88.5%	87.6%, -0.9%	82.0%, -6.5%
	Ensemble model	85.9%	84.9%, -1.0%	77.3%, -8.6%
Polyp detection (Piccolo)	Standard training protocol	75.6%	59.4%, -16.2%	51.4%, -24.2%
	Domain-specific pretraining	81.3%	70.0%, -11.3%	63.4%, -17.9%
	Ensemble model	77.2%	72.6%, -4.6%	57.7%, -19.5%

Results: All three models display a considerable decrease in performance when exposed to various types of clinically relevant image degradation. Mean loss was 7.4% and 16.6% for respective mild and moderate degradation. Implementation of specific training strategies to improve robustness resulted in substantial reduction of performance loss on all degraded test sets.

Conclusion: This study highlights the potential limitations of current AI systems in endoscopic applications which may lead to poor generalization. Specific training strategies can mitigate this risk and improve robustness of these systems. Development of robust and reliable AI systems that deliver consistent and accurate performance is crucial to ensure safe implementation into daily clinical practice.

Disclosure: Nothing to disclose.

PP1664

COSTS OF HOME-MONITORING BY TELEMEDICINE VERSUS STANDARD CARE MANAGEMENT OF INFLAMMATORY BOWEL DISEASE – A DANISH REGISTER-BASED FIVE-YEAR FOLLOW-UP STUDY

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Introduction: Within Inflammatory bowel disease (IBD), cost-utility of telemedicine have only been evaluated in few short-term studies compared to standard care. Constant Care (CC) is a telemonitoring web app which has been implemented in North Zealand Hospital in Denmark since 2015. The aim of this study was to assess long-term cost effectiveness of remote telemedicine services (eCare) compared to standard care (sCare) for IBD patients during five years.

Aims & Methods: A retrospective register-based study was carried out among patients with ulcerative colitis (UC) and Crohn's disease (CD) continuously included in the telemedicine service CC in 2015-2020. Direct and indirect healthcare costs over a 5-year period were obtained from Danish registers and compared to a control group of IBD patients from all five regions in Denmark. Patients were matched 1:5 on year of birth, gender, education, income, disease, use of any biologics, duration of disease and Charlson Comorbidity index. These patients were divided into cohort 1: not recieving biologics and cohort 2: receiving biologics, on which direct and indirect costs were estimated on yearly basis from two years before inclusion in CC (the index year) and five years after using a linear regression model.

Results: A total of 572 IBD patients were included in the study and followed up in 5 years. In cohort 1 (62%), average total direct costs and total earnings were 14,703€ and 310,877€ in eCare compared to 17,119€ and 290,916€ in sCare.While in cohort 2, average total direct costs and total earnings were 76,366€ and 225,769€ compared to 31,456€ and 214,952€ in sCare. Analysis of PROs data of patients in CC through 5 years showed increasing QoL and was higher in cohort 1 than in cohort 2. While disease activity in CD patients, i.e. HBI was shown to be increasing after year 3 and 4 in cohort 1 and 2, respectively. Cohort 1 in CC were more adherent to medication compared to cohort 2.

Conclusion: Telehealth is cost-effective approach for patients not receiving biologics compared to sCare. However, biologics remain more expensive for patients in eCare. Remote tight control in terms of PRO measures in eCare improves quality of life and adherence to medication and possibly prolong time to relapse.

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PP1665

IMPACT OF SOCIAL MEDIA ON GASTROENTEROLOGY TRAINING

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Introduction: Social media (SM) are part of our daily lives they allow experience exchange between doctors and offer new training perspectives. A large number of users, including endoscopists, are present daily on the SM.
Aims & Methods: Aim of the study:
Primary: Assess the use of SM by Gastro-enterologists (GE)
Secondary : Assess the impact of SM on learning and training.
Method: We led an international descriptive prospective study over 10 months using a self-administered form of 28 questions via Google Forms sent to Residents and specialists in GE
We collected data on Demographics, qualitative and quantitative data on the use of SM, appreciation of practitioners.
Data analysis was done by Jamovi software 2.2.5.
Results: We included 521 participants, all were using SM.
the median age was 35years [32; 48], The majority of participants were specialists 427(82%), 94(18%) residents.
514(98,7%) of the participants reported using SM also for learning purposes.
The average time spent on SM was 4.39±1.56 hours/day, of which median 2 H is devoted to learning.
YouTube was the most used SM for this purpose 431(82.7%), followed by WhatsApp 373(71,5%), Facebook 371(71.2%) and Instagram of 221(42.4%).
Social media were mostly used for Reviewing the details of an endoscopic technique 404 (77.5%) Searching for an image 361(69.2%) Searching for a guideline.
108 (20.72%)
472(90,5%) think that SM can improve their knowledge; however, 368(70,6%) of the participants think that they cannot evaluate the reliability of information through SM.
The advantages of SM use are complimentary access according to 47% of participants availability of information for 19% of participants and anonymity 9%.
Main limits were reliability of information 42% multiplicity of information 39% and distraction on SM 19%.
Conclusion: Most people are connected to SM. They became a learning channel making access to knowledge easier.
Our study shows the evolution of the use of SM, and its impact on training. Careful attention should be made on how to improve contents authenticity and reliability.
Disclosure: Nothing to disclose.

PP1666

DISCRIMINATION OF THE DIFFERENTIAL EFFECTS OF SELECTIVE SUPPRESSION OF IL-6 TRANS-SIGNALING BY OLAMKICEPT IN MODERATE-TO-SEVERE ULCERATIVE COLITIS

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Introduction: IL-6 is implicated in the pathogenesis of ulcerative colitis (UC), however no IL-6 inhibitor has been approved for UC to date. Selective inhibition of IL-6 trans-signaling could ameliorate the deleterious, pro-inflammatory effects of IL-6[1], while preserving the homeostatic, tissue reparative activity of classical IL-6 signaling.
Olamkicept [2], a fusion protein consisting of two complete extracellular domains of gp130 attached to the Fc-region of an IgG_1 antibody, neutralizes IL-6 trans-signaling in vitro and has shown promising clinical effects in a recent randomized, double-blind, placebo-controlled phase II trial in moderate to severe UC (NCT03235752)[3].
Aims & Methods: The objective of this study was to characterize the biological effects resulting from selective inhibition of IL-6 trans-signaling using an in silico model of colonic inflammation.
A hybrid mechanistic-statistical computational model of colonic inflammation in UC was developed using published pre-clinical and clinical studies as well as internally generated in vitro pharmacology data[2-4]. The output of the model included changes in IL-6 signaling pathway components (IL-6, soluble IL-6 receptor, membrane-bound IL-6 receptor, soluble gp130, and STAT-3 phosphorylation), C-reactive protein (CRP), fecal calprotectin, adaptive immune cell (CD4+ T lymphocyte) sub-populations, cytokines, and chemokines. States of tissue damage and repair (healing) were estimated.
The performance of the model was tested against clinical data generated in NCT03235752[3] in which patients had been allocated to receive intravenous (IV) administration of 300 mg or 600 mg olamkicept or placebo every two weeks for 12 weeks.
Simulations assessing the differential effects of modulating trans- and cis-signaling were probed using pharmacological inhibitors of trans- (olamkicept, 300-1800 mg administered IV every 2 weeks) and pan-IL-6 signaling (IL-6 receptor inhibitor and a STAT-3 phosphorylation inhibitor).
Changes in concentrations of IL-6 signaling species and down-stream effects on immune cell sub-population levels were compared both in the systemic circulation and locally in the gut tissue.
The initial concentrations of the signaling species were based on those typically observed in UC patients[5].
Results: Based on the simulations, concentrations of free IL-6 in the systemic circulation were minimally impacted by exposure to olamkicept. In gut tissue, IL-6 concentrations decreased by approximately 10% at the highest olamkicept dose tested, returning to pre-treatment levels within a day post dose.
Suppression of IL-6 trans-signaling by olamkicept caused a transition away from aT_h17-rich state in gut tissue and attenuated inflammatory chemotactic signals in a dose-dependent manner. In comparison, the pan-inhibition of IL-6 signaling reduced T_h17 mediated inflammatory activity, however tissue healing pathways dependent on IL-6 cis-signaling were also suppressed.

Conclusion: In the developed in silico model of colonic inflammation, inhibition of IL-6 signaling was associated with attenuation of T_h17 mediated inflammation in the gut. Pan-inhibition of IL-6 signaling was associated with impaired tissue healing, however this was not observed for olamkicept, where homeostatic, classical IL-6 signaling was preserved.

This study provides quantitative support to therapeutic strategies targeting IL-6 trans-signaling in UC to reduce the cytokine's undesirable effects while preserving its beneficial functions.

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PP1667

TELEMEDICINE FOR SUSTAINABLE POSTOPERATIVE FOLLOW-UP: A PILOT STUDY EVALUATING THE HYBRID LIFE-CYCLE ASSESSMENT APPROACH TO CARBON FOOTPRINT ANALYSIS

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Introduction: Surgical site infections (SSI) are the most common healthcare-associated infection however access to healthcare services, lack of patient awareness of signs, and inadequate wound surveillance may limit timely diagnosis. Telemedicine as a method for postoperative follow-up has been shown to reduce time, travel, and cost, without compromising clinical outcomes.

Furthermore, a significant contributor of CO_2e is attributable to patient travel, therefore the NHS must adopt innovative approaches to meet its net zero target by 2024.

Aims & Methods: This study aimed to provide a comprehensive analysis of the feasibility and sustainability of telemedicine post-operative follow-up for remote diagnosis of SSI.

Patients were reviewed remotely at 30 days with a combined outcome measure (photographs and validated questionnaire). A hybrid life-cycle assessment approach to carbon footprint analysis was used. The $kgCO_2e$ associated with remote methods was mapped prospectively.

A simple outpatient clinic review, i.e. no further investigations or management required, was modelled for comparison. DEFRA conversion factors amongst healthcare specific sources were used to ascertain $kgCO_2e$. Patient postcodes were applied to conversion factors based upon mode of travel to calculate $kgCO_2e$ for patient travel. Total and Median (IQR) carbon emissions saved were presented for both patients with and without SSI.

Results: 31 patients (M:F 2.4, 66.7±11.7 years) agreed to participate. The median return distance for patient travel was 42.5 (7.2 to 58.7) km. Median reduction in emissions using remote follow-up was 41.2 (24.5 to 80.3) $kgCO_2e$ per patient (P<0.001). The carbon offsetting value of this method is planting 1 tree for every 6.9 patients.

Total carbon footprint of face-to-face follow-up was 2895.3 $kgCO_2e$, compared to 1301.3 $kgCO_2e$ when using a remote first approach (P<0.001). Carbon emissions in participants without wound complications was 700.2 $kgCO_2e$ for clinic method and 28.8 $kgCO_2e$ for remote follow-up.

Conclusion: This model shows that the hybrid life-cycle assessment approach is achievable and reproducible. Implementation of an asynchronous digital follow-up model is effective in substantially reducing the carbon footprint of a tertiary surgical centre.

Further work is needed to corroborate these findings on a larger scale, quantify the impact of telemedicine on patient's quality of life and incorporating $kgCO_2e$ into the cost analysis of potential SSI monitoring strategies.

Disclosure: No conflict of interest.

PP1668

USEFULNESS OF VIRTUAL SCALE ENDOSCOPE FOR EARLY GASTROINTESTINAL LESIONS

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Introduction: For early gastrointestinal lesions, size is one of the most important factors in the selection of treatment. Lesion size is generally estimated visually, but there are errors in the size estimated visually, which may cause problems in reproducibility and objectivity. Virtual Scale Endoscope (VSE) is newly developed endoscope that displays a virtual scale using the principle of triangulation, and has been reported to measure the size of polyps in a simulated colorectal phantom more accurately than visual estimate.

However, it is unknown whether VSE can accurately measure the size of the actual gastrointestinal lesions with various sizes and macroscopic types.

Aims & Methods: The aim of this study was to investigate whether the size of the resected lesion measured by VSE is close to the true size. We prospectively enrolled patients who had early gastrointestinal lesions of 20 mm or less visually at the preoperative endoscopic examination. Finally, all lesions were performed en bloc resection endoscopically. "The size of the lesion visually estimated in vivo through endoscopy before treatment in real time (visual size)", "The size of the resected lesion measured by VSE (VSE size)", and "The size of the resected lesion measured by ruler (ruler size)" were evaluated for each lesion.

The primary endpoint was the difference between "VSE size" and the true size, which was defined as "VSE error". The secondary endpoints were the difference between "visual size" and the true size, which was defined as "visual error", and the comparison of the variation between "VSE error" and "visual error".

The difference between the two groups was calculated as [100 x (estimated or measured size - true size) / true size] (%). The true size was defined as "ruler size". Variation between "VSE error" and "visual error" was analyzed by the F-test.

Results: 60 lesions were enrolled at two centers from April 2022 to December 2022. There were 20 lesions each in the esophagus, stomach, and colon. The mean lesion size ± standard deviation (SD) was 14.0 ± 6.3 mm. Macroscopic types were protruded type in 8 (13.3%) lesions, slightly elevated type in 24 (40.0%), and flat or slightly depressed type in 28(46.7%). 21 (35%) lesions were measured by expert and 39 (65%) were measured by non-expert before treatment. The mean "VSE error" ± SD was 0.3 ± 8.8 % and the mean "visual error" ± SD was -1.7 ± 29.3 %. And, "VSE error" were significantly less variable than "visual error" (p<0.001).

Conclusion: The measurement of lesion size by VSE is accurate and acceptable because it is closer to the true size and has less variation than visual estimation by endoscopists.

Disclosure: Virtual Scale Endoscope is provided by FUJIFILM for this study.

PP1669

AN ASSESSMENT OF PATIENT READINESS TO ENGAGE IN DIGITAL PATIENT REPORTED OUTCOMES IN AN AUSTRALIAN INFLAMMATORY BOWEL DISEASE COHORT

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Introduction: Studies have indicated Digitalized Patient Reported Outcome (PRO) can improve patients' health and well-being[1-2] with cost effective advantages compared with conventional disease surveillance[3]. To improve patient acceptance of digital PRO, health professionals need to achieve better understanding of factors that contribute to patients' readiness to interact with digital PRO systems.

These factors have been measured previously by a validated questionnaire developed by Kayser et al[4]- The ReadHy (Readiness and enablement index for Health technology).

Aims & Methods: The aim of this study is to use the ReadHy questionnaire to assess readiness of Western Health IBD patients to engage in digital PRO.

A descriptive, questionnaire-based, cross-sectional study was performed at Western Health IBD outpatient clinic between Nov – Dec 2022. IBD patients were recruited at the clinic in voluntary bases with readiness assessed via ReadHy questionnaire. Results were compared with AS Nielsen et al 2022[5], a Denmark study assessing readiness of PRO and non-PRO users. Domains examined included self-monitoring and insight, constructive attitudes and approaches, Skills and technique acquisition, emotional distress, feeling understood and supported by healthcare providers, social support for health, using technology to process health information, understanding of health concepts and language, ability to actively engage with digital services, feel safe and in control, motivated to engage with digital services, access to digital services that work and digital services that suit individual needs. K-means clustering was also performed to determine readiness profiles of patients.

Results: Western Health IBD cohort scored higher in most domains in compared to both PRO and non-PRO users in Nielsen et al cohort. According to Nielsen et al, a higher score correlates to PRO-readiness and the PRO user group scored higher on average than the non-PRO user group.

There is a statistically difference in "heiQ8 Emotional distress" domain of which patients in the PRO users scored higher than the non-users in Nielsen et al cohort. Western Health cohort had a mean score of 2.74 (SD 0.59), statistically lower than the PRO user group's mean of 3.06 ($p < 0.005$) but with no difference in compared with the non-PRO user group's mean of 2.77 ($p= 0.724$). The causation remained unclear as it could be that implementation of digital PRO resulted in reduction of emotional distress or patients with less emotional distress were more likely to participate in digital PRO.

Western Health IBD cohort is a younger population with higher rate of daily usage of information technology. As per findings of Nielsen et al and our k-mean clustering, younger participants with higher education level, higher use of electronic device in daily life and using search engine for health-related issues had higher readiness to engage in PRO.

Conclusion: Western Health IBD cohort had shown similar or higher readiness to digital PRO compared to the Nielsen et al PRO and non-PRO users' cohorts, suggesting Western Health IBD patients are ready for the implementation of digital PRO. Future research can be conducted in other Australian IBD centres to further assess digital PRO readiness in a national level.

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Disclosure: Nothing to disclose.

PP1670

EVALUATING THE IMPACT OF A GI GUIDELINES APP ON HEALTHCARE PROVIDER AWARENESS AND ADHERENCE: INSIGHTS FROM A SURVEY

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Introduction: The Quality of Care Taskforce of the United European Gastroenterology developed a GI Guidelines app to address the issue of healthcare providers struggling to keep track of the numerous available guidelines. The app provides easy access to updated guidelines on different fields of gastroenterology. This study aims to evaluate the app's impact on healthcare providers' awareness and adherence to guidelines through a survey

Aims & Methods: This study aims to evaluate the app's impact on healthcare providers' awareness and adherence to guidelines through a survey. The survey was disseminated to both app users and non-users, with 1377 responses collected. The questions were designed to provide valuable insights into the user base of the GI Guidelines app and the potential gap to be filled to improve current clinical practice. The participants' demographic information, including their sex, age, training status, years of practice, and geographic distribution, was collected. The survey also asked app users about their familiarity with the guidelines, their usage of the app, and its usability. Moreover, the survey solicited suggestions from app users on how to improve the app and what guidelines they would like to see included. Non-app users were asked about their use of guidelines in clinical practice and their reasons for not using the app.

Results: The survey results showed that the app was widely used by clinicians, with 975 out of 1377 app users reporting daily use. App users were most familiar with endoscopy, inflammatory bowel disease, and liver content guidelines. The app was perceived as user-friendly and easy to navigate, with a mean rating of 76.56 and a median of 80 (out of a max of 100). App users provided valuable feedback on how to improve the app, including content-related and technical improvements. Most non-app users still reported using guidelines in their clinical practice, emphasizing the importance of guidelines in healthcare.

Conclusion: The GI Guidelines app developed by the UEG QOC taskforce is a valuable tool for healthcare providers in their day-to-day practice. The survey results provide insights into the app's usage, its impact on healthcare providers' awareness and adherence to guidelines, and suggestions for its improvement. These insights can help the taskforce improve the app and increase awareness and adherence to guidelines, ultimately leading to better outcomes for patients with gastrointestinal disorders.

Disclosure: Nothing to disclose.

PP1671

IMPROVING INNOVATION IN HEALTHCARE USING LOW-CODE/NO-CODE TECHNOLOGY: WAIKATO HOSPITALS ACUTE ELECTRONIC ENDOSCOPY TRIAGE AND REFERRAL SYSTEM, A SINGLE TERTIARY HOSPITAL EXPERIENCE

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Introduction: Low-code/no-code (LCNC) applications are under-utilised as clinician-built solutions for daily hospital-based tasks. Waikato Hospitals endoscopy unit in Hamilton, New Zealand, on average receives five to twelve acute endoscopy requests per day. Prior to December 2021 all inpatient endoscopy requests for conditions such as gastrointestinal bleeding, were made on handwritten paper and faxed to the endoscopy unit. Following this the co-ordination and triage of multiple referrals occurred onsite from a single physical board. This created problems such as forms being lost, handwriting illegible and co-ordination and communication inefficient. Environmental sustainability was also a major concern regarding paper wastage.

Aims & Methods: We aimed to develop a referral and management system for acute endoscopy requests using LCNC technology. This would be built and maintained by the endoscopy staff and tailored to clinical and administrative needs. We used the Microsoft Power Platform, Power Automate and Power Apps, to develop this clinician-built triage and management system, alongside an electronic referral request for acute endoscopy from Clinical Work Station™ (Waikato Hospitals electronic medical records system). The system was developed by a Gastroenterology Trainee with experience in LCNC systems, and was developed with the endoscopy staff. The electronic referral system went live on 6th of December 2021.

Results: From December 2021 to August 2022, our clinician-built system had 4512 visits with up to 44 unique users monthly using the Microsoft PowerApp through mobile and desktop, either directly or through Microsoft Teams. The Microsoft Power App recorded 1201 new endoscopy referrals, of which 1007 (84%) endoscopies were completed, 56 (5%) duplicate referrals, 17 (1%) triaged to outpatient endoscopy and 111 (10%) declined or cancelled back to the referrer. 1177 (98%) referrals utilised the electronic notifications setting between clinicians, nursing and administration staff using push notifications, minimising the need for face-to-face contact and physically meeting.

The system eliminated paper waste, while also optimised patient care by real time co-ordination of referrals and improved documentation when making or changing triage decisions. Prior to December 2021 there were 15 steps from the patient presenting to hospital with a gastrointestinal bleed to having their endoscopy completed, now the process is shortened to seven steps, with instant upload of requests upon submission of an endoscopy request and real-time tracking. 10 endoscopy staff including 2 doctors and 6 endoscopy nurse co-ordinators provided positive feedback and support for its ongoing use during staff surveys.

Conclusion: The LCNC system we have developed is clinician focused, modified for our needs and is built on current Microsoft 365™ licencing, which does not incur extra costs to our hospital, and allows integration into Microsoft Outlook™ and Microsoft Teams™. In the short time our system has been online, it has demonstrated efficiency, sustainability, and safety for patient care with high levels of clinician satisfaction and has potential to be integrated to other hospitals with similar Microsoft 365™ licencing.

Disclosure: Nothing to disclose.

PP1672

AN AUTOMATED VIDEO ANALYSIS SYSTEM FOR RETROSPECTIVE ASSESSMENT AND REAL-TIME MONITORING OF ENDOSCOPIC PROCEDURES

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Introduction: Accurate recognition of endoscopic instruments facilitates quantitative evaluation and quality control of endoscopic procedures. However, no relevant research has been reported. In this study, we aimed to develop a computer-assisted system, EndoAdd, for automated endoscopic surgical video analysis based on our dataset of endoscopic instrument images.

Aims & Methods: Large training and validation datasets containing 45,143 images of 10 different endoscopic instruments and a test dataset of 18,375 images collected from several medical centers were used in this research. Annotated image frames were used to train the state-of-the-art object detection model YOLO-v5 to identify the instruments. Based on the frame-level prediction results, we further developed a hidden Markov model to perform video analysis and generate heatmaps to summarize the videos.

Results: After approximately 2,000,000 iterations on the training dataset, the performance of YOLO-v5 on the validation dataset was saturated. The model achieved high accuracy (>97%) on the test dataset for all 10 instrument types. The mean average accuracy, precision, recall, and F1-score were 99.1%, 92.0%, 88.8%, and 89.8%, respectively.

The receiver operating characteristic (ROC) curveshows that the detection module achieved satisfactory performance with an area under the curve (AUC) exceeding 0.94 for all instrument types. Among the endoscopic instruments, EndoAdd achieved the best discriminative results for the snare, hybrid knife, dual knife, IT knife, and APC (AUC=1.00) and performed worst for the injection needle (AUC=0.94).

Notably, 199 of the 703 injection needle images (28%) in the test dataset were misclassified as hybrid knives. We used EndoAdd in offline mode to generate heatmaps for the 6 POEM videos in the test dataset. The heatmaps shows the operating patterns by the senior and junior endoscopists. The heatmaps shows that the junior endoscopists used hot biopsy forceps more frequently, whereas the senior endoscopists often used them at the end of myotomy.

Moreover, the heatmap shows a longer background period for the junior endoscopists, reflecting that they may have spent more time changing the surgical instruments or adjusting the endoscopy during the procedure.

Conclusion: We successfully developed an automated endoscopic video analysis system, EndoAdd, which supports retrospective assessment and real-time monitoring. It can be used for data analysis and quality control of endoscopic procedures in clinical practice.

Disclosure: Nothing to disclose.

PP1673

HAND IN HAND COLON - GUIDANCE FROM A COORDINATING CARE NURSE

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Introduction: Hand in Hand Colon was founded to mitigate, expedite, streamline and optimize a patient's journey after undergoing a colonoscopy that unearthed a potential carcinoma. The project bridges the gaps prompted by the involvement of interdisciplinary fields from colonoscopy to diagnosis, surgery, oncological treatment and ultimately, recovery. The project, spearheaded and managed by coordinating care nurses, guides patients through the thicket of uncertainty, both bureaucratic; "where do I go now?" and emotional as patients take on the role of "cancer patient".

Services require a maze of services which can lead to miscommunications and trouble understanding and navigating through the medical system. Patients will need to wait for their biopsy results, meet with a surgeon, oncologist, or both, undergo medical imaging as well as understand what is going on around them, medical terms why they are meeting with specialists, why are they getting tests done and where all this will lead them.

Each of these steps presents the patient with obstacles: Israel's imaging availability is one of the lowest in the OECD, backed up labs, doctors work with different HMOs and available and short-wait appointments are hard to come by.

The project offers one-one-one guidance to each patient following colonoscopy with a suspicious finding by a coordinating care nurse. The nurse will guide patients through medical necessities while also presenting availability and information, supporting and easing on the overwhelmed patient.

Aims & Methods: The project is a centralizing source for the patient, working as a one stop shop: expediting results and appointments, prioritizing and clarifying medical requirements and lowering anxiety levels.

Ultimately, our goal is to achieve diagnosis early as to move forward with treatment and increase the chance of a favorable prognosis while also providing patients with the option to ask questions, understand what's going on and feel, somewhat, at ease, therefore also increasing patient responsiveness.

Results: The project began taking on patients in March 2022. The following only relates to the project at Assuta Raanana. As of January 2023, 72 patients have been referred to the site's coordinating care nurse, of them 92% have undergone expedited imagery, 46% have already undergone surgery, chemotherapy or both, 100% of biopsy analyses were submitted within two weeks and 100% of patients were contacted and offered service by the appointed nurse.

Since the project began, coordinating care nurses have participated in group sessions with expert clinicians receiving training and support on dealing with distraught patients given life changing news. Soon, nurses will also receive group sessions to work through their own emotions regarding their exposure and day-to-day work with cancer patients to manage stress, burn-out, tension and sorrow.

The nursing team works under the belief that a gastroenterological nurse's job does not begin and end with their accumulated knowledge, nursing skills, technical abilities but that these can work to adhere to the 6 C's of nursing as put forth by the NHS: care, compassion, communication, competence, courage and commitment that all come together to provide patients with the best and highest level of care possible.

Conclusion: Following our experiences during the project's first year of operation, we believe that a patient's success and overall experience can be bettered through this project.

Disclosure: Nothing to disclose.

PP1674

G-PLAY - DEVELOPMENT OF A GUIDELINE-BASED ONLINE-PLATFORM TO LEARN AND DISCUSS PERI-INTERVENTIONAL MANAGEMENT OF ANTICOAGULANTS IN COLONOSCOPY

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Introduction: The continuous advancement of medical research has led to an increase in the number and extent of guidelines. However, adherence to these guidelines varies significantly, which may be attributed to individualized treatment, impracticality, lack of clinical impact, or insufficient information. The G-PLAY platform aims to generate reports linked to corresponding guideline recommendations and questions, enabling inexperienced users to learn and experienced users to identify discrepancies between theory and practice.

Aims & Methods: Our aim was to identify pertinent guidelines and gather the requisite information for developing a guideline-based quiz application specifically designed for peri-interventional management of anticoagulants in colonoscopy. To achieve this, we closely analysed the S2k guideline for quality standards in gastroenterology (preprint) and subsequently designed a Python-based web application in alignment with these guidelines. In addition to generating reports, the application captures user demographics, such as profession, experience, and location, enabling further subanalyses. We also incorporated a queuing algorithm to allocate questions based on the user's prior performance and the current distribution of answers for each question.

Results: Given the highly individualised nature of peri-interventional management of anticoagulants, we have formulated a structured report template that accommodates the most prevalent use-cases. The template encompasses various attributes, such as patient bleeding history, intake of relevant medication along with the indication, risk of thrombosis, and detailed information on the indication/planned procedures, including specifics about the size, location, and morphology of polyps. Users are prompted to specify whether and for how long anticoagulants should be paused. The automatically generated reports are tied to corresponding guideline excerpts. Upon answering a question, users can review the guideline excerpts related to the question, view answer statistics, and engage in discussions in the comment section.

Conclusion: G-PLAY is a free, modular, and open-source platform designed to enhance guideline knowledge among trainees and facilitate the identification of discrepancies between theory and practice among experts. The application has the potential to improve adherence to guidelines, ultimately leading to better patient care and outcomes. Visit info.coloreg.de/g-play for further information and beta access to the platform (starting 1st of June 2023).

Disclosure: Nothing to disclose.

PP1675

THE ACCURACY OF SNARE TIP SOFT COAGULATION APPLIED TO THE MARGIN OF POST ENDOSCOPIC MUCOSAL RESECTION DEFECTS CORRELATES WITH ENDOSCOPIST POLYPECTOMY EXPERIENCE AND PROCEDURAL DIFFICULTY

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Introduction: Operator dexterity is recognised as a critical determinant of outcomes after surgery (1,2). No objective metric exists for the quality of endoscope tip manipulation (tip-control). We aimed to validate a tip control score in-vivo, using post endoscopic mucosal resection (EMR) snare tip soft coagulation (STSC) of the defect margin.

Aims & Methods: A web application containing a timed-score was used to record correct and incorrect applications (=hits) of STSC to the margin of defects after piecemeal EMR. Correct hits were visualised diathermy applications touching the defect margin.

2 blinded endoscopists scored sequential videos of STSC performed by consenting endoscopists. Correct hits/incorrect hits (=accuracy) and correct hits/second (=speed) were determined. Results were stratified by polypectomy complexity (SMSA[+] score)(3,4), difficulty of STSC application (independent movement of the colonic wall not explained by the movements of the endoscope [=movement artefact]) and experience of the endoscopist (expert vs fellows in endoscopy).

			Median Accuracy % (IQR) [95% CI]			Median Correct Hits/s (IQR) [95% CI]		
			Fellow	Expert	p	Fellow	Expert	p
Overall	Overall		76.5% (21.5) [70.9 -82.1]	92.0% (10.0) [88.2- 95.8]	<0.001	0.155 (0.078) [0.128-0.183]	0.202 (0.241) [0.109-0.294]	0.02
Easy*	Overall		88.0% (11.5) [80.8-95.2]	94.0% (12.8) [88.3-99.7]	0.106	0.213 (0.083) [0.162-0.265]	0.324 (0.258) [0.189-0.460]	0.148
Difficult**	Overall		68.0% (19.0) [61.1-74.9]	92% (12.0) [86.9-97.1]	0.003	0.151 (0.073) [0.125-0.177]	0.198 (0.125) [0.070-0.327]	0.028
		p	0.036	0.281		0.070	0.483	
Easy*	SMSA		84.0% (10.0) [72.6-95.5]	88.5% (11.5) [66.0-100.0]	0.773	0.237 (0.064) [0.165-0.310]	0.488 (0.187) [0.122-0.854]	0.149
Difficult**	2+3		67.0% (26.0) [51.3-82.7]	82.0% (10.0) [62.4-100.0]	0.333	0.151 (0.093) [0.100-0.207]	0.407 (0.295) [0.000-0.985]	0.561
		p	0.371	0.700		0.074	1	
Easy*	SMSA 4		NA	NA	NA	NA	NA	NA
Difficult**			68.0% (5.5) [61.8-74.2]	NA	NA	0.175 (0.046) [0.121-0.229]	NA	NA
Easy*	SMSA +		88.5% (6.5) [77.7-99.3]	94.0% (9.0) [89.0-99.0]	0.240	0.173 (0.096) [0.107-0.138]	0.267 (0.245) [0.136-0.398]	0.337
Difficult**			80.0% (18.0) [70.9-89.4]	92.0% (9.0) [87.0-97.0]	0.045	0.121 (0.060) [0.089-0.153]	0.198 (0.071) [0.082-0.314]	0.062
		p	0.111	0.405		0.540	0.768	

*Table 1 Median accuracy and speed for fellows vs experts stratified by SMSA level and difficulty. IQR, Interquartile Range; CI, Confidence Interval; *Easy, no movement artefact; **difficult, movement artefact; SMSA, Size-Morphology-Site-Access score.*

Results: 39 STSC procedures performed by 10 endoscopists (3 experts, 7 fellows) were rated. 12 (30.8%) polyps were SMSA 2 or 3, 3 (7.7%) were SMSA 4, and 24 (61.5%) were SMSA+. 24 (61.5%) STSC procedures were categorised as difficult.

Median accuracy of STSC was 86.0% (interquartile range [IQR] 19.5, 95% confidence interval [CI] 77.0-91.0) and median speed was 0.175 (IQR 0.113, 95%CI 0.130-0.210). Accuracy strongly correlated with blinded expert im-

pression of the tip-control demonstrated in the video (correlation coefficient=0.81, P<.001). Movement artefact significantly adversely impacted both overall accuracy (P=.06) and speed (P=.05). Increasing SMSA score adversely impacted overall accuracy (SMSA 4 vs SMSA+, P=.04), but not speed (P=.61).

Fellows were significantly less accurate (76.5% vs 92.0%, P<.001) and slower (0.155 vs 0.202 hits/s, P=.02) vs experts in applying STSC. Movement artefact significantly impacted the performance of fellows (accuracy 68% vs 88%, P=.036, 0.151 vs 0.213 hits/s, P=.07) but not experts (P=.281 and P=.483). In procedures without movement artefact, performance of fellows and experts were similar (accuracy P=.106, speed P=.148). In SMSA+ polyp observations with movement artefact fellows were significantly less accurate than experts (80.0% vs 92.0%, P=.045) (table 1).

Conclusion: This is the first in-vivo description of a score for the quality of endoscope tip manipulation. Endoscopist accuracy and correct hits/second were inversely related to training status, polypectomy difficulty and degree of movement artefact when applying STSC.

The score ranges presented here could be used to benchmark endoscopists and fellows with respect to SMSA scores, guide progression through SMSA levels and correct tip-control scores for movement artefact due to patient breathing.

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PP1676

ONLINE EDUCATION SIGNIFICANTLY IMPROVED GASTROENTEROLOGISTS' UNDERSTANDING OF THE USE OF ULTRASOUND IN THE MANAGEMENT OF INFLAMMATORY BOWEL DISEASE

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Introduction: Intestinal ultrasound (IUS) offers a number of advantages over endoscopy in monitoring and managing patients with inflammatory bowel disease (IBD) but despite the wide availability of IUS, it remains underused to support decision-making in clinical practice.

Aims & Methods: We aimed to determine whether online accredited education could improve gastroenterologists' knowledge of best practice in the use of IUS to monitor and manage patients with IBD, and could enhance their confidence in using IUS in clinical practice.

Gastroenterologists participated in a 30-minute video lecture with synchronized slides and embedded IUS videos entitled 'Gastrointestinal Ultrasound in the Management of IBD'. Responses to 3 multiple-choice, knowledge questions and 1 self-efficacy, 5-point Likert scale confidence question were analyzed. Educational effect was assessed using a repeated-pair design, pre-/post-assessment. A paired samples t-test was conducted for significance testing on overall average number of correct responses and for confidence rating. A series of McNemar's tests were conducted at the question level (5% significance level, P <.05).

Cohen's d with correction for paired samples estimated the effect size of the education on number of correct responses (<.20 modest, .20-.49 small, .59-.79 moderate, ≥.80 large). The activity launched on 1 February 2021 with data collection through 12 April 2021.

Results: Gastroenterologists (n=195) significantly improved their knowledge of the ECCO-ESGAR guideline recommendations on the use of IUS in IBD (54% correct responses at baseline rising to 65% post-activity; P <.01), that stool content going in both directions in IUS is indicative of stricture (55% correct responses at baseline rising to 70% post-activity; P <.001), and that bowel wall thickness >4mm in a patient with Crohn Disease is the most sensitive IUS parameter indicating active disease i.e. treatment failure. (28% correct responses at baseline rising to 58% post-activity; P <.001)

The proportion of gastroenterologists answering all 3 questions correctly rose from 9% at baseline to 35% post-activity.

The average percentage of correct responses increased from 46% at baseline to 64% post-activity (P <.001), and there was a moderate educational impact (Cohen's d=0.60).

After completing the activity, 44% of gastroenterologists reported improved confidence in in interpreting IUS images to support the management of patients with IBD, resulting in a notable confidence shift of 79%.

92% of gastroenterologist responders felt the education would improve their performance, resulting in improved patient outcomes.

Conclusion: This online activity significantly improved gastroenterologists' knowledge and confidence in the use of IUS in IBD management. Gastroenterologists would likely benefit from additional education to embed their knowledge on the use of IUS and improve their confidence in interpreting IUS images to support decision-making in clinical practice.

Disclosure: Nothing to disclose.

PP1677

THE EDUCATIONAL PROGRAM WITH A NOVEL EST SIMULATOR CAN CONTRIBUTE TO ACHIEVE SAFE EST AND TO IMPROVE TRAINEE'S CONFIDENCE OF THE EST PROCEDURE: AN EDUCATIONAL INTERVENTION STUDY

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Introduction: Endoscopic sphincterotomy (EST) is a critical procedure in cholangiopancreatic endoscopic practice. However, learning opportunities outside of actual patients are limited, and effective learning methods are needed to understand complications and ensure the correct flow of procedures. To address this, we developed EST simulator with a duodenal papilla composed of soft material and pseudo-vessel that mimics the bleeding complication under abnormal incision: other than the 11-12 o'clock direction or over cutting with the appropriate direction.

Aims & Methods: The aim of this study was to evaluate the effectiveness of the EST learning program which included hands-on training using this simulator.

First, trainees filled out pre-program questionnaire including the self-confidence and understanding of EST, and expectation for simulator learning. Before hands-on training with the simulator, trainees watched the instruction video. The video contained basic flow of EST procedure, how to control the duodenoscope, overview of EST devices such as guidewire/ cannula/ sphincterotomy knife/ a basket catheter, and introducing the simulator model. Then trainees freely attempted EST with the simulator once. After 1st trial, expert endoscopists gave the trainees feedback and 6 tips based on Bethesda ERCP Skill Assessment Tool (BESAT). Afterwards, trainees tried second EST procedure.

Finally, participants filled out post-program questionnaire. A successful EST was defined as a medium incision made in the 11-12 o'clock direction. Too small incision or causing bleeding complication was defined as fault. Primary outcomes were subjective score using the Visual Analogue Scale (VAS) between before and after the training program.

The evaluation of simulator training with feedback was compared the success rates of EST between 1st and 2nd trials. Statistical differences between the two groups were analyzed by the McNemar's Chi-square test for categorical variables. Wilcoxon signed-rank test for comparing VAS scores. A p value <0.05 was considered statistically significant. This study is registered as UMIN000044823 in UMIN Clinical Trials Registry.

Results: Thirty gastroenterology-related physicians completed the program, with a median age of 32 years, a median year of graduation of 6.5 years, and a median duration of endoscopic training of 57.5 months. Self-confidence in performing EST without the assistance of a senior physician also increased significantly from a median score of 24 before training to a median score of 53 after training. Furthermore, understanding of the procedures and devices increased significantly from a median score of 42.5 before training to a median score of 65 after training. The level of expectation for simulator learning using this model also increased significantly from a median score of 69.5 before training to a median score of 85.5 after training. The success rate of EST improved significantly from 43% on 1st trial to 77% on 2nd trial.

Conclusion: Education program with a novel EST simulator reproducing bleeding complication that combined with video learning of knowledge and the procedural flow, possibly contributes to improvement of skills and self-confidence.

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PP1678

USEFULNESS AND SATISFACTION OF THE THEORETICAL AND PRACTICAL COURSE ON BOWEL ULTRASOUND AT UEG SUMMER SCHOOL 2022

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Introduction: Bowel ultrasound is a cost-effective, non-invasive, and readily available tool for the clinical management of patients with inflammatory bowel diseases. Moreover, it can be an accurate tool for the assessment of patients with chronic and acute gastrointestinal (GI) disorders (e.g., abdominal pain and diarrhoea) in order to rule in and out organic causes. It is presently unknown how many GI residents have the opportunity of an ultrasound training period during their residency.

Aims & Methods: Aim of this study was to evaluate how a two-hour theoretical and hands-on learning course on bowel ultrasound has affected the ability of GI residents to correctly identify some basic physiological and pathological ultrasound findings.

The participants were GI residents from different Countries, who voluntarily chose to take part to the intestinal ultrasound course, one of twelve optional courses held during the two-day UEG Summer School in Prague in June 2022. The bowel ultrasound course, consisting of a 0.5-hour theoretical and a 1.5-hour hands-on part with bowel ultrasound performed on healthy volunteers ran eight times during the Summer School, with a maximal number of twelve participants per session.

Participants performed an initial test, consisting of answering ten questions contained in a digital anonymous questionnaire with Google Form (Google, Mountain View, USA) to recognize some basic anatomical structures and/or pathological ultrasound images of the enteric system. At the end of the two-hour course, participants completed a final test with the same initial questions and images.

Answers to each single question before and after the course were compared, by calculating the percentage difference in the number of correct answers.

A hypothesis test (McNemar's test) was then conducted to assess the statistical significance of the difference between the percentage of correct answers before and after the course.

Results: Among the 70 participants in the course, 48 answered all the questions and results refer to this group. Respondents were from 14 European and Mediterranean area Countries (56.3% women, 43.8% in their 4th year of residency); 60.4% of respondents stated they had an ultrasound training period during their residency.

Participants improved significantly after the course: differences between the percentage of correct answers before and after the test were significant (α = 5%) for seven out of ten questions (e.g., normal and thickened colon).

Eleven trainees had previous experience of performing bowel ultrasound or had previously taken part in a similar course. Answers given by the subgroup of participants (n = 37) who had never taken part in a bowel ultrasound course or performed a bowel ultrasound were similar: six answers out of ten showed a significant improvement.

Among the 48 residents, 95.8% self-reported to have improved their capabilities after the course, and every respondent (100%) would have recommended this course to a friend colleague.

Conclusion: Our data show a strong impact on the ability to identify basic anatomical structures and pathological images, such as thickened bowel wall, using bowel ultrasound after a brief theoretical and practical course. Although test and post-test surveys may have potential biases [1], the number of participants who responded appropriately to the questionnaire is greater or comparable to previous studies on ultrasound training. [2-5] Further studies should evaluate if the benefit of a brief course apply to practical examinations and is maintained in residents who do not actively perform intestinal ultrasound over time.

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PP1679

BASIC ULTRASOUND KNOWLEDGE AMONG YOUNG GASTROENTEROLOGISTS: AN ITALIAN SURVEY

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Introduction: In European Countries, abdominal ultrasound (US) is often considered a first-line diagnostic technique and an extension of clinical examination [1]. The interpretation of US and its accuracy is operator dependent and, in the absence of adequate training and continuous medical education, US probes may be a useless tool [2,3]. To fill this gap, The European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB) has developed guidelines to identify minimum training requirements for US examinations [4], with 300 exams needed to be a Level 1 sonographer.

In Italy, gastroenterologists have the possibility to learn abdominal US during medical residency or while attending private dedicated training courses. Nonetheless, there is no standardized training among Italian universities and many gastroenterologists acquire US skills only after their residency. This evidence points out the pitfalls of our educational system.

Aims & Methods: The aim of our survey was to identify the overall education and knowledge of abdominal US among young Italian gastroenterologists (<40 years old). For this purpose, we sent a questionnaire to young Italian gastroenterologists and residents in Gastroenterology (GI).

The Ultrasound Committee of the Italian Young Gastroenterologist and Endoscopist Association (Associazione Giovani Gastroenterologi ed Endoscopisti Italiani- AGGEI) distributed via e-mail to all its members (348) a web-based survey and multiple-choice test with images, based on the EFSUMB recommendations about minimum training requirements for a US examination [4].

The answers were collected anonymously and analyzed for distribution and correlations.

Statistical analysis was performed with STATA 13.0 (College Station, TX: StataCorp LP).

Results: The questionnaire was filled out by 110 participants (60 males, 54.5% aged <30) from all over Italy with a response rate of 31.6% Most of the respondents worked in Academic Hospitals and were GI residents or PhD students.

Among the participants, 58.9% learned US during their GI residency by other skilled residents and only 8.2% attended specific US courses. The great majority (90%) of respondents were currently working in a Unit with a US service. During their training participants performed a median number of 320 (IQR 20-1280) upper abdomen and 240 (IQR 20-640) bowel ultrasound examinations. A total of 39 did not perform any bowel US. More than half (55%) completed independently >300 abdominal US (Level 1 EFSUMB sonographer).

Seventy-four point five percent of respondents believe in the value of US education for their future clinical practice. At the univariate logistic regression, being >30 years old and working in a non-academic hospital were factors associated with a positive result in the questionnaire, with a statistically significant association (OR 2.406; 1.142–5.168, p<0.05). Multivariate analysis showed that the respondents who stated to feel confident in performing abdominal US independently had higher points on the test (OR 0.370; 0.161-0.850, p<0.05 at the multivariate logistic regression) (Table).

Factors associated with high scores (>14/22) in the test	n of respondents with high scores (%)	Univariate logistic regression (OR 95% CI)	p	Multivariate logistic regression (OR 95% CI)	p
Age					
<30	29/60 (48%)	0.970 (0.588-1.600)	0.906		
<40	36/50 (72%)	2.406 (1.142–5.168)	0.021		
Workplace					
Academic	44/82 (54%)	1.157 (0.750-1.787)	0.508	2.409	0.079
Not Academic	21/28 (75%)	2.590 (0.992-6.761)	0.052	(0.902-6.434)	
Clinical role					
GI Resident	43/79 (54%)	1.194 (0.767-1.859)	0.432		
Consultant	22/31 (71%)	2.046 (0.837-4.998)	0.116		
Do you feel confident in performing GIUS/UAUS independently? Yes	33/45 (73%)	0.352 (0.155-0.800)	0.013	0.370 (0.161-0.850)	0.019
US service in the GI unit	58/99 (59%)	1.237 (0.339-4.502)	0.747		
Do you believe that it is useful to perform UAUS or GIUS independently for a young GI specialist? Yes	24/28 (85%)	6 (1.912-18.82)	0.002		

Table. Uni and multivariate logistic regression for the evaluation of factors associated with higher scores in the multiple-choice test with images.

Conclusion: Most young Italian gastroenterologists believe US training has an important role for their education. However, their competence suffers from heterogeneous teaching.

GI Schools should provide standardized theoretical and practical (hands-on training and learning by doing) education for this essential examination.

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PP1680

IMPACT OF AN ONLINE CONTINUING MEDICAL EDUCATION CURRICULUM ON THE KNOWLEDGE, COMPETENCE, AND CONFIDENCE OF CLINICIANS WHO CARE FOR PATIENTS WITH EOSINOPHILIC OESOPHAGITIS

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Introduction: As a chronic condition, eosinophilic oesophagitis (EoE) requires lifelong therapeutic management and multidisciplinary care. Reports suggest clinicians managing EoE have gaps in knowledge and competence, which may lead to suboptimal patient outcomes. We aimed to assess whether a purpose-specific curriculum comprising a series of continuing medical education (CME) activities addressed these gaps.
Aims & Methods: Four faculty-led, CME-accredited activities on EoE were hosted on two free-to-access online medical education websites. Each activity provided 30–60 minutes of education in short videos and addressed learning objectives based on a review of published literature and expert insights. Educational outcomes were assessed using Moore's expanded outcomes framework Levels 1–4 (participation, satisfaction, knowledge, and competence, respectively). Intent to change practice and need for further education were also assessed. Level 1 data were captured using Google Analytics; Level 2–4 data were captured using pre- and post-activity questionnaires administered by an independent third party and analysed by the authors. Across the curriculum 21,032 participants engaged with the content, with a sample size of 800 available for the Level 2–4 analysis; the margin of error was calculated as ~3% based on a standard confidence interval of 95%.
Results: Within 12 weeks of launch, a mean of 5,258 participants engaged with each curriculum activity (Moore's Level 1). Mean satisfaction (Moore's Level 2) was high (87.3%) across the curriculum. From baseline to follow-up, significant average increases in declarative knowledge (24%, p=0.012), procedural knowledge (18%, p<0.001), and competence (16%, p=0.004) were observed (Moore's Levels 3a, 3b, and 4, respectively) (Table). Gastroenterologists had the highest proportion of correct answers at follow-up across all activities (86–95%). Allergists/immunologists had the largest increase in knowledge from baseline to follow-up (51%, activity 1); the smallest increase was seen for gastroenterologists (7%, activity 2). For all specialities, the lowest proportion of correct answers at follow-up was for questions on pathophysiology/causes of EoE (Table). Overall, 64% of learners would change their practice following participation in ≥1 curriculum activity and ~20% indicated further education would be beneficial.

			Baseline	Follow-up	P-value
Average proportion of clinicians answering questions correctly across the curriculum by Moore's level (%)	Level 3a (declarative knowledge)		63	87	0.012
	Level 3b (procedural knowledge)		74	92	<0.001
	Level 4 (competence)		75	91	0.004
Average proportion of clinicians answering questions correctly across the curriculum by speciality and question theme (%)	Pathophysiology of EoE	Immunologists/allergists	56	85	0.011
		Gastroenterologists	61	86	
	Chronic nature of EoE / need for long-term management	Immunologists/allergists	92	94	
		Gastroenterologists	87	97	
	Biologic treatments	Immunologists/allergists	79	92	
		Gastroenterologists	77	95	

Conclusion: This expert-led, CME curriculum led to significant improvements in clinician knowledge and competence surrounding the latest research and best practices in the pathophysiology, diagnosis, and management of EoE, which may lead to improvements in patient care and outcomes. Findings support further development of online, multiformat educational activities to address clinical knowledge and competence gaps. Future programs should focus on the underlying pathophysiology of EoE and how this may inform practice.
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PP1681

ADVANCING TREATMENTS FOR NON-ALCOHOLIC STEATOHEPATITIS (NASH) AND NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD): TRENDS AND OPPORTUNITIES

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Introduction: Several factors, including increasing disease prevalence, high unmet need and growing understanding of the diverse mechanisms underlying disease pathogenesis are contributing to an increased interest in clinical research in NASH and NAFLD.

Aims & Methods: We undertook an analysis of metadata from Clinicaltrials.gov (CT.gov) to characterize trends over the last 10 years and what this may tell us about the future trajectory for treatment development. CT.gov was searched for studies containing the terms “NASH” or “Nonalcoholic Steatohepatitis” or “Nonalcoholic Fatty Liver Disease” or “NAFLD” or “NASH Cirrhosis” or “Fatty Liver Disease” or “Metabolic Steatosis” posted from 01-Jan-2013 and 31-Dec-2022. Expanded access programs were excluded as these were not considered research studies. 1095 records were returned, of which 32 were excluded as their focus was on conditions other than those of interest. 1063 studies in the analysis were divided into two equal periods: P1 - 2013 to 2017, and P2 - 2018 to 2022, and analyzed by study type, study phase, intervention type and funding.

Results: Studies increased 100% in P2 vs P1, with the most marked increase in early phase studies (108%). The majority of studies were interventional (798 [75%]), which increased by 91% in P2. Observational studies also increased markedly in P2 (131%). Drugs were the most common study intervention (39%), increasing by 98% in P2. There was also a notable increase in the number of diagnostic studies in P2 (871%), the majority of which were studies of non-invasive methods for staging liver fibrosis. 64% of studies were non-industry funded, which increased by 82% in P2. Industry funded studies increased by 140%, with the largest increase in the biotech sector (174%).

Conclusion: Our data provides evidence of a marked increase in clinical research activity in NASH and NAFLD in the last 5 years, particularly in early phase drug development and non-invasive diagnostic methods as an alternative to liver biopsy for staging fibrosis. This combined with the finding that most research has been non-industry funded suggests a growth in basic science that may translate into an increase in industry research in the future. This is supported by the finding that industry funded studies have increased more sharply than non-industry in the last 5 years.

Disclosure: Nothing to disclose.

PP1682

ENDOSCOPIC TIP CONTROL - A SIMPLE, EX-VIVO MODEL WITH POTENTIAL FOR ENDOSCOPIST BENCHMARKING AND TRACKING OF PROGRESS OVER TIME

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Introduction: Operator dexterity is recognised as a critical determinant of outcomes after surgery (1-2). No such recognition exists for the quality of endoscope tip manipulation (tip-control) and no objective measurement scale exists.

Aims & Methods: The aim of this study was to develop and validate a score for tip-control in an ex-vivo setting.

A web application containing a timed-score with clickable buttons to indicate correct and incorrect application of snare tip soft coagulation (STSC) was developed. The score was tested on a training model containing 4 shapes constructed from 1-4 identical circles (radius 1.4cm) connected at their mid-points drawn onto a single piece of cooked ham.

Endoscopists with varied profiles consented to video recording of their timed complete application of STSC (hits) to sequential circles using a gastroscope.

Correct application was defined as any visualised diathermy application touching the marked lines. Median correct-hits/incorrect-hits (accuracy) and correct hits/second (speed) were determined by a single rater over the 4 recordings and stratified by shape and endoscopist demographics.

Results: 22 endoscopists (8[36.4%] trainees, 6[27.3%] non-interventional consultant gastroenterologists and 8[36.4%] interventional endoscopists) participated.

Participant median accuracy was 82.0% (IQR17.5, 95%CI 77.0-85.0) and correct hits/second 0.141 (IQR0.095, 95%CI 0.120-0.160). Accuracy strongly correlated with blinded rater opinion of the macroscopic ham appearance (correlation coefficient=0.78, P<.001).

	Median Accuracy Group of Interest (IQR) [95%CI]	Median Accuracy Remaining population (IQR) [95%CI]	P	On Target Hits / second Group of Interest (IQR) [95%CI]	On Target Hits / second Remaining population (IQR) [95%CI]	P
Overall	82.0 (17.5) [77.0-85.0]	-	-	0.141 (0.095) [0.120-0.160]	-	-
Trainee	73.6% (8.1) [67.6-79.6]	85.5 (16.9) [79.6-91.4]	0.25	0.114 (0.046) [0.078-0.150]	0.153 (0.078) [0.097-0.209]	0.03
Consultant - not interventionalist	69.0% (15.8) [59.0-79.0]	81.8 (15.0) [77.2-86.3]	0.15	0.138 (0.028) [0.113-0.162]	0.135 (0.110) [0.081-0.190]	0.97
Consultant - interventionalist	88.0% (5.8) [83.9-92.1]	72.1 (14.7) [66.8-77.4]	0.01	0.191 (0.128) [0.102-0.280]	0.125 (0.07) [0.102-0.147]	0.04
>1000 colonoscopies	85.5% (10.8) [79.6-91.4]	72.5 (9.3) [66.8-78.2]	0.09	0.157 (0.092) [0.097-0.217]	0.114 (0.056) [0.082-0.146]	0.04
>5 years experience	88.0% (5.19) [79.9-96.1]	76.0 (14.5) [71.2-80.8]	0.07	0.151 (0.077) [0.070-0.232]	0.132 (0.061) [0.085-0.178]	0.36

Table 1. Comparison of the median tip-control accuracy and the on target per second per participants groups. CI, Confidence Interval; IQR, Interquartile Range; P, P-value; SMSA, size-morphology-site-access score for determining level of complexity of polypectomy; pEMR, piecemeal endoscopic mucosal resection.

A scatter plot of endoscopist accuracy versus correct hits/second categorized endoscopists into 4 groups (combinations of accurate/inaccurate, fast/slow)(Figure 1). Interventional endoscopists were commonly fast and accurate (accuracy 88.0%[P=.001], correct hits 0.191/s[P=.04]) versus other participants. Non-interventional consultants had the lowest accuracy numerically and statistically similar tip-control to other participants (accuracy 69.0%[P=.15], correct hits 0.135/s[P=.97])(inaccurate). Trainees had similar accuracy to non-trainees but lower correct hits/second (accuracy 73.6%[P=.25], correct hits 0.153/s [P=.03])(slow). Endoscopists with >5 years experience did not have better tip-control (accuracy 88.0%[P=.07], correct hits 0.132/s[P=.36]) when compared to the rest of the participants (table 1).

Conclusion: This is the first demonstration of an ex-vivo objective tool to assess the quality of endoscopic tip manipulation. Tip-control reliably stratifies endoscopists by important demographics including interventional profile, number of polypectomies performed and those performing difficult polypectomy but does not correlate with years of endoscopy experience.

If tip-control can be linked to established performance indicators it may provide an objective benchmark for endoscopy and interventional procedures allowing tracking of progress over time.

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PP1683

PERCEPTIONS AND PRACTICES ON CLINICAL USE OF PROBIOTICS: A NATIONAL SURVEY OF HEALTHCARE PRACTITIONERS

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Introduction: Probiotics have the potential to be used for the prevention and treatment of various medical conditions. In Greece, perceptions and practices concerning the clinical use of probiotics remain uncertain.

Aims & Methods: This study is an initiative of the Hellenic Society for the study of Helicobacter Pylori and Other Gastrointestinal Infections (EEMELOP) aiming to evaluate how healthcare practitioners (HCPs) perceive and use probiotics in clinical practice. A closed-ended, 20-item, online questionnaire was distributed via email to HCPs throughout Greece. The questionnaire was based predominantly on multiple-choice questions, focusing on perceptions of HCPs regarding the appropriate indications of probiotics, timing of administration and safety.

Results: From 725 questionnaires sent, 185 (25.5%) HCPs provided feedback. The majority (97.5%) were gastroenterologists, most (60%) running their practice in the private sector, whilst 41.6% reported >20 years of practice. Fifty-one percent considered probiotics "definitively safe" and 31% "probably safe".

The most commonly recognized therapeutic indications were irritable bowel syndrome (IBS; 87.6%), prevention of antibiotic-associated diarrhea (84.3%), pouchitis (55.1%), prevention of Clostridiodes difficile infection (50.3%) and acute diarrhea (41.1%). HCPs recognized as most commonly prescribed strains of Saccharomyces boulardii (69.2%), Lactobacillus acidophilus (68.1%), and Bifidobacterium bifidum (57.8%).

Thirty-one percent reported to "always" prescribe probiotics in association to antibiotics, 25.9% "only during protracted antibiotic courses" and 17.3% "only in patients with a history of gastrointestinal symptoms". Forty-six percent reported to "always" prescribe probiotics during Helicobacter pylori eradication and 22.3% "frequently".

However, practices were heterogeneous, with 38.1% reporting that the length of probiotic supplementation should be "equal to" and 44.5% that it should be "extended beyond" the duration of the eradication regimen. Concerning IBS, 24.9% reported to "frequently" prescribe probiotics as first-line treatment and 23.2% "sometimes", most commonly for the IBS-diarrhea (78.4%) and mixed IBS (38.9%) subtypes. Most HCPs (69%) choose a multi-strain probiotic formulation for IBS therapy; however, their attitude was not similar regarding the optimal timing of response assessment, broadly ranging from 7 days to 3 months.

Regarding the optimal administration of probiotics in relation to meals, 50.8% agreed that "it depends on the formulation of the probiotic product", 18.9% responded "before meals", 15.7% claimed that "this is irrelevant" and 11.4% responded "after meals". Medical conferences (73.5%), pharmaceutical representatives (65.5%) and scientific journals (64.9%) were the most common sources of information on probiotics.

Conclusion: HCPs are familiar with probiotics, recommend them for a wide range of gastrointestinal conditions and consider them safe. However, apparent discrepancies in practice patterns underscore the need for continuous medical education and development of consensus recommendations, aiming to guide rationale use of probiotics in clinical practice.

Disclosure: Nothing to disclose.

PP1684

ASSESSING THE IMPACT OF PPI DEPRESCRIPTION EDUCATION METHODS IN THE ENGLISH PRIMARY CARE NETWORK

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Introduction: There is evidence that suggests proton pump inhibitors (PPIs) are overprescribed across UK Primary Care Networks (PCNs) and that this places a high burden on the NHS[1].

This study looked to implement a pilot system to support physicians in identifying inappropriate PPI therapy alongside promoting guideline-appropriate management[2].

Previous data published from this study[3] suggests that PPI overprescribing in English PCNs is prevalent with little evidence of structured follow-ups.

Aims & Methods: A system was designed and deployed in 62 surgeries across England, by Interface Clinical Services. Three deployment approaches were trialled: Tier (1) – data platform with resource materials, Tier (2) – Tier 1 and online support, Tier (3) – Tier 2 and pharmacist led mentorship supporting audit. The data platform uses data from the practice clinical system to assess prescribing practice. Patients were stratified according to demographics, PPI dosage, treatment duration and indication. To date, 80,218 patients have been identified of which 77,356 (96.4%) patients were eligible for consideration of PPI dose reduction or deprescribing.

Results: There were ~42,800 patient prescriptions reviewed in Tier 1&2 where it was assumed that 1666 (3.89%) patients were eligible for step down and 41,038 (95.83%) patients were eligible for step off. the remaining 0.28% were ineligible for step down or step off. In Tier 3, there were ~34,500 patients prescriptions reviewed. It was assumed that 1266 (3.67%) patients were eligible for step down and 33,103 (95.86%) patients were eligible for step off. When it came to assessing actual recommendations, 1031 (2.99%) of patients were stepped down, with 7890 (22.85%) patients stepped off.

Conclusion: When a deprescribing specialized pharmacist was deployed in the English PCN to support with medicines audit, an approximate 26% decrease in PPI prescriptions were observed. This data proves that this 'hands on' approach to deprescribing is an effect method.

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Disclosure: K. Plehhova, J. Wray, C. Coyle and A. Dawson are all employees of Reckitt Benckiser Health Ltd.

S. Sutton and J. McArdle are both employees of Interface Clinical Services, an IQVIA buisness.

PP1685

PSYCHOLOGICAL INTERVENTION IMPROVES QUALITY OF LIFE, BUT SURVIVAL IN PATIENTS WITH EARLY-STAGE CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

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Introduction: Psychological interventions (PI) are rapidly increasing in every disorder, but their effectiveness, particularly in malignant diseases, is still debated. Here we aimed to investigate the effect of PI on survival and quality of life (QoL) in patientswith cancer.

Aims & Methods: The systematic search was performed in MEDLINE, Cochrane and Embase databases from inception until 18th October 2021 to identify randomized controlled trials comparing PI to standard care. Outcomes were overall survival (OS), recurrence-free survival (RFS) and different domains of QoL: global, emotional, social and physical. Subgroup analysis was performed based on intervention provider, -type, -environment, -duration and cancer stage. Pooled hazard ratios (HR) and standardized mean difference (SMD) with 95% confidence intervals (CI) were calculated with a random effect model.

Results: 129 articles were eligible for data analysis. The OS and RFS did not differ significantly between the groups (OS: HR=1.01; CI: 0.95,1.07; RFS: HR=0.99; CI: 0.84,1.16). However, our analysis showed significant improvements in the intervention group in all the analyzed domains of QoL; the global (SMD=0.84; CI: 0.37,1.31), emotional (SMD=0.52; CI: 0.20,0.83), physical (SMD=0.45; CI: 0.11,0.79) and in the social (SMD=0.34; CI: 0.08,0.60). Importantly, the effect of PI on QoL was positive immediately, 12 and 24 weeks after intervention, but not at 48 weeks. The effect was mainly observed in early-stage cancer patients.

Conclusion: Even though PIs do not prolong survival, they significantly improve the QoL. PI should be implemented 3-4 times per year as standard care at least for patients with early-stage cancer.

Disclosure: No conflict of interest.

PP1686

IMPROVING TRAINING IN ENDOSCOPIC MANAGEMENT OF UPPER GI BLEEDS (UGIB)

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Introduction: Contributing to the on-call Upper Gastrointestinal Bleed (UGIB) rota is a crucial part of a consultant gastroenterologist's role. There is no standardised training in managing UGIB as part of the gastroenterology curriculum in the UK, with wide variation in experience amongst registrars by completion of training. Furthermore, with UK Gastroenterology training now reduced to four years, there are fewer opportunities for trainees to gain experience in UGIB. The Bristol Endoscopy Training Collaborative (BETC) developed an Upper Gastrointestinal Haemostasis Course to provide delegates with formal upper gastrointestinal bleeding training. The JAG pilot Upper GI Haemostasis course developed by BSG EQIP initiative was used as template (1)

Aims & Methods: We ran four 1-day courses at Vesalius Clinical Training Centre, Bristol, between November 2021 and November 2022, with 8 delegates & 4 faculty per course. Each course cost approximately £3000 to deliver, including venue hire and porcine models, and was fully funded by the Southwest Endoscopy Training Academy & Health Education England. The course programme included small group, hands-on training for use of adrenaline injection, heater probe, clip placement, haemostatic powder, variceal banding and sclerotherapy. Porcine models (MedMeats) with simulated bleeds were used with accessory & equipment support from industry partners. Hands-on training for Sengstaken Tube (Steris) insertion and oesophageal stent (Danis) placement was demonstrated with plastic models.

Non-technical skills were taught using small group discussions covering topics including on-call role play, prioritisation in UGIB, pathology recognition, and report writing. Pre- and post- course confidence surveys were sent to delegates, and comparisons were made with the Mann-Whitney-U test. If quoting a company specific product need to reference company e.g. Hemospray (Cook Medical, Indiana, USA).

Results: 31 delegates attended the four courses, with fully completed questionnaires obtained from 23 delegates. Most (21 of 23) participants were gastroenterology registrars; urgical registrars, consultant gastroenterologists and clinical endoscopists also attended.

All delegates stated they would recommend the course to a colleague. Self-reported improvements were seen for all learning objectives:recognising pathology, technical skills and report writing. Most notably, confidence in holding the out of hours on call phone for UGIBs improved from an average of 4/10 to 8/10, (p value < 0.005).

Conclusion: We describe a cost-effective single-day course to improve training in management of UGIB. This course can be reproduced at other regional centres. Those looking to refresh or up-skill UGIB management would also benefit.

Reference: 1. http://dx.doi.org/10.1136/gutjnl-2019-BSGAbstracts.484

Disclosure: Nothing to disclose.

PP1687

LEARNING OF DIGESTIVE ENDOSCOPY IN TUNISIA: ARE THE PRINCIPLES OF MEDICAL ETHICS RESPECTED?

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Introduction: The education of gastroenterologists in training must include training and practical application in order to acquire expertise and independence as an endoscopist. This raises important ethical questions. Nevertheless, there is a conflict between our ethical duty to respect the autonomy, dignity, information and consent of the patient on the one hand, and the technical and practical aspect of the training of future specialists on the specialists on the other hand. The objective of our work was to evaluate the attitudes and general knowledge of gastroenterologists in the field of medical ethics from their learning stage.

Aims & Methods: We conducted a prospective and evaluative cross-sectional and evaluative study, using a questionnaire. We interviewed 162 physicians, concerning their training period : 134 specialists in gastroenterology, divided into 69 hospital doctors and 65 private doctors. The remaining 28 were residents in their third and fourth year of training.

Results: One hundred and sixty-two physicians participated in our study and completed the questionnaire. The sex ratio M/F was 0.51 and the mean age was 35 +/- 5.4 years.

Before performing their first endoscopic procedures on patients, 76.5% of the gastroenterologists had no prior practical training.

Under the supervision of the senior, the majority (72.8%) performed the gastroscopy during the first semester of training (first internship), while the majority (46.3%) performed colonoscopy after the first year of training. In the absence of a supervisor, the majority of proctological examinations were performed In the absence of a supervisor, the majority of proctological examinations were performed during the first trimester of training (57.4% of operators). The gastroscopy and colonoscopy were mostly performed after the first year of training (65.4% and 91.3% respectively).

In response to the patient's question: Who is going to perform the endoscopic procedure on me? The majority of gastrologists, 76.6% (n=124) would have given the correct information and 23.4% would have given false or unclear answers. Simple, fair and clear information on the different aspects of the care was often given to the patient; the indication for the examination was explained by 85.8% of the respondents (n=139), the procedure and the discomfort by 79.6% of the respondents (n=129). On the other hand, information about possible side effects and complications was not given in the majority of cases (82.7% of gastrologists, n=134).

A minimum of two minutes was dedicated to the explanation of the endoscopic examination: 35.8% of the learners gave the patients two minutes (n=58), almost half, i.e. 51.9%, gave them between two and five minutes (n=84), 11.7% gave them between five and ten minutes, and only one gave them more than ten minutes.

Only 22.2% of participants introduced themselves to patients as the physician in training and 17.9% introduced the nurse in the endoscopy room.

A minority of gastroenterologists in training, 19.1% (n=31), required an informed consent signed by the patient before performing the endoscopic procedure (gastroscopy and colonoscopy). All respondents gave patients time to reflect before the endoscopy, mostly between two and five minutes (52.5%).

Conclusion: Our study showed that there are clear gaps in medical ethics in digestive endoscopy training. Therefore, better supervision and training programs in medical ethics should be offered to hepatogastroenterology residents in their first year of training to ensure skill development on the one hand and patient safety on the other.

Disclosure: Nothing to disclose.

PP1688

AWARENESS AND PERCEPTIONS ABOUT PROTON PUMP INHIBITORS USAGE AMONG PHYSICIANS IN INDIA: A SURVEY

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Introduction: Proton pump inhibitors (PPIs) are commonly prescribed drugs in preventing and treating certain conditions for definite time periods. However, evidence suggests an association of wide range of adverse effects with unwarranted and incongruous sustained PPI use. Discrepancies in prescribing PPIs appears to revolve around physician attitudes and self-justified perceptions. This survey was conducted to evaluate the knowledge and perceptions of PPI-related adverse events among physicians, and subsequent change in behaviour associated with the use of PPIs.

Aims & Methods: This was a prospective, questionnaire-based, multicentric survey with data collected from physicians across India who have volunteered to participate in periodic surveys.

Respondent's familiarity on adverse effects with PPI use				
	Not at all	Slightly	Somewhat	Very much
Familiarity with published scientific data on possible adverse effects from PPI use	64 (13.76%)	233 (50.11%)	139 (29.89%)	29 (6.24%)
Has recent evidence about adverse effects of PPIs changed prescribing habits?	62 (13.33%)	224 (48.17%)	176 (37.85%)	3 (0.65%)
How concerned are you about adverse effects when prescribing PPIs?	59 (12.69%)	264 (56.77%)	140 (30.11%)	2 (0.43%)
Frequency of discussing risks of adverse effects with patients before starting PPI	75 (16.13%)	233 (50.11%)	154 (33.12%)	3 (0.65%)
Frequency of patients on PPI therapy to bring up concerns about the risk of adverse effects?	80 (17.20%)	240 (51.61%)	144 (30.97%)	1 (0.22%)

Table: Respondent's familiarity on adverse effects with PPI use

Results: The survey was completed by a total of 465 physicians. The survey comprised of questions, with multiple choice answers, about general familiarity with concern about possible PPI adverse effects, awareness and beliefs about adverse effects, when to continue and deprescribe PPI. The physicians were also questioned regarding the extent to which they changed their prescribing habits as a result of studies of adverse effects. A significant proportion of physicians were unaware of the specific adverse

effects with PPI use. Most were slightly concerned about adverse effects when prescribing PPIs; nearly 48% physicians somewhat changed their prescribing practices for PPIs on account of these adverse effects. More than half (55%) survey responders perceived the PPI to be moderately effective at reducing the risk of upper gastrointestinal bleeding, whereas 26% believed it was slightly effective, 17% as very effective, while 2% felt it was not effective at all.

Conclusion: There is a need for strategies to alter behaviour based on a physicians' awareness of NSAID risks, indications for PPIs, besides prescribing approaches in hospitals. Healthcare practitioners could benefit from explicit guidance about scenarios in which patients can safely discontinue the use of PPIs, and regarding strategies for de-escalation that are most likely to succeed. There should be a strong foundation for prescribing PPIs, and a balanced regime to be followed for only as long as essential, at the lowest effective dose avoiding avertible prescriptions.

Disclosure: Nothing to disclose.

PP1689

DEVELOPING A REGIONAL SIMULATION FACULTY TO DELIVER ENDOSCOPIC NON-TECHNICAL SKILLS TRAINING

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Introduction: Non-technical skills training is a key component to developing an effective endoscopy workforce. The South-West Endoscopy Training Academy (SWETA), set out to train faculty to deliver this training across multiple endoscopy units throughout our region. This initiative is fully funded by Health Education England (HEE) via SWETA.

Aims & Methods: Enthusiastic endoscopy educators were sought to attend an adapted one-day train the simulation trainers course. They learned educational theory, debriefing skills and ran their own simulation scenarios. Each participating unit received simulation equipment including a simulated vital signs monitor and manikin to be able to deliver in-situ simulation sessions on their own endoscopy units. A portfolio of endoscopy-based scenarios was made available online. A pre-intervention centralised confidence survey was used to identify areas of perceived strengths and weaknesses within the endoscopy workforce to help focus training. This will be repeated after the study period so any improvements in staff confidence can be demonstrated. Post training feedback was collected online from participants following each sim session delivered locally.

The endoscopy simulation faculty attend a quarterly network meeting online to share feedback and discuss training delivery. They are encouraged to develop their own scenarios, often based on real life events, and share any latent errors they have identified so learning can be disseminated across the region's endoscopy units.

Results: To date, 27 endoscopy staff including consultants, clinical endoscopists and endoscopy nurses from 10 endoscopy units have been trained as faculty between Mar-Nov 2022.

Pre-training confidence surveys from 49 endoscopy staff across 3 trusts have been collected highlighting perceived anxieties e.g. acting as a team leader and initiating management in a medical emergency. There was good knowledge of where emergency drugs and equipment were located and who to call in a medical emergency.

Eleven in-situ simulation sessions have been delivered in 3 units with feedback collected from 63 endoscopy staff. Example scenarios delivered included upper GI bleeding, over sedation and an acute asthma attack. Feedback has been universally positive. Participants described a renewed confidence to deal with medical emergencies, they appreciated the opportunity to receive feedback from their colleagues and were able to practice key communication and leadership skills. Latent errors were identified such as a faulty call bell in one endoscopy room and the lack of certain equipment e.g. rebreathe mask in recovery.

Conclusion: In-situ simulation is an effective method of delivering non-technical skills training to a regional multidisciplinary endoscopy workforce.

Disclosure: Nothing to disclose.

PP1690

DIGESTIVE ENDOSCOPY PERFORMED BY A RESIDENT IN TRAINING: PATIENT ACCEPTABILITY ASSESSMENT

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Introduction: The learning process of digestive endoscopy appears to conflict with the physician-gastroenterologist-patient contract. It is clear that the patient's rights clash with the duties of the endoscopist and learners.

The objective of our study was to evaluate the acceptability and experience of patients who underwent an endoscopic procedure performed by a resident in training.

Aims & Methods: We administered a questionnaire over a period of six months to 146 patients who underwent a diagnostic endoscopic exploration, Esophagogastroduodenoscopy (EGD) or Colonoscopy, 30 minutes after the examination, which was performed by a resident in training. The form was manually filled out by the resident operator. Patients were not informed of the level of training of the operator.

The questionnaire included demographic data of the patient (age and gender), the type of examination undergone, as well as 20 closed-ended questions grouped into four domains (Information provided to the patient, Conduct of the endoscopic procedure, Patient's estimation of the operator, Patient's trust in the operator).

Results: We surveyed 146 patients who had undergone a diagnostic endoscopic examination (esophagogastroduodenoscopy or colonoscopy) performed by a resident in training, 30 minutes after the procedure. Of the 146 patients, 91 had undergone esophagogastroduodenoscopy (62.3%) and 55 had undergone a scheduled colonoscopy (37.7%). The sex ratio was 1.17, and the average age was 50 years. The indications for the procedure were diverse, such as epigastric pain, iron deficiency anemia, abdominal pain, and constipation. The average duration of the symptoms was 17.75 months (range: four days to 84 months).

Before the endoscopic examination, the majority of patients (79%) had received a clear and correct explanation of the indicated examination, mainly on the day of the appointment. The time dedicated to this explanation was less than two minutes in 55% of cases.

None of the patients had signed an informed consent before the start of the endoscopic examination. During the endoscopic examination performed without sedation, all patients felt discomfort, which was moderate for most of them (52.7%).

The same was true for the colonoscopy, with discomfort felt by all patients, which was moderate for most of them (47.3%). According to the patients, the average age of the operator was 29 years (range: 20-50). The scientific level was overestimated by the majority of patients (69.9%), with 62.3% thinking that the operator was a qualified specialist and 7.6% thinking that he was a professor.

The majority of patients (90.4%) already knew that they could be treated by a resident in training when seeking care at a university hospital center. The level of trust was on average 8.29 on a scale of 0 to 10 (4-10). All patients agreed to be examined by the endoscopist present in the room before his or her presentation. However, 26.7% would have refused to be examined by a resident if they had known in advance.

A minority of patients would have preferred to be examined by an older physician (16.4%) or a physician of the opposite gender (5.5%).

Conclusion: Our study has shown that even though the principles of medical ethics appear to be addressed in our daily practice of digestive endoscopy, there are obvious shortcomings and gaps. Therefore, additional efforts should be made by the endoscopist to ensure the patient's right to information, respect for their dignity, autonomy, and consent.

Disclosure: Nothing to disclose.

PP1691

COMPLIANCE WITH PERFORMANCE METRICS FOR SMALL BOWEL CAPSULE ENDOSCOPY: WHERE DO WE COME FROM AND WHERE ARE WE GOING?

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Introduction: Auditing processes and outcomes is essential for the quality of healthcare services. Performance metrics for small bowel capsule endoscopy (SBCE) were defined by the European (ESGE) and American (ASGE) Societies in 2018 and 2022, respectively. This study aimed to evaluate compliance with these parameters in the periods following their publication.

Aims & Methods: Patients who underwent SBCE in two periods (2018-2019 and 2022-2023) in a tertiary Portuguese hospital were retrospectively evaluated. The bowel preparation protocols and the gastroenterologists responsible for video evaluation were the same in both periods. Clinical and procedure-related data were collected.

Results: A total of 348 capsule enteroscopies were included, 241 performed in the first period (2018-2019) and 107 in the second (2022-2023). All ESGE criteria were met in 63.9% of cases in the first period, and in 84.1% in the second. ASGE parameters were met in 59.8% and 73.8%, respectively. The indication was appropriate in 93.7%, with no difference between periods (p=0.180). In cases of overt bleeding, the timing was appropriate in 62.5% (considering 48 hours) or 84.4% (14 days), with a trend towards performing SBCE earlier in the second period. Patency testing was performed in 85.9% of patients with risk factors for retention, with significant improvement in the second period (80.1 versus 99.0%, p<0.01). Intestinal preparation was performed in 90.8% and was classified as adequate in 82.2% (p=0.132). Documentation of transit time was higher in the second period (74.3% versus 88.8%, p=0.04), while percentages of incomplete small bowel study (3.7%) or retention (0.9%), description of complications (97.1%), and written post-procedure recommendations (94.5%) did not differ. The overall diagnostic yield was 51.7% (p=0.536), with the use of standardized terminology being higher in the second period (71.7% versus 98.1%, p<0.01).

Conclusion: Significant improvement was observed in quality metrics between periods. However, there is room for improvement in the selection of patients for patency testing, timely placement in cases of bleeding (target >90%), and description of transit times (target >98%).

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PP1692

TRAINING IN EUS: CURRENT STATE OF TRAINING MODALITIES FROM A WORLDWIDE SURVEY

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Introduction: Endoscopic Ultrasound (EUS) is an advanced procedure requiring a formal and specific training. Currently position papers by American and European societies for endoscopy (ASGE and ESGE) have been published on required training modalities, but data on the adoption of such standards lack.

Aims & Methods: The aims of this study are to describe the current state of training in EUS around the world, investigate educational lacks and clarify expectations of trainees for their training period. A survey was administered to Next-Generation EUS Pre-Course 2023 participants, all EUS trainees<40 years of age. This comprehended 66 questions evaluating 5 topics: trainees demographic data and basic competences, training centers characteristics, training modalities adopted, activities after the end of training period, trainees expectations and opinions. Survey responses were analyzed using descriptive statistics.

Results: 114 EUS trainees replied from 5 continents (mostly from Europe); 59.9% males, 89.5% gastroenterologists (10.5% surgeons or internists). All trainees satisfied the basic requirements for endoscopic and ultrasonographic skills. 29.5% of trainees were trained in centers with EUS volumes<10/week. In the majority of cases training was performed adopting mostly or only linear probes (67.9%), 79.5% of training were in centers were same-session EUS-ERCP could be performed and 67.3% of trainees believed that the same person should be trained in both procedures.

In contrast to books, videos or conferences, phantom models and in-vivo/ex-vivo models were very rarely used during training, and also considered not very useful as learning opportunities. 61.1% of trainees aimed to achieve during training a complete autonomy in diagnostic EUS+FNA/FNB for all stations,plus at least an initial approach to therapeutic EUS. Most trainees affirmed that during training they expected more hands-on, therapeutic-EUS, FNA/FNB teaching on ultrasound machine and more focus on contrast/elastography skills.

Conclusion: EUS training around the world is variable and does not always respond to basic ASGE/ESGE suggestions. A higher volume of hands-on procedures with FNA/FNB should be guaranteed during training.It should be discussed whether a basic training period in EUS should include also an initial approach in therapeutic EUS, as expected by trainees.

Disclosure: Nothing to disclose.

PP1693

MANAGEMENT OF INTENTIONAL FOREIGN BODY INGESTION: EXPERIENCE FROM A UAE CENTRE

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Introduction: Intentional foreign body ingestion (iFoBI) is seen mainly among prisoners for secondary gains and in patients with psychiatric illness. European Society of Gastrointestinal Endoscopy (ESGE) guideline suggests that endoscopic removal is preferred for objects retained in the esophagus, large (≥2.5 cm in diameter) objects retained in the stomach, or long (≥ 5-6cm) or sharp objects in the stomach and proximal duodenum. We have seen a surge in the number of admissions with iFoBI at our hospital related to a change in pain medication policy at a local prison, with ensuing protests action. This presented an opportunity to study the outcomes and certain aspects of management in this group of patients. There is limited data on the outcome of non-endoscopic management of sharp ingested foreign bodies and the impact on length of stay.

The aim of this study was to describe our experience and outcomes of patients admitted with iFoBI at our centre.

Aims & Methods: We performed an observational retrospective study of all patients presenting with iFoBI at our hospital between October 2021 and December 2022 during which time we had a surge of admissions with iFoBI related to a change in pain medication policy at a local prison, with ensuing protests action. The nature, number, and location of ingested foreign body on imaging, outcomes as well as the management method including conservative, endoscopic removal and surgical treatment were analysed. We also analysed timing of endoscopy, impact of diet and laxatives and length of stay.

Results: A total of 49 episodes of iFoBI in 25 patients presented during the study period. All patients were male prisoners with a median age 33 years and 59% of UAE nationality. None of the episodes of iFoBI presented with oesophageal impaction. Ingested objects were variable in number and type, but they were mostly metallic, and 11 objects were regarded as high-risk objects such as sharp metal objects ≥ 5cm. Upper endoscopy was carried out in 11/49 based on ESGE guidelines of which 55% were after working hours which imposed a significant impact on the service. Most objects were not within endoscopic reach on presentation and patients were managed conservatively. Only one patient required surgical intervention to remove a 9 cm sharp metallic object that became impacted at the ileocecal junction and was causing significant edema and peri-terminal ileum inflammation as seen on cross sectional imaging. There was no relationship between the timing of endoscopy and complications such as perforation or obstruction (p value 0.035) or length of stay (p value 0.036). However, length of stay was prolonged while waiting for psychiatric evaluation (p value 0.056).

Conclusion: The majority of ingested foreign bodies, including sharp metallic objects, pass through the gastrointestinal tract spontaneously and without complications. Middle of the night endoscopy, which has significant impact on staff and resources, can be avoided in most cases of iFoBI except those with esophageal impaction. Most patients can be managed with watchful waiting and serial exams. Effective management strategy requires multidisciplinary approach to address the root causes for this behaviour with the aim of reducing future admissions with iFoBI.

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Disclosure: Nothing to disclose.

PP1694

WILL USE OF VIDEO GAMES HELP IN AVOIDING ERGONOMIC RELATED INJURIES IN ENDOSCOPIC PROCEDURES; A STUDY FROM PAKISTAN

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Introduction: Endoscopy is a complex competence which requires educative training and practice to ensure the procedure is performed correctly. Recently, the awareness of work-related musculoskeletal injuries (MSIs) among gastro- intestinal endoscopists has increased because of their ef- fect on the private and work life of clinicians as well as on the health care system. So the burning issue of avoiding ergonomic related injuries is emerging . in this aspect we are looking into how use of video games can help , asstudies shows the Video game users acquire endoscopic but not robotic techniques quicker, and training on video games appears to improve performance.

Aims & Methods: Thirty Gastroenterology residents (18 male, 12 female) volunteered to participate. The students were then randomized to control (group A) or ‚training' (i.e., video game practicing; group B) arms.In group B, each resident played three commercially available video games for 30 min on an X-box (Microsoft, Seattle, WA) for 8 weeks. 8 weeks later, all residents were allocated in endoscopy unit for 8 weeks and were given 5 cases / day and 5 days per week.A 22-question survey about ergonomics and work-related musculoskeletal injuries was sent to both arms.Responses were collected, and data were analyzed

Results: Of the total study population, 95.08% of Arm A were observed to have ergonomic injuries, whereas only 54.83% of ARM B had ergonomic injuries ($p<0.00$). Spearman correlation coefficients demonstrated a significant relation between many of the parameters, particularly right wrist and left thumb injury . Group B subjects improved significantly over those in group A . female gastroenterologists were more likely than were their male colleagues to have experienced injuries involving the upper back, by a margin of 49% to 36%.($p<0.007$) .Ergonomics training was highly desirable among respondents, particularly among those with previous injuries ($P = 0.0030$).

Conclusion: Correct ergonomics is a learned and practiced behavior. We believe that videogame use is a useful way to facilitate improvement in eendoscopic ergonomic behaviors. Simulation models can prove to be an important addition to the training arsenal.

We suggest that consideration of endoscopic setup, proper posture, and practice of postural resets along with incorporation of a user-centered design that accommodates the breadth of its users, rather than employing a onesize-fits-all approach are necessary components for a longer, healthier, and pain-free career.

Disclosure: nothing to disclose.

PP1695

CLINICAL, ENDOSCOPIC, AND HISTOPATHOLOGIC FINDINGS IN GASTROINTESTINAL AMYLOIDOSIS

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Introduction: Amyloidosis describes a group of diseases caused by the extracellular accumulation of misfolded serum proteins. Amyloidosis can affect all organs including the gastrointestinal (GI) tract. Symptoms like nausea, vomiting, diarrhoea, and abdominal pain suggest GI involvement of amyloidosis.

Furthermore, GI amyloidosis is associated with a higher risk of gastrointestinal bleeding, especially when mucosal lesions are present.

Aims & Methods: Our study aimed to evaluate the frequency of GI manifestations in patients with amyloidosis, characterize these patients clinically, and describe the endoscopic and histopathologic findings in GI amyloidosis.

A retrospective study was conducted at a German University Hospital, including a cohort of 61 patients with different types of amyloidosis between January 2004 and June 2022. Clinical, endoscopic, and histopathological data were retrieved from medical records and analysed.

Results: 61 Patients with different types of amyloidosis were included in the study cohort. 23 (37.7%) displayed GI involvement. The median age of the patients with amyloidosis and gastrointestinal manifestation at diagnosis was 62 ± 18.28 years. 60.9% were male. Among the amyloidosis types, 52.5% were amyloid light chain (AL), 21.7% were transthyretin (TTR), 13.0% showed amyloid A (AA), and in 18% of the cases, the type was unknown. The gastrointestinal organs affected were mainly the colon (65.22%), stomach (30.4%), rectum (30.4%), duodenum (26.1%), and ileum (21.7%).

Initial gastrointestinal symptoms were present in 78.3% of the patients and included mainly diarrhoea (34.8%), abdominal pain (30.4%), weight loss (26.1%), nausea/vomiting (21.7%), and loss of appetite (17.4%). Endoscopic findings were ulcerations (47.8%), mucosal inflammation (43.5%), polyps (26.1%), erosions (13.0%), vascular malformation, polypoid protrusion, submucosal haematoma, erythema, metaplasia, and diverticulum.

Histopathological findings included thickening of the vessel walls, (peri-) vascular and interstitial amyloid deposits, and in one patient, a polyp with amyloid deposits. GI bleeding occurred in 39.1 % of the patients during the course of the disease. The mortality rate 5 years after diagnosis was 30.4%.

Conclusion: Amyloid tends to deposit in the gastrointestinal tract, which, being easily accessible, is often the target organ for a pathological diagnostic examination. However, amyloidosis of the gastrointestinal tract, with biopsy-proven disease, is rare. Due to the low incidence of this disease, the diagnosis of gastrointestinal amyloidosis may be overlooked. Furthermore, considering the existing literature, there is a paucity of data on GI amyloidosis.

Therefore, clinicians must be aware of this manifestation when treating patients with amyloidosis, and if suspected, endoscopy with biopsy and histopathological examination should be performed.

Disclosure: Nothing to disclose.

PP1696

PREVALENCE OF BURNOUT SYNDROME IN A TERTIARY UNIVERSITY CENTRE IN ROMANIA

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Introduction: Burnout syndrome is a commonly seen in healthcare professionals, particularly in physicians who are exposed to a high level of stress at work and has a negative impact on the medical activity. The physicians who had have high burnout levels have been shown to commit more medical errors.

Aims & Methods: Aim: To assess the level of the burnout syndrome in a tertiary university centre of gastroenterology in Romania.

Methods. This observational study involved physicians from a tertiary gastroenterology university centre. An online questionnaire assessed the presence of burnout using the Maslach Burnout Inventory (MBI).

Results: A total of 64 physicians responded to the questionnaire. In terms of high burnout, 11 doctors (17.18%) had emotional exhaustion, 13 doctors (20.3%) had depersonalization, and 58 doctors (90.62%) scored low for personal achievement. There were statistically significant correlations between the personal accomplishment and exhausting scores and between the personal accomplishment and depersonalization scores, respectively (P=0.007, and P<0.001, respectively).

Conclusion: Physicians present an increased risk for burnout relative to workers in other fields. The high rate of burnout among physicians found by our study requires careful attention. Further studies aiming to identify other factors that contribute to burnout as well as measures to combat burnout are necessary. Professional societies should get involved in studying the factors that generate burnout among physicians as well as to find solutions to reduce them.

Disclosure: Nothing to disclose.

PP1697

CAN A GREEN SHOEBOX IMPROVE RESIDENT DOCTORS ENDOSCOPIC DEVELOPMENT - YES IT CAN

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Introduction: The training of gastroenterology residents in machine augmentd-simulated enviroment in Romania is a very limited feature and only available in the major university centers. The goal of this pilot study was to determine if a green designed simulator(Shoebox based endoscopic simulator-SBES) can mimic diagnostic endoscopy setting and thus improve endoscopy training for residents gaining dexterity and confidence.

Aims & Methods: A low-cost gastroscopy training model was created utilizing a budget of less than 10 Euro(gastroscope not included). Afterward, a training curriculum consisting of a sequence of tasks was designed to mimic standard techniques frequently utilized in gastroscopy. This curriculum was tested on the gastroenterology residents and nurses.

Development of competency in endoscopy among two gastroenterology first year resident with endoscopy naive skills was assessed during a month time while comparing it to two endoscopy naive nureses(having

only visual experience of 25 years) and an endoscopy naive first year resident with gaming/instrumental background(25 years of gaming and 20 years of guitar playing skills). Baseline was assessed by performance of a consultant.

Measurement of development were rendered by supervising faculty by recording “insertion time”,”depth of unassisted insertion”,”independent procedure completion”,”ability to identify endoscopic landmarks” and “level of confidence”.

Results: Simulator vs real life gastroscopy was assessed gaining 8/9 out of 10 points. Simulator trained residents outperformed endoscopy naive nurses by the end of the pilot study in all performance aspects(p=0.05). One however must mention that endoscopy naive nurses had a start baseline much nearer the consultant level in comparison to the residents.

Endoscopy naive resident with gaming/instrumental background held initialy a shorter “insertion time” in comparison to non gamer/instrumental counterparts.

All the assessed parameters improved gradually however the episodic assessment revealed induction reluctancy and by the end of the pilot study a steep lerning curve could be observed during thise training episodes. Confidence levels raised by the end of the study, reaching a medium level(scale 5 of 10)-consultant performace level was not reached(blinded subjects).

Conclusion: In this pilot study a month of SBES was utilized along with the GATE(gastroenterological education-training endoscopy)concept. The goal was to determine if SBES training can mimic in vivo training while enhancing competecy, dexterity and most of all self confidence. The subjective conclusion/wish of residents was to be able to continue with the simulated training. SBES training allows a wider accesability to train ex vivo and enhances faculty to be more efficient with their endoscopy practice while putting focus on sustainable care and being greener as well.

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Disclosure: Nothing to disclose.

PP1698

HOW IS IT TO BE AN ENDOSCOPIC NURSE IN SWEDEN? A NATIONAL SURVEY INCLUDING 67 NURSES PERFORMING ENDOSCOPY

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Introduction: There have been endoscopy nurses in Sweden for more than 2 decades. At least in the start, there were doubts and skepticism about their professional status.

We wanted to investigate, by survey, how Swedish endoscopy nurses experience their professional role today.

Aims & Methods: A written questionnaire comprising 44 questions were sent to all registered (n=70) endoscopic nurses in. Sweden. The issues included: education, work load, medical responsibility, medical support, education of other professional categories, further education, research and salary.

Results: Responses were received by 67/70 (96%); 55F/12M; median age 50 [range 33-64]. Number of years in healthcare: median 25 years [range 10-45]. Number of years performing endoscopy: median 5 years [range 0,5-20]. Dedicated time for endoscopy: n=26 100%; n=20 70-99%; n=18 50-69%; n=3 20-49%. Annual number of gastroenteroscopy: median 350 [range 20-1400]; colonoscopy: median 600 [range 150-1500]. The doctors assess referrals in 100%. During endoscopy, consultation by physician is rare and support is usually provided within 2-5 minutes (90%) and is seldomly perceived as an inconvenience and the reason is usually related to large polyps, cancer and difficult bleeding. Taking over the endoscopic procedure by the doctor - happens rarely. Appraisal of PAD-results is performed by almost all nurses, n=66 (98%). Two-thirds n= 41 (62%) of nurses are involved in endoscopic education and mentorship, which of 80% include residents. One n=1 nurse has an ongoing doctorial project.

A majority finds their professional role as positive, but n=23 (34%) have on various occasions felt opposed (82% by doctors; 18% by other nurses), however n=46 (69%) experiences strong positive support from the entire medical team. The median salary is approximately 4120 € [range 2900 – 5870] and n=40 (60%) find it not satisfactorily.

Conclusion: Endoscopy nurses in Sweden have over time been established as an important professional and educational contributor within endoscopy. The vast majority of endoscopic nurses find their job inspiring and rewarding, but there is still space for improvement.

Disclosure: Nothing to disclose.

PP1699

UNVEILING GENDER DISPARITIES IN NATIONAL GASTROENTEROLOGY CONFERENCES IN PAKISTAN: THE JOURNEY TOWARDS EQUALITY

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Introduction: The phenomena of the “glass ceiling” and “sticky floor” persist for women in academic medicine, despite ongoing efforts to address gender disparities. The lack of gender diversity in scientific conferences can lead to unconscious bias and discourage women from pursuing careers in gastroenterology.

No data exists on this issue in Pakistan, making it crucial to assess gender representation in the field.

This study aims to investigate gender dynamics in invited faculty and conference committee leadership in three major gastroenterology, and hepatology societies in Pakistan over the last 5 years.

Aims & Methods: In this cross-sectional study, the annual scientific programs from 2018-2022 of three major gastroenterology, and hepatology societies in Pakistan were reviewed. The gender makeup of the faculty invited as speakers, chairs, moderators, leadership (president), and program committee (chair organizing/scientific committee) was recorded and compared. Regression analysis was used to evaluate the trends for female representation over time for each role.

Results: The proportion of women faculty invited to all conferences was extremely low ranging between 7-20%. A subtle increase in women speakers and moderators was observed in PSSLD and PSG however, there was considerable variability in PSH.

There was no significant difference in the proportion of women in various roles. The trend of women’s representation across all three societies remained almost unchanged over time (slope=0.08, R2=-0.078, p-value=0.875). All program committee leadership roles were held by men, except in PSSLD (2021,2022) where a woman held a committee leadership position and more women were invited as speakers.

Conclusion: There was considerable variability in the representation of women across different roles in the conferences held by all three societies. While there was some improvement observed in the number of female speakers in certain conferences, there was no significant difference in the overall representation of women across all conferences and roles. Moreover, leadership positions were predominantly held by men.

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Disclosure: None.

PP1700

THE ROLE OF SEX HORMONES IN THE DEVELOPMENT OF CONSTIPATION. A CLINICAL PROSPECTIVE STUDY IN SUBJECTS WITH GENDER INCONGRUENCE ASSIGNED MALE AT BIRTH AND ASSIGNED FEMALE AT BIRTH DURING GENDER AFFIRMING HORMONE THERAPY

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Introduction: Functional constipation represents a common disorder, burdened by a significant impact on the patient's quality of life and a difficult clinical management, due to the absence of a known pathophysiological model. Considering that functional constipation predominantly affects females, many studies evaluated the role of sex hormones in development of this condition.
However, the literature limits are represented by the lack of in vivo studies and by the heterogeneity of the clinical and experimental characteristics of the study groups. Persons with gender incongruence (Assigned Male at Birth, AMAB, and Assigned Female at Birth, AFAB) that are undergoing Gender Affirming Hormone Therapy (GAHT) represent an interesting model for the study of sex hormones action in vivo.
Aims & Methods: This study aims to investigate the effects of oestrogens and testosterone on stool frequency and consistency; abdominal symptoms (pain, bloating); symptoms related to constipation (pain during defecation and difficulty in evacuation), defecation urgency.
Twenty-two subjects undergoing GAHT have been evaluated before and after 24 weeks of hormonal therapy based on oestradiol valerate gel (AMAB persons) or testosterone (AFAB persons) (1).
All subjects underwent clinical history, physical examination, and filled in the Patient Assessment of Constipation-Symptoms (PAC-SYM) questionnaire, which assesses the severity of symptoms related to constipation using a score (higher the score, higher the symptoms severity).
The subjects compiled a two-week daily diary, reporting frequency of evacuations, stool consistency according to the Bristol Stool Form Scale (BSFS), presence of pain related to evacuation, defecation urgency and other abdominal GI symptoms.
Blood samples were taken to assess the levels of β-estradiol and testosterone during therapy period. In AMAB, serum estradiol <200 pg/ml and testosterone <55 ng/dl were considered as therapy target levels. In AFAB, the target level of testosterone was 400-700 ng/dL (2). Statistical significance (p value <0.05) has been assessed using the chi-square test for categorical variables.
Results: A higher PAC-SYM score in all subscales was observed in AMAB persons. These subjects also reported more frequently stools type 1, 2 and 3 according to the BSFS.
On the contrary, AFAB persons reported a decrease in all subscales of the PAC-SYM score and softer stool consistency. No significant association was observed between hormonal levels and variation of the PAC-SYM score (all subscales) or the stool consistency.

		AMAB	AFAB	p- value
Number of subjects		10	12	-
Achievement of hormonal target levels (Number of subjects)	Yes No	7 (70%) 3 (30%)	7 (58,3%) 5 (41,7%)	-
PAC-SYM score (abdominal subscale)	Increase No variation or decrease	9 (90%) 1 (10%)	5 (41,7%) 7 (58,3%)	0,01
PAC-SYM score (rectal subscale)	Increase No variation or decrease	10 (100%) 0 (0%)	7 (58,3%) 5 (41,7%)	0,02
PAC-SYM score (stool subscale)	Increase No variation or decrease	10 (100%) 0 (0%)	6 (50%) 6 (50%)	0,01
Stool consistency according to the BSFS	Increased consistency (type 1, 2, 3) Soft stools (type 4, 5, 6, 7)	6 (60%) 4 (40%)	0 (0%) 12 (100%)	0,01

Conclusion: The results of this study suggest that sex hormones could play a role in the development of gastrointestinal functional symptoms. Therapy with oestrogens seems to cause the onset of constipation symptoms and the change of stools from normal to hard consistency suggests a possible slowdown of colonic transit. On the contrary, therapy with testosterone seems to relate with an improvement of constipation symptoms and stool consistency.
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Disclosure: Nothing to disclose.

PP1701

EXPLORING THE LANDSCAPE OF QUALITATIVE RESEARCH IN THE TOP 20 GASTROENTEROLOGY AND HEPATOLOGY JOURNALS: A 20-YEAR ANALYSIS AND THE RELATIONSHIP WITH SCIMAGO JOURNAL RANK INDICATOR

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Introduction: Qualitative research in healthcare consists of studies using a variety of methodological approaches to gain in-depth insights into patients' and practitioners' experiences, perceptions, and social dynamics, particularly in relation to clinical interventions and their real-world acceptability and efficacy.
There is growing concern regarding the underrepresentation of qualitative research in clinical journals,[1] including Gastroenterology with less than 0.1% of published articles in the top 10 Gastroenterology journals classed as utilising qualitative methods.[2]
Aims & Methods: In this piece of research, we seek to gain a deeper understanding of the nature of qualitative research published in the top 20 Gastroenterology and Hepatology journals, and identify if there is a relationship between journals' SCImago journal rank indicator, a measure of scientific influence that accounts for both citations and the prestige of the journals where the citations originate, and the number of qualitative

articles published in these journals over a 20-year period. We conducted a comprehensive PubMed search in April 2023, using a validated search strategy[3] that encompassed a combination of terms, including "interview," "qualitative," and "experience," to identify qualitative studies, including those employing mixed methods, excluding reviews, published between 2002 and 2022 in the top 20 GI journals ranked according to their SCImago score.

We used simple descriptive statistics to quantify the scope of the included articles, their provenance and the types of qualitative analytical methods used. We used Pearson's correlation coefficient to calculate the existence of any relationship between SCImago Journal rank indicator and the number of qualitative articles published per journal.

Results: We identified 68 journal articles (median 1 per journal, Q1=0, Q3=5, range = 0-17) that used qualitative methods for both data collection and, published in the top 20 GI journals over a 20 year period, making up less than 0.0008% of all published primary studies in these journals. Most focused on inflammatory bowel disease (n=30,44%) and liver transplant (n=16,24%), and were conducted in the USA (n=33, 49%) and the UK (n=12,18%). Most participants in the qualitative studies were patients (n=49,72%) and clinicians (n=25,37%).

The main methods used for data collection were semi-structured interviews (n=51,75%) and focus groups (n=17,25%). Thematic analysis was the most common qualitative data analytical method used (n=36, 53%). There was a weak, non-significant correlation (r(18)=-0.19, p=0.43) between SCImago journal rank indicator and the percentage of published qualitative articles.

Conclusion: Our analysis indicates that qualitative research remains notably underrepresented in the top 20 GI journals in the last two decades. A majority of the published qualitative studies centred on inflammatory bowel disease and liver transplant, were primarily from the USA and the UK, and frequently used similar qualitative data collection and analytical methods.

Although no apparent relationship between SCImago rank, and percentage of articles published that used qualitative methods was found, the lack of such articles in the top 20 GI journals suggests a potential bias against qualitative research by reviewers and editors or reluctance by researchers to submit qualitative articles to clinical GI journals.

Expanding the visibility of qualitative research in GI journals can enhance our understanding of patients' and practitioners' experiences and contribute to more comprehensive and patient-centred care in GI medicine.

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Disclosure: Nil to declare

PP1702

ASSOCIATION OF ENDOSCOPIST-PATIENT SEX CONCORDANCE AND COLONOSCOPY OUTCOME

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Introduction: Recent data has suggested that discordance between surgeon sex and patient sex is associated with a negative postoperative outcome (1). It is as yet unknown whether this is also true for endoscopists' performance in relation to endoscopist and patient sex. We aimed to assess if there is an association between endoscopist-patient sex discordance and colonoscopy outcome.

Aims & Methods: In a multicenter retrospective study all colonoscopy procedures performed between 2016 and 2020 in 17 hospitals were collected from a prospective endoscopy database. Coloscopies were categorized into colorectal cancer screening procedures and colonoscopies performed for other indications. Concordance sex was defined if endoscopist and patient had the same sex, discordance was defined if endoscopist and patient did not have the same sex. For each colonoscopy, patient discomfort (Gloucester comfort scale >4), cecal intubation, adenoma detection rate (ADR), and polyp detection rate (PDR) was recorded.

We used generalized estimating equations accounting for endoscopist age and experience (years of experience), patient age, year of procedure, ASA classification, adequate bowel preparation (Boston bowel preparation score ≥6), type of hospital (academic vs. non-academic) and type of sedation. Random effects incorporated were patient ID, hospital and endoscopist.

Results: Out of 235,101 colonoscopies, 44,944 screening procedures were performed by 103 endoscopists, of which 23,990 were sex concordant and 20,954 were sex discordant. The other 190,157 colonoscopies were performed by 196 endoscopists, of which 95.662 were sex concordant and 94.495 were sex discordant. In screening colonoscopies, sex discordance was associated with significantly more discomfort (aOR: 1.19; 95%CI, 1.04-1.37), lower ADR (aOR: 0.86; 95%CI, 0.82-0.90), and lower PDR (adjusted Odds Ratio (aOR): 0.84; 95%CI, 0.80-0.88) but not with cecal intubation (aOR: 0.9; 95%CI, 0.76-1.07).

In non-screening colonoscopies ,sex discordance was significantly associated with lower PDR (aOR: 0.95; 95%CI, 0.92-0.98) but not with discomfort (aOR: 0.99; 95%CI, 0.92-1.07), cecal intubation (aOR: 1.00; 95%CI, 0.94-1.06) and ADR (aOR: 1.00; 95% CI, 0.96-1.05). Subgroup analyses revealed no specific subgroup, and endoscopists' sex and patients' sex did not change this association (Table 1).

		Colorectal Cancer Screening colonoscopies	Non-screening colonoscopy
	Outcome	OR (95% CI)	OR (95% CI)
Female patients	Significant discomfort	0.685 [0.446 – 1.052]	0.815 [0.604 – 1.100]
	Caecal intubation	0.992 [0.607 – 1.620]	1.219 [0.740 – 2.008]
	ADR	1.020 [0.875 – 1.188]	1.037 [0.742 – 1.450]
	PDR	1.040 [0.879 – 1.231]	0.916 [0.789 – 1.062]
Male patients	Significant discomfort	0.721 [0.441 – 1.177]	0.952 [0.673 – 1.348]
	Caecal intubation	0.965 [0.652 – 1.428]	1.250 [0.711 – 2.196]
	ADR	0.938 [0.804 – 1.095]	1.018 [0.696 – 1.488]
	PDR	0.976 [0.829 – 1.150]	0.870 [0.729 – 1.039]

Table 1. Discordance vs concordance.

Conclusion: Sex discordance between endoscopists and patients was associated with more discomfort, lower ADR, and lower PDR in screening colonoscopies, and lower PDR in non-screening colonoscopies. These findings do not seem to be driven by a specific subgroup or endoscopists' sex, such as the case was in the study on the observed discordance between surgeon sex and patient sex and its associated negative postoperative outcome. Further studies are needed to confirm or invalidate these findings, as well as the clinical relevance.

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Poster presentations
Endoscopy general GI tract

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Endoscopy general GI tract

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PP1703

GREEN ENDOSCOPY PRACTICE SURVEY OF THE FRENCH SOCIETY OF DIGESTIVE ENDOSCOPY (SFED)

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Introduction: Sustainability is a major issue that doesn't spare the field of digestive endoscopy. Bearing that in mind, the French Society of Digestive Endoscopy (SFED) created the Eco-responsibility and Sustainability Commission in 2021 and conducted a survey on green endoscopy practices throughout France.

Aims & Methods: Two digital forms (Google® Mountain View California, USA) were created and sent via the SFED mailing list (doctors and nurses). Data collection took place from January to April 2022.

The first questionnaire included 32 questions, regarding participants, their sensitivity to the ecological cause (using a numerical scale up to 10, the highest sensitivity) their use of small devices, the type of water used, their knowledge of biomedical waste (BMW), the clothing worn in the endoscopy room (ER) and recycling loops.

The second questionnaire consisted of 31 questions, concerning the participants, whether they had already taken ecological action on a personal level, their data storage systems and their means of transportation.

Results: First questionnaire: 707 people from all over France responded out of 9911 recipients of the SFED mailing list. Average environmental sensitivity was 7.5/10.

- Regarding the use of small devices : 88.4% of the participants use reusable valves. 49.5% use reusable bite blocks. 94.3% use single use hemostatic clips.
- Regarding the type of water used according to the endoscope use : for the aspiration tests, 32.6% use filtered tap water; for the insufflation and endoscope lens wash jar, 24.9% use filtered tap water; and for the irrigation pump, 71.9% % use filtered tap water.
- 96.5% of participants knew that BMW should be incinerated, but only 5.4% knew that for every ton of BMW incinerated, approximately 1 ton of CO2 is produced.
- Regarding he clothing worn in the endoscopy room : 71.2% of the participants wear fabric scrubs washed within the hospital, most of the surgical cap (87.6%) are use single use, but theatre clogs are mainly reusable (88.7%). When the participants are cold in the ER, in 63.4% they wear single use over shirt.
- Regarding recycling loops : there is a glass recycling loop in 73.1% ER, a plastic recycling loop in 59.3% and a paper recycling loop in 38.3%.

Second questionnaire: 385 people from all over France responded out of 9969 recipients of the SFED mailing list.

Average environmental sensitivity was 7.7/10. 90% of the participants have personally undertaken ecological actions, such as sorting waste, recycling, composting, buying less, cycling.

Storage : 24.6% of pictures are stored on a server, 35.1% are stored and printed, 30.1% are printed only.

Transportation : 21.6% of the participants go to work by bike, 60.3% by car, 8.1% by foot, 3.9% use public transportation.

Conclusion: To conclude, this practice survey is a global reflection of green endoscopy in France and allows us to have concrete results to base our efforts on to reduce the carbon impact of digestive endoscopy. To help us, the ESGE recently published its recommendations, and we can use the 3Rs rule: Reduce, Reuse, Recycle.

Disclosure: Nothing to disclose.

PP1704

WHAT CAN PATIENTS TELL US ABOUT SAFETY IN THE ENDOSCOPY UNIT? THE 'PATIENT REPORTED INCIDENTS OF SAFETY IN ENDOSCOPY (PRISE)' STUDY

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Introduction: Safety in endoscopy is of paramount importance with increasingly therapeutic and complex procedures. Despite safety initiatives, incidents still occur. In order to learn from these, we need to be able to better detect issues. The patient voice has been crucial in understanding healthcare from a different perspective. Specifically, patient reporting has been able to detect safety-related issues, which may not have been identified through other means [1, 2]. This is an area not previously explored in endoscopy.

Aims & Methods: Our aims were to develop a novel tool for patient reporting of safety incidents in endoscopy (PRISE), co-designed with patients. Secondary aims were to identify safety incidents, factors and perceptions. This study was split into two phases. Phase one involved a literature review of articles related to patient reported incidents, followed by patient focus groups to identify key topic areas to address and survey design

ideas. These findings informed development of the PRISE survey tool. A patient panel was created and, through regular refinement meetings with the research team, question items were created.

Phase two was a prospective pilot of the PRISE tool in a single academic centre. The survey was disseminated over an 8 month period through physical and electronic media. Patients were asked to complete this within 2 weeks of their procedure. Outcome measures included the percentage of positive responses (PPR) across question item domains, safety perception scores and number of safety incidents detected. Descriptive and comparative analyses were performed.

Results: In phase one, over 1600 articles were identified from search criteria. Following title, abstract and full text screens, 17 full text articles were included in the literature review. A total of 24 incident topic areas were identified. Three focus groups were conducted with 22 participants. Outcomes were focussed around five themes: question style, content, question items, timing, and dissemination. The PRISE co-design process was conducted over ten sessions. The final survey consists of the following sections: demographics, safety incidents and factors – 24 items, grouped into domains (pre-procedure, post-procedure, unit and staff), safety concerns – a qualitative section, and safety perceptions – a quantitative score. In phase two, 596 patients responded to the survey. Perceptions of safety were overwhelmingly high (mean rating 9.7/10). The PPR for all domains was > 90%, with the staff domain (items on staff characteristics) rated significantly higher than all others (96.7% PPR; $p < 0.001$). Four clear PSIs were identified - three related to equipment failure and one regarding wrong bowel preparation. Six patients (1.0%) declared safety concerns. Two patients felt they suffered from a mistake. The five highest negatively rated question items were related to information handover, management of patient concerns during procedure, physical space in the unit, equipment faults during procedure, and unnecessary delays in care respectively. Thematic analysis of comments identified negative themes related to bowel preparation, care process issues, communication, constraints on service, environment, equipment, procedures, and staff.

Conclusion: A patient co-designed pilot prospective survey identified high perceived safety in the endoscopy unit. Staff characteristics were rated highly. Safety incidents were detected as well as areas to focus on for safety improvement.

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PP1705

SAFETY OF ENDOSCOPIST-DIRECTED NURSE-ADMINISTERED SEDATION IN AN ITALIAN REFERRAL HOSPITAL: RETROSPECTIVE AUDIT ON 2 YEARS AND 19.407 PATIENTS

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Introduction: Balanced propofol sedation administered by adequately trained non-anesthesiologist personnel has gained popularity in GI endoscopy because of its shorter procedure and recovery time, high patient satisfaction, and low rate of adverse events (AEs), even if it's still considered controversial. We reported data from a retrospective audit of Endoscopist directed nurse administered sedation (ED-NAAS) over a 2-year period in an Italian referral hospital.

Aims & Methods: Consecutive endoscopic procedures performed between October 2020 and October 2022 were considered. Under the guidance of the endoscopist, the nurse administered 1 to 2mg of midazolam, followed by a progressive top-up dosages of 10-20mg bolus of propofol to achieve moderate to deep sedation. Fentanyl was administred based on the patient's weight if indicated. Endoscopists and nurses were all certified in our hospital with a continuous and scheduled training from 2006. The patients' characteristics, dosage of administered drugs, AEs during and after the examination, were all investigated. The following AEs were deemed minor but significant: bradycardia (≤50 beats/min ≥10 seconds), hypoxia (SaO2 ≤ 90% ≥10 seconds) and hypotension (systolic BP ≤100 mmHg with a drop ≥ 20 mmHg). Major consequences included death, a persistently low state of awareness, permanent harm, the need for an emergency anaesthetist evaluation, the need for hospitalization or endotracheal intubation.

To increase the sensitivity of AEs detection, reports were reviewed in these cases:

1. AEs declared in the report,
2. Search by string "desaturation" "hypotension" "bradycardia" "apnoea" "hypoxia" in the report,
3. Oxygen saturation level, systolic BP and heart rate ≤50 bpm annotated during the intra-procedural monitoring compared to parameters measured before sedation,
4. Patients administered flumazenil, naloxone, etilephrine, atropine.

Results: A total of 19407 examinations (7803 EGDS, 10439 colonoscopies, 77 PEG, 697 EUS and 365 ERCP) and 14415 patients were enrolled. 29.4% of patients were classified as ASA I, 66.5% as ASA II and 5.1% as ASA III. Balanced sedation with propofol was administered in 86% of EGDS, 94% of colonoscopies, 92% of EUS, 94% of ERCP and in 72% of PEG. Hypotension was recorded in 1293 (6%) examination, which required fluid infusion in 330 cases (26%) and in 8 cases etilephrine to restore blood pressure. Bradycardia was recorded in 176 (0.9%) patients, which required atropine in 134 (72.8%) cases. 11 patients (0.06 %) had a minor respiratory adverse event.

The mean age of patients of hypotension, bradycardia and respiratory adverse event was respectively 61.1±15 years, 64.3±15.3 and 55.6±16.2. ASA III patients were respectively 4.1%, 2.8% and 27.2% in the three groups of AEs.

The mean SD/median (25^{th}-75^{th} percentil) dosage of medications were respectively 2.0±0.7mg, 2.0±0.7mg, 1.8±0.3mg of midazolam, 71.0±34.5mcg, 68.0±31.0mcg and 62.5±9.5mcg of fentanyl, 94.0±74.3mg, 77.0±61.7mg and 120 (70-190)mg of propofol. BMI and Mallampati score of II were re-

spectively 23.0±4.5 and 72.8% in patients with respiratory AEs. 1 patient (0.001%) had a major AE, needing oro-tracheal intubation. He was 63 years old with unknown diagnosis of amyotrophic lateral sclerosis, with normal BMI, Mallampati score I, sedated with 2mg of midazolam + 80mg of propofol. Limits of the study include recall bias (missed cases of AEs not caused by sedation but because of examination itself, e.g., bradycardia or laryngospasm).

Conclusion: Balanced propofol ED-NAAS is safe in low-risk patients. Major adverse events occurred in 0.001% procedures.

Disclosure: Nothing to disclose.

PP1706

ELECTROSURGICAL KNIFE WITH THE WATER-JET FUNCTION OF TIP-TYPE DURING ENDOSCOPIC TREATMENT INJECTION

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Introduction: Recently, various electrosurgical knives with water-jet functions are available worldwide. However, their injection performances using water-jet functions have not been objectively evaluated thus far.

Aims & Methods: This study aimed to objectively evaluate the water-jet-functioned electrosurgical knife injection performances in a desktop experiment.

Five types of water-jet-functioned electrosurgical knives, including two injection styles of sheath-type (A: DualKnife J, KD-655L; B: FlushKnife, DK2620-J-B20S; C: Splash M-Knife, DN-D2718B; D: ISSEN, SN1650-20) and tip-type (E: ORISE ProKnife, M00519361) were evaluated. These knives were compared with an injection needle (Control: SuperGrip 25G) as a control. The injection speed under constant pressure and the injection efficiency for each knife against prepared porcine stomach mucosa were evaluated. The additional clear gel injections using an injection needle were observed using an indigo blue-colored gel to evaluate the difference between the locations of water-jet holes.

Results: Four types of knives, except for A, showed significantly higher water-jet speeds (A: 0.79 ± 0.03 g/20 sec, B: 2.56 ± 0.05 g/20 sec, C: 3.09 ± 0.06 g/20 sec, D: 2.86 ± 0.05 g/20sec, E: 1.79 ± 0.03 g/20 sec) compared to that of the control (1.21 ± 0.03 g/20 sec).

Meanwhile, significantly higher efficacy of injection was found in the tip-type water-jet function knife, second to the injection needle (Control: 37.2% ± 35.5%, A: 20.9% ± 20.2%, B: 1.1% ± 2.2%, C: 6.2% ± 12.6%, D: 12.5% ± 15.6%, E: 33.3% ± 32.2%).

An additional injection experiment revealed that the injection with a piercing tip into the gel could achieve sufficient additional injection inside the stacked clear gel.

Conclusion: The tip-type water-jet function electrosurgical knife is preferable for effective submucosal injection during endoscopic treatments.

Disclosure: Nothing to disclose.

PP1707

SINGLE-USE GASTROSCOPE REDUCES ENDOSCOPIST MUSCLE LOAD COMPARED TO REUSABLE GASTROSCOPE

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Introduction: As for any hand tool, the weight of the endoscope influences user comfort and the risk of developing musculoskeletal injuries, frequently occurring among gastrointestinal endoscopists [1; 2]. As a result, the endoscope weight reduction has been recommended to optimize the ergonomics of the endoscopes [3]. Because of the constituent material, single-use endoscopes are lighter than reusable ones, with a possible reduction of the muscle activation needed to hold and operate the endoscope.

Aims & Methods: The aim of the study was to compare the muscle activation while holding and operating two different gastroscopes with different weights. The activation of the forearm muscles using a single-use and a reusable gastroscope was measured using wearable superficial electromyogram (sEMG) sensors while holding the endoscopes and performing a set of standardized manoeuvres. 14 subjects (six females; median age 34 years; range 25-65 years) participated. The gastroscopes were a single-use (aScope Gastro, Ambu A/S, Denmark; weight: 0.6 kg) and a reusable gastroscope (GIF-1TH190, Olympus, Japan; 1.4 kg). The set of exercises included an initial 30-second rest position holding the endoscope statically; followed by two left-hand wheel rotations reaching a 90° tip up and down bend, respectively, and maintaining these positions for 10 seconds. Finally, the valves were pressed for 10 seconds each. The exercises were repeated three times with a 30-second rest position in between. The two gastroscopes were used in randomized order. A sleeve with embedded sEMG electrodes (ErgoSleeve, Myontec Ltd., Finland) was worn by the participants on the left arm to detect activation of the wrist flexor and extensor muscles. Before starting, the maximal voluntary contraction (MVC) was measured. sEMG data were processed using the connected software (Ergolink, Myontec Ltd., Finland), reported as muscle load (%MVC) i.e., the percentage of sEMG data normalized to MVC and displayed as average and standard deviation of the muscle load. Data were compared with paired t-test with statistical significance set at $p<0.05$ and calculated using Excel (Microsoft Corporation, USA).

Results: The muscle load was higher with the reusable gastroscope in the rest positions and during all manoeuvres (flexors [%MVC]: 6±2 vs. 5±2; extensors [%MVC]: 7±3 vs. 6±3; all $p<0.001$). We deduced that the gastroscopes' weight difference played a major role. In fact, also during the rest position during which no manipulation of wheels or valves was required, the muscle load was higher when the reusable gastroscope was used (flexors [%MVC]: 4±2 vs. 3±2; extensors [%MVC]: 3±1 vs. 2±1; all $p<0.001$). In a previous study regarding hand tool weight and its relationship with the development of postural tremor [4], the authors demonstrated that the heavier the tool, the shorter the time before detecting postural tremor (as example, 9 minutes for tools weighing 0.8 kg, 12 min for 0.4 kg). Considering that the majority of diagnostic gastroscopies last a minimum of 10 min [1], tremor is assumed to be inevitable when using reusable endoscopes. In fact, despite the weight is partially distributed on the insertion tube and the connection cord, the total weight of reusable gastroscopes is higher than 1.2 kg, while the one of single-use gastroscopes less than 0.6 kg.

Conclusion: Holding and operating a single-use gastroscope reduces the load on the left wrist muscles compared to a heavier reusable gastroscope. This benefits the user ergonomics, and may prevent or delay the development of tremor, fatigue, and musculoskeletal injuries.

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Disclosure: At the time of abstract submission, Dr. Veronica Bessone declares to be employed by Ambu Innovation GmbH, while Dr. Sven Adamsen to be medical advisor for Ambu A/S.

PP1708

DEVELOPMENT OF A GASTROINTESTINAL SYMPTOM SCALE FOR THE STANDARDIZED ASSESSMENT AND FOLLOW-UP OF PEDIATRIC PATIENTS

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Introduction: Accurate symptom assessment and monitoring over time is critical for effective patient management and research. Standard history taking is unavoidably influenced by both patient-related and physician-related factors. Patient reported outcome measures (PROMs) facilitate evaluation of patients and allow to better assess treatment effects. Validated tools are lacking for paediatric gastroenterological patients.
Aims & Methods: We aimed to adapt and validate for paediatric populations a self-administered Structured Assessment of Gastrointestinal Symptoms (SAGIS) tool that previously has been validated in adult cohorts. Each item of the original SAGIS instrument was thoroughly reviewed for its relevance in the paediatric population. The resulting paediatric (p) SAGIS was utilized over a 35 months' period in consecutive patients in a paediatric outpatient GI-clinic. Principal components analysis (PCA) followed by Varimax rotation and confirmatory factor analysis (CFA) was performed in derivation and validation samples. Responsiveness to change was assessed in 32 children with inflammatory bowel disease (IBD) after 12 months of therapy.

Children with IBD (n=32)	Initial Visit	After 1 year of therapy	p-value
Mean total GI-symptom score	0.41 ± 0.49	0.14 ± 0.33	<0.01
Abdominal pain	0.49 ± 0.66	0.19 ± 0.44	<0.01
Dyspepsia	0.42 ± 0.56	0.24 ± 0.54	<0.05
Diarrhea	0.37 ± 0.60	0.13 ± 0.49	<0.05
Constipation	0.57 ± 0.74	0.14 ± 0.35	<0.001
Dysphagia/Nausea	0.25 ± 0.39	0.14 ± 0.29	=0.09

Results: The final paediatric SAGIS consisted of 21 GI-related Likert-type questions, 8 dichotomous questions assessing extra-intestinal symptoms and two most bothersome symptoms. 1153 children/adolescents completed a total of 2647 questionnaires. Cronbach's alpha was 0.89, indicating good internal consistency. PCA supported a five-factor model (symptom groups: abdominal pain, dyspepsia, diarrhoea, constipation, dysphagia/nausea), CFA showed good model fit (CFI:0.96, RMSEA:0.075). The initial mean total GI-symptom score in IBD-patients (8.7±10.3) decreased to 3.6±7.7 after 1 year of therapy (p<0.01), and four of five symptom group scores decreased significantly upon treatment (p<0.05). The table shows responsiveness of p-SAGIS in children with IBD, total GI-symptom scores and symptom scores of pSAGIS-domains at the initial visit and after 1 year of therapy (data are given as mean±standard deviation).
Conclusion: The pSAGIS is a novel, easy to use, self-administered instrument for GI-symptom assessment in children/adolescents with excellent psychometric properties. It may standardize GI-symptom assessment and may enable uniform clinical analysis of treatment outcomes.
Reference:
Koloski NA, Jones M, Hammer J, et al. The Validity of a New Structured Assessment of Gastrointestinal Symptoms Scale (SAGIS) for Evaluating Symptoms in the Clinical Setting. Dig Dis Sci. 2017;62:1913-1922
Disclosure: Nothing to disclose.

PP1709

PREVALENCE OF MUSCULOSKELETAL DISORDERS RELATED TO DIGESTIVE ENDOSCOPY

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Introduction: Musculoskeletal disorders (MSDs) are disorders of the musculoskeletal system (muscles, tendons, skeleton, etc.). Work-related MSDs are MSDs caused or aggravated by working conditions.
Endoscopic activity is known for the non-ergonomic positions it imposes on the practitioner, responsible for joint constraints and a physical and mental workload.
Aims & Methods: The aim of our work is to measure the prevalence of MSDs among hepato-gastroenterologists (HGE) and to evaluate the risk factors.
This is an international multicenter observational, descriptive and analytical study from 04/01/2022 to 18/10/22, conducted among digestive endoscopy practitioners who voluntarily responded to a self-administered questionnaire via Google Form containing three parts: socio-professional characteristics of the surveyed HGEs, questions for the evaluation of MSDs and treatments taken and questions for the evaluation of the psychosocial environment and workload.
Data analysis was done by Jamovi 2.2.5 software.
Results: We recruited 417 participants with a median age of 37 [32; 48] with female predominance 250(60%) and a mean BMI of 24.9 (±3.44).
A participation of 79(19%) Residents, 246(59%) specialists and 92(22%) professors in HGE. The median endoscopic practice time was 84 months [84; 196].
Regarding MSDs, 171 (41%) of the participants had a history of muscular and joint disorders, the incidence of MSDs in the 12 months preceding the study was 120 (28.7%) and in the last 7 days 183 (43.88%).
The lower back 130(71%), neck 120(65.5%) and right wrist 75(41%) were the most affected areas. The least affected areas were the hips 20(11%) and the elbows 12(6.5%).
MSDs were found in 101 (43.7%) of the participants with a BMI > 24 kg/m2 against 53 (23.2%) who had a BMI < 18 kg/m2.
Practitioners with a long history of muscular and joint disorders had a higher risk of MSDs in the year compared to practitioners without a history of MSDs, with a statistically significant p value of p< 0.003 (52.6% vs 37.8%); there was also a statistically significant relationship between age;

length of time practicing endoscopy; practice of therapeutic endoscopy and the presence of MSDs in our participants, with respective p values of p<. 001(40-60years 61.2% vs <40years 30.5%); p=0.024; p<.001.
There was also a statistically significant relationship between the practice of advanced endoscopy (EE+ ERCP) and the presence of MSD in our participants with a p value p<.001.
Conclusion: Work-related MSDs remain a neglected subject, yet according to our study one practitioner out of 3 suffers from them. Age, overweight, length of time in endoscopic practice, and the number of endoscopies performed are the main risk factors for MSD.
Our results underline the importance of a rigorous and adequate prevention, by an adaptation of the work ergonomics and physical exercise to reduce the incidence of this professional pathology.
Disclosure: no conflicts of interest.

PP1710

EFFECTIVENESS OF ERGONOMICS PROGRAM BASED ON MOVEMENT ANALYSIS FOR EXPERIENCED ENDOSCOPISTS: A PILOT STUDY

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Introduction: Though the burden of musculoskeletal injury(MSI) by long-term accumulation of endoscopy procedures is well known, there is little data on the techniques that can reduce or prevent MSI.
Aims & Methods: The purpose of this study is to develop a new method for MSI assessment in long-term endoscopy practitioners and to establish an individualized MSI restoration plan through the special 16-week intervention of Kinetic Ergonomics based on Movement Analysis(KEMA) program by physical therapists.
Fifteen volunteer endoscopists practicing more than 10 years from 4 tertiary medical centers, were evaluated by demographics, endoscopy burden, location and degree of pain, and endoscopy posture. A comprehensive functional evaluations of ergonomic position, posture, and MSI and load during endoscopy was made by the physical therapist and self-perception questionnaire for involved joints was also evaluated. Then personalized KEMA program (musculoskeletal function evaluation and customized exercise program based on ergonomics) was delivered for 16 weeks by physical therapists on a one to one basis. KEMA program included recommendations for individualized exercises, static and dynamic posture re-education during and between procedures, optimization of procedure suite set-up and pain education. The endoscopists were re-evaluated regarding their perception and adherence to ergonomics and subjective symptoms at the end of the program.
Results: Various ergonomic problems were found to varying degrees in all 15 long-term endoscopy practioners including ergonomic inefficiencies and suboptimal movement patterns. Among 12 areas evaluated, pain areas were most commonly found in the order of the low back, neck, shoulder, wrist, and thumb. In addition, cumulative endoscopy time and neck and thumb pain, cumulative number of endoscopy cases and neck, back, and hip pain scores, neck and shoulder pain, and wrist and elbow pain showed positive correlations with each other. After 16-weeks KEMA program, among these 5 main painful joints, the remaining 4 joints (80%) showed improvement in the intensity and frequency of pain, except for the shoulder.
Before and after the program, the level of understanding of knowledge about ergonomics increased from an average of 28 points to 33.6 (5-point scale of 10 items), but unfortunately, ergonomic attitudes and performance did not show significant changes.
Conclusion: The evaluation of MSI based on kinetic ergonomics for endoscopists and customized exercise program helped to recognize one's own body condition and relieve pain and recovery of the MSI even with a relatively short-term management of 16 weeks. These ergonomic interventions used here could potentially contribute to career longevity, decreased burnout, reduce lost days of work and most importantly reduction in pain and fatigue among practitioners.
Disclosure: Nothing to disclose.

PP1711

BINGO - BLEEDING IN IRELAND, THE NATIONAL GASTROENTEROLOGY OUTCOME STUDY

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Introduction: Gastrointestinal (GI) bleeding poses a significant burden on inpatient care and significant in-patient mortality. Previous audits have demonstrated variation in practice, with patchy adherence to guidelines. In Ireland, information regarding patient outcomes from GI bleeding is scarce.
Aims & Methods: To follow the outcomes of patients admitted with gastrointestinal bleeding in Ireland, monitor trends in patient activity and to identify factors associated with adverse outcomes. A retrospective review of all acute admissions in Ireland between 2017 and 2022 with GI bleeding as the principal diagnosis was performed using the National Quality Assurance and Improvement System Application, an online tool that analyses patient data from discharge summaries. Demographics such as age, gender, admission source was recorded. GI bleeding was stratified into upper GI bleeds (UGIB) and lower GI bleeds (LGIB), with UGIB further classified as variceal and non-variceal GI bleeding based on relevant logged terms. Outcomes including mortality, readmission rates (7-day and 30-day), and hospital length of stay (LOS) were analysed. Regression analysis was performed to identify factors associated with adverse outcomes.
Results: Data from 16,456 emergency admissions was analysed. The median age was 70.5 years (IQR 53-81), 57.2% were male. Median LOS was 4 days (IQR 2-7). Overall mortality was 3.8% (n=625), 6.5% (n=1076) of admissions required high-dependency care and readmission rates within 7- and 30-days were 5% (n=818) and 12.2% (n=2013) respectively. Patient admissions were under a general medical team in 43.8%, a surgical team in 42.4% and gastroenterology in 12.9%.
Weekend admissions (Friday-Sunday) were associated with an increased median LOS (4.0 days vs 3.0 days, p<0.001). Patients admitted under Gastroenterology had a longer average LOS (6.9 days vs 6.3 days, p<0.001) compared to other services but had an overall lower mortality (2.8% vs 4.1%, p=0.013). No significant difference was observed in admission rates, LOS, mortality, 7- and 30-day readmission during the COVID pandemic.
UGIB (n=9546) data demonstrated an overall mortality of 4.0% (n=378) with significantly higher mortality (7.6% vs 3.7% p<0.001), ICU requirements (25.4% vs 7.1%, p<0.001), and 7-day (6.6% vs 4.8%, p=0.039) and 30-day (17.9% vs 12.3%, p<0.001) readmission rates seen in variceal bleeds vs non-variceal bleeds. LGIB (n=1842) admissions had a mortality of 2.1% (n=38), a median LOS of 4 days (IQR2-8) with majority (58.5%) of admissions being under a surgical team.

Older age (overall OR 1.054 [95% CI 1.045-1.062, p<0.001]) and an intensive care unit admission (overall OR 12.8 [95% CI 10.5-15.5, p<0.001]) were found to be independent variables predicting mortality across all types of GI bleed admissions. Older age also predicted 7-day and 30-day readmissions to hospital.

Conclusion: This is the first study to report national outcomes of patients admitted with GI bleeding and highlights variations which could be addressed by a GI bleeding care bundle. Patients with GI bleeding admitted at the weekend have a longer average LOS and suggest potential value of weekend endoscopy.

Disclosure: Nothing to disclose.

PP1712

WASTE AUDIT IN A LARGE SWISS ENDOSCOPY CENTER - FIRST STEP TO A GREENER ENDOSCOPY UNIT

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Introduction: Climate change is a major challenge to our future generations and environment, and limiting its effects is necessary in every aspect of our daily lives. Endoscopy units are one of the most resource-intensive hospital departments, producing large amounts of contaminated waste, mostly disposed of by incineration, generating large quantities of CO_2. The environmental impact of endoscopy needs to be better investigated as current ESGE/ ESGENA guidelines propose reducing waste by first creating awareness via implementing audits to assess waste production[1]. We sought to investigate the feasibility of an audit procedure assessing waste production and mechanisms of disposal to understand where to reduce, reuse or recycle the waste.

Aims & Methods: During one working week in March 2023, we performed a structured waste audit in collaboration with the department for environmental sustainability in the endoscopy department of the university hospital of Basel, a tertiary referral center in northwestern Switzerland, performing >6000 endoscopic procedures per year. Waste was collected separately in patient-specific bags for each procedure, from the preparation of the patient to discharge by two investigators. The use of sharps and reusable equipment (e.g., tubing, etc.) was included in the calculation of the waste generated per procedure.

Results: During the study period,the normal running of the endoscopy unit was not disrupted. Waste produced by 75 examinations was analyzed. Median waste production was 910 g/ Gastroscopy, 1060g/ Colonoscopy, 1110g/ Gastro-and Colonoscopy, 1240 g/ Sigmoidoscopy and 1823 g/ ERCP or EUS. This adds up to 26 kg of waste per day or 52 t of CO_2 generated by incineration per year in our endoscopy unit.

Conclusion: A structured waste audit can easily be incorporated into the daily practice of an endoscopy unit without impacting patient care and using few resources. Creating awareness of waste generation and composition is a crucial first step toward creating sustainable endoscopy practice. The amount of $C0_2$ generated by our endoscopy unit in a year equals driving eight times around the world. Gastroscopy and colonoscopy should be combined in one procedure when possible.

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Disclosure: Nothing to disclose.

PP1713

USE OF A HANDHELD METAL DETECTOR FOR MANAGEMENT OF METALLIC FOREIGN BODY INGESTION IN CHILDREN

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Introduction: Foreign body ingestion is nowadays still an important and common cause of referral of children to the emergency department. The most common ingested objects are coins. Some ingested foreign objects (e.g., button batteries, sharp objects) can lead to life-threatening complications. The golden standard for determining the presence and the location of ingested objects is still the X-ray examination of the whole digestive tract. A handheld metal detector is a portable device that by measuring changes in the inductance of a coil determines that a metallic object is near. The presence of such an object is presented as an audio and/or visual signal. With changing the sensitivity of the detector and repeated screenings of different areas it is possible to determine a possible location of a metal foreign object in the body.

Aims & Methods: The aim of our study was to determine if the use of a handheld metal detector could determine the presence and the location of an ingested metal foreign object to a degree that a supplementary X-ray examination would not be necessary.

We collected the medical data from the children with suspected metal object ingestion who were referred to our emergency department from October 2017 until March 2023. We focused on the type of ingested object and on the correlation between metal detector signal and x-ray image in detecting the presence and location of the presumably ingested foreign object.

Results: The data from 43 children (39.5% female; average age 50 months; min 3 months, max 11 years 4 months) that were treated at our emergency department was available for the analysis. Approximately two thirds (65%) of children were referred on the same day of suspected metal object ingestion and almost all (92.5%) were referred in 7 days after suspected ingestion. The most common ingested objects were coins (32.6%), followed by button batteries (18.6%) and hair pins (11.6%).

All the children were first checked using the metal detector placed on the different parts of the body (neck, chest, abdomen) and in 35 children (81.4%) the signal was detected.

Subsequently, x-ray was performed in 40 children. The most common location of the foreign object was the stomach (42.5%), followed by large bowel (27.5%) and oesophagus (15.0%).

The signal from the metal detector matched the x-ray object location in 90,0% of cases (N=36). For the objects, that were not detected by the metal detector, mean delay from ingestion to referral was 7 days (min 0, max 17 days), whereas for the others mean delay was 1 day (min 0, max 7 days).

Endoscopic removal was performed in 25.4% of cases (N=11), mostly for button batteries (N=4) and sharp objects (hairpins, screw, wires) where the location of the object was still in the reach of an endoscope.

Conclusion: Handheld metal detectors in majority of cases show a good correlation with the results of x-ray examinations. However, in cases where metal detectors don't confirm the presence of a metal foreign object, an x-ray is needed to confirm this. Smaller objects and low sensitivity of the detector could present a problem for the detection.

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Disclosure: Nothing to disclose.

PP1714

SEDATION LEVEL AND ITS FACTORS IN ENDOSCOPIC PROCEDURES WITH MODERATE SEDATION BY GASTROENTEROLOGISTS (GISED)

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Introduction: Combination of benzodiazepines and opioids are effective for achieving moderate sedation for endoscopic procedures and can be delivered safely by endoscopists in patients with ASA Class I–III. Non-anaesthesiologist administration of propofol (NAAP) is only available in a few European countries and there is evidence that low-risk procedures can presumably be done with conventional moderate sedation regimens.[1,2]

Aims & Methods: This study aimed to evaluate the factors influencing efficacy and safety and satisfaction of patients undergoing low risk endoscopic procedures under moderate sedation by gastroenterologists(GIs). A single-centre prospective study was carried out between April 2021 and February 2023, wherein 317 consecutive patients with indication for endoscopic procedure with sedation by GIs were evaluated and finally 264 included. Fifty-three patients were excluded due to refusal of informed consent 38%(n=20), cognitive/hearing impairment 19%(n=10), ASA-IV or V 11%(n=6), presence of stoma 11%(n=6), absence of assistance after sedation 8%(n=4), intolerance to sedatives 4%(n=2), predicted difficult airway and ventilation 4%(n=2), poor bowel preparation impairing performance of colonoscopy 4%(n=2). Midazolam induction dose was 0.05mg/kg, plus analgesia with pethidine at initial dose of 25mg (maximum 50mg) and titrated to achieve a score of 3 or 4 on the Ramsay scale. Nurse-assessed Gloucester comfort scale was used for patient comfort during procedures. Patients' satisfaction was evaluated based on a final self-completion survey. Statistical analysis was performed using SPSS v27 (SPSS Inc., Chicago, IL, USA).

Results: The 264 patients had a mean age 64±13 years with 53%(n=139) men. The mean BMI was 27.1±5.3 kg/m^2.In total, 309 endoscopic procedures were performed: 28%(n=87) gastroscopies and 72%(n=222) colonoscopies. When considering efficacy of sedation based on patient reported consciousness during endoscopy in 56%(n=148) (Table 1), factors independently associated with inadequate sedation were BMI (OR 1.1; 95% CI 1.01-1.2), midazolam induction dose compliance (OR 0.1; 95% CI 0.06-0.3), achieving Ramsay score ≤4 (OR 0.4; 95% CI 0.2-0.9), pain during procedure (OR 1.6; 95% CI 1.3-2.1) and remembering the start of procedure (OR 4.1; 95% CI 1.6-10.7). Twenty-two adverse events were reported and only one serious requiring hospitalization for 24 hours due to chemical cardioversion of atrial fibrillation. Most patients were at least satisfied with their procedures 82,5%(n=189/229). On univariate analysis, inadequately sedated patients were significantly more likely to remember the start of the procedure, experience pain and less likely to repeat the procedure.

Conclusion: The BMI, midazolam induction dose noncompliance, Ramsay scale score ≥5 and pain during procedure are independently associated with inadequate sedation which consequently results in poor patient satisfaction. The achievement of the adequate sedation target is essential for patient satisfaction.

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Disclosure: Nothing to disclose.

PP1715

ENDOSCOPIC SCORING INDICES FOR ASSESSING DISEASE SEVERITY IN FAMILIAL ADENOMATOUS POLYPOSIS: A SYSTEMATIC REVIEW

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Introduction: Several therapeutics are in development for familial adenomatous polyposis (FAP) to reduce polyp burden, the incidence of cancer and prevent or postpone intestinal surgery. However, there is limited consensus on the optimal method for measuring intestinal disease activity in FAP.

Aims & Methods: We aimed to systematically review existing endoscopic severity indices for FAP.

We searched MEDLINE, EMBASE and the Cochrane Library from inception to February 2023 to identify studies that evaluated endoscopic disease activity and severity in children and adults with FAP.

Results: A total of 94 studies were included. We evaluated component items of scoring indices, such as polyp count, polyp size and histology, and the scoring indices for the upper- and lower gastrointestinal tract . Partial validation was observed for polyp count and size.

The most common reported scoring index was the Spigelman classification system, which was used for assessing the severity of duodenal disease.

A single study reported an almost perfect inter- and intra-observer agreement for this system.

The InSIGHT polyposis staging system, which was used for assessing colorectal polyp burden has been partially validated. It showed substantial inter-observer agreement, however it lacked the analysis of the intra-observer agreement.

The SPACE criteria is a novel system to identify high-risk gastric polyps and was assessed for the inter-observer agreement; however it showed a moderate level of inter-observer agreement.

Conclusion: There are no fully validated endoscopic disease severity indices for FAP. Development and validation of reliable and responsive endoscopic disease severity instrument will be useful for clinical care, research and to assess the impact of pharmacological therapies on polyp burden in FAP.

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Vipul Jairath: has received has received consulting/advisory board fees from AbbVie, Alimentiv Inc, Arena pharmaceuticals, Asahi Kasei Pharma, Asieris, Astra Zeneca, Avoro Capital, Bristol Myers Squibb, Celltrion, Eli Lilly, Endpoint Health, Ferring, Flagship Pioneering, Fresenius Kabi, Galapagos, Gilde Healthcare, GlaxoSmithKline, Genentech, Gilead, Janssen, Merck, Metacrine, Mylan, Pandion, Pendopharm, Pfizer, Protagonist, Prometheus Biosciences, Reistone Biopharma, Roche, Sandoz, Second Genome, Sorriso pharmaceuticals, Takeda, Teva, Topivert, Ventyx, Vividion; speaker's fees from, Abbvie, Ferring, Bristol Myers Squibb, Galapagos, Janssen Pfizer Shire, Takeda, Fresenius Kabi
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Jewel Samadder: Consulting or Advisory Role: Janssen Research & Development, Cancer Prevention Pharmaceuticals, Recursion Pharmaceuticals

PP1716

A RETROSPECTIVE AUDIT OF END-TO-END QUALITY MEASURES IN ENDOSCOPY: INTERDEPENDENCE OF DETECTION RATES FOR ADENOMA AND SESSILE SERRATED ADENOMA OF ENDOSCOPISTS AND PATHOLOGISTS

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Introduction: Detection rates of adenoma (ADR) and sessile serrated adenoma (SSRA) during colonoscopy are key quality indicators linked to the reduction of post-procedure colorectal cancer rates. The detection rate of for sessile serrated adenomas and adenomas can vary by endoscopist gender, experience and can be improved by the monitoring of key procedural metrics and education (1-3).
In addition, variation of ADR and SSRA can occur among pathologists (4,5). This variation among pathologists can potentially explain variation in ADR and SSRA of endoscopists. As part of routine end-to-end quality assurance, we identified significant variation among pathologists in relation to ADR and SSRA. Subsequently feedback was provided to the pathologists and an education program initiated.
This research examines whether these measures reduced the variation in pathologist detection rates for ADR and SSRA and if there is a subsequent impact on rates of detection of endoscopist. This requires determining if detection rates were linked to pathologists, if pathologist rates were linked to endoscopists and whether any detectable differences were maintained over time.
Aims & Methods: This retrospective quality improvement project reviewed the pathology results of all patients who underwent a colonoscopy procedure during three periods at a single tertiary site servicing a diverse population in Brisbane, Australia (HREC EX/2023/QMS/95516). Data was collected via the Endoscopy Services Information System Solution database and pathology results were collated from Pathology Queensland, Australia. The three periods examined were Quarter 3 (Jul-Sep) in 2020, 2021 and 2022.
Pearson Chi^2 test was used to determine if ADR and SSADR for pathologists were independent, and if endoscopists and pathologists are independent. Finally, one-way ANOVA, factorial ANOVA and t-tests were used to determine if there was a change in detection rates for pathologists and endoscopists over time. In all tests, a $p \leq 0.05$ is significant.
Results: A total of 3,813 colonoscopies were analysed during the three periods, of which 2,972 were had submitted material for histologic assessment. Procedures were performed by 25 endoscopists and a total of 16 pathologists examined the biopsied samples across the three periods. 17 endoscopists and 11 pathologists were involved in all three periods.
Significant variation in ADR was observed in Period 1 ($p < 0.05$). However, for subsequent time periods (after the variation was identified as part of our quality assurance measures), no significant relationship was observed between the pathologist and ADR and SSRA in subsequent years. Furthermore, in subsequent years there was a significant increase ($p<0.05$) of the rate of SSRA but not ADR.
Conclusion: This study suggests that not only the ADR and SSAR of endoscopists should be monitored but monitoring of variation in ADR and SSAR between pathologists can reveal substantial variations. With appropriate measures this unwarranted variation in key quality indicators of colonoscopy can be avoided.

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PP1717

PURASTAT MULTICENTRIC REGISTRY: RESULTS FROM THE ITALIAN EXPERIENCE

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Introduction: PuraStat is a novel hemostatic self-assembling matrix that seems promising both for the control of active bleeding and for the prevention of bleeding after operative endoscopy procedures.

Aims & Methods: The aim of this registry was to evaluate the safety and efficacy of PuraStat for the control of active bleeding and for the primary and secondary prevention of bleeding after different operative endoscopy procedures. A specific database was created and used to collect anonymous data from different Italian centers. Data on type of application (bleeding control vs prophylaxis, site and type of procedure in case of prophylaxis), amount of gel used, outcomes and safety of the application were systematically prospectively collected and analyzed.

Results: PuraStat was used on 401 patients that were treated for an active gastrointestinal bleeding or as a preventive measure after an operative endoscopy procedure in 10 Italian centers. 91 treatments for active bleeding and 310 preventive applications were included; 130 (32.4%), 44 (11%) and 227 (56.6%) were upper (ie. varices, ulcers, gastric antral vascular ectasia (GAVE), post endoscopic resection), biliopancreatic (ie. post sphincterotomy, post papillectomy, walled-off pancreatic necrosis (WOPN) drainage) and lower GI procedures (ie. post endoscopic resection, post pneumatic anastomotic dilation, radiation proctopathy) respectively. In 174/401 (43.4%) PuraStat was the primary treatment modality. The median coverage of the area treated with PuraStat was 97.9%, with difficulty in the application in 7/401 (1.7%) due to endoscope position. Hemostasis of active bleedings was achieved in 90/91 patients (98.9%).

In the follow-up 7/91 patients (7.7%) in whom PuraStat was used for hemostasis had a bleeding event as compared with 12/310 patients (3.9%) after prophylactic PuraStat application. No complication related to the use of PuraStat occurred.

Conclusion: PuraStat is a safe and feasible hemostat both for bleeding control and for bleeding prevention after different operative endoscopy procedures. For the first time we explored and evaluated the use of PuraStat in upper GI and Biliopancreatic procedures, demonstrating also in these cases an excellent profile in bleeding treatments as well as in bleeding prevention. Our results show that the possible application for the use of PuraStat may be wider compared to current indications.

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PP1718

LOOP-CLIP CLOSURE OF ACUTE IATROGENIC ENDOSCOPIC PERFORATIONS USING A SINGLE CHANNEL ENDOSCOPE - A TERTIARY CARE CENTRE EXPERIENCE

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Introduction: Acute perforations during endoscopic procedures are an emergency and need immediate closure to prevent abdominal cavity contamination and its fraught complications. Mucosal defect closure by loop-Clip method and its modifications have been successfully used to close perforations. We assessed the effectiveness of loop-clip method by a single channel endoscope.

Aims & Methods: The study aims at studying the effectiveness of Loop-clip method by a single channel endoscope in closure of acute iatrogenic perforations.

On recognition of a perforation, a predetached endoloop (LeClamp ligation device; Leo Medical Co Ltd, Changzhou, China) fixed to the hemoclip (Resolution clip, Boston Scientific, Boston, Mass, USA) was delivered using a single-channel endoscope (GIF-HQ190 Olympus, Tokyo, Japan) and anchored near the proximal margin of the defect, followed by deployment of consecutive hemoclips to anchor the endoloop along the margins of the defect. The endoloop was then tightened slowly by reattaching it to a hooking device (endoloop delivery system) resulting in an approximation of the borders of the perforation and closing it in a purse-string fashion. The parameters observed were the size, complete closure of the defect, closure time, Post closure Clinical spectrum, peritonitis, need for surgery, and hospital stay.

Results: A total of 24 cases of iatrogenic perforations were closed using the loop-clip method at our institution (the biggest endoscopic center in the country). The site of perforations was 1 oesophageal, 6 Gastric, 3 duodenal, 1 jejunal, and 13 colonic. 19 patients had perforations during therapeutic procedures (Oesophageal dilatation, Gastric ESD, SEMS deployment of a jejunal anastomotic leak, Colonic EMR/ESD). All the perforations during diagnostic procedures were during colonoscopy and the site was rectosigmoid.

To the best of our knowledge, endoscopic closure of a jejunal perforation in altered anatomy using loop and clips has not been described in the literature.

The mean size of the defect was 2.1 cms. The mean closure time was 12.7 minutes. 23(95%) of the patients complained of abdominal pain, 16(67%) patients developed fever mostly on day 2 of admission which settled with iv antibiotics. All the defects (100%) were closed successfully. None of the patients required surgery.

Mean age (years)	64.4 [41,83]
Size of Perforation (cms):	2.125 [1.5,2.5]
Successful closure	24[100%]
Mean procedure time (minutes)	12.70
Mean Hospital stay (days)	5[3,9]
Need of Surgery	0%
Mortality	0%

Conclusion: Early recognition and closure of endoscopic perforations is very essential for decreasing the morbidity and mortality. We found Loop-Clip method a very effective method for closure of large sized iatrogenic perforations with complete closure in all cases.

Disclosure: NONE

PP1719

PROSPECTIVE STUDY OF WASTE GENERATION AND ENERGY CONSUMPTION FROM A LARGE ACADEMIC GI ENDOSCOPY CENTER: TIME TO TURN TO GREEN ENDOSCOPY

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Introduction: While GI endoscopy units serve an integral role in screening and diagnosis of a plethora of clinical conditions but could also be a source of environmental waste generation and energy consumption in form of plastic, sharps, personal protective equipment (PPE), cleaning supplies and energy. Evaluation of large data from one endoscopy center could serve as an actionable model for other centers in the health-system for environmentally sustainable endoscopy units.

Aims & Methods: We prospectively collected data on total waste generation of a single large academic VA based endoscopy unit (average 3500 procedures per year) over May-June 2022. We stratified the waste generated from esophagogastro-duodenoscopy and colonoscopy into biohazardous, non-biohazardous, or recyclable items to determine opportunities to improve/maximize the recycling of waste.

Data on each item used for each patient since entry to the endoscopy unit and discharge including the endoscopy procedure, amount of waste generation per day for the entire unit, type of waste, energy utilization for each day, and reprocessing related waste generation for each procedure were analyzed.

We also performed a review of endoscopy inventory utilized and audit of items utilized in each procedure. No patient information was collected, and study was approved by the local institutional review board.

Results: Data of 400 procedures collected over the study period was analyzed providing total waste generation of 1010.65 kg which include sharps (51.57 kg) and biohazard waste (336.34 kg). Average per day land-fill waste generation was 30.63 kg which approximates to 9,189 kg for an entire year. Despite 44% of items taken out from the inventory being recyclable, only 28% of them were used in the procedure per audit adding to the 8.6 kg. waste per day. Thus, intra-procedure inventory audit could reduce landfill waste by 20% per day (Figure 1). By scope cleaning and reprocessing, additional 194 gallon of liquids waste (=735.26 kg.) per day was generated. Two football field sized landfill waste is generated this way when total annual waste generation is considered. On average 277.1 kW hour energy was utilized for endoscopy unit alone per day which equals to 8.2 gallons of gasoline use per day.

Conclusion: Measures to reduce waste generation in form of reducing landfill and water waste are needed. Auditing and only using the inventory absolutely needed in a case could reduce the landfill waste by 20%. Improvement in methods aimed at environmentally effective scope reprocessing measures are immediately needed since this contributes to a significant source of total waste generation from the GI endoscopy as well.

Disclosure: Nothing to disclose.

PP1720

PROSPECTIVE EVALUATION OF EFFICACY, SAFETY AND PATIENT SATISFACTION IN ENDOSCOPIC PROCEDURES WITH MODERATE SEDATION BY GASTROENTEROLOGISTS (GISED)

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Introduction: Combination of benzodiazepines and opioids are effective for achieving moderate sedation for endoscopic procedures and can be delivered safely by endoscopists in patients with ASA Class I–III. Non-anaesthesiologist administration of propofol (NAAP)is only available in a few European countries and there is evidence that low-risk procedures can presumably be done with conventional moderate sedation regimens.[1,2]

Aims & Methods: This study aimed to evaluate efficacy, safety and patient overall satisfaction in endoscopic procedures with moderate sedation by gastroenterologists (GIs).

A single-centre prospective study was carried out between April 2021 and February 2023, where 317 patients with indication for endoscopic procedure with sedation by GIs were evaluated and finally 264 included. Fifty-three patients were excluded for failure to obtain informed consent 38%(n=20), cognitive or hearing impairment 19% (n=10), ASA-IV or V 11%(n=6), presence of stoma 11%(n=6), absence of assistance after sedation 8%(n=4), anticipated intolerance or reaction to sedatives 4%(n=2), predicted difficult airway and ventilation 4%(n=2), poor bowel preparation unable to perform the exam 4%(n=2). Midazolam induction dose started at 0.05mg/kg, plus analgesia with pethidine at initial dose of 25 mg (maximum 50 mg), titrated until achieving score 3 or 4 in Ramsay scale. Nurse-assessed Gloucester comfort scale was used for patient comfort during procedures. Patients' satisfaction was evaluated based on a final self-completion survey: satisfaction (5 levels); remembering the start of procedure (yes/no); remembering staying awake during procedure (yes/

no), pain scale (0 to 10) and repeating the procedures under the same conditions (yes/no/maybe). Statistical analysis was performed using SPSS v27 (SPSS Inc., Chicago, IL, USA).

Results: The 264 patients included had mean age 64±13 years with 53%(n=139) men. The mean BMI was 27.1±5.3 kg/m^2. ASA classification: Class II 58%(n=156) and class III 20.8%(n=56). Anxiety or depression disorder was noted in 21%(n=54) and obstructive sleep apnea syndrome in 6%(n=16). Use of benzodiazepines was noted in 21%(n=58) and opioids in 5%(n=14).

In total, 309 endoscopic procedures were performed: 28%(n=87) gastroscopies and 72%(n=222) colonoscopies. Midazolam induction dose per protocol was met in 59% patients (n=156). Median midazolam dose at gastroscopy was 3.0 (3.0-5.0)mg and colonoscopy 5.0 (3.0-6.0)mg; median dose of pethidine was 25mg (0-50). Sedation target (Ramsay score ≤4) was reached in 44%(n=140) and absence or slight pain was verified in 74%(n=236) cases. Adverse events were noted in 8%(n=22), the majority mild, characterized by hypotension and/or transient hypoxemia rectified with oxygen therapy; one patient needed 24 hours hospitalization due to atrial fibrillation requiring chemical cardioversion. Most patients were at least satisfied with their procedures 82,5%(n=189/229), with no pain experienced in 53% cases (n=128/240). Among those who referred pain (0 to 10), the median was 3.0 (2.0-5.0). Even though the majority did remember the start 72%(n=191) or the course 56%(n=148) of the procedures, 82%(n=216) would repeat it under the same conditions.

Conclusion: Moderate sedation by gastroenterologists is safe and effective and should be implemented in low-risk procedures with patients ASA I-III, especially in countries where NAAP is unavailable. Compliance with midazolam induction dose to achieve the sedation target is important for patient satisfaction.

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