

Abstract Book

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Current Trends and Future Challenges of Neurobehavioral Toxicology in Hazard Identification and Risk Assessment

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Objectives: Neurobehavioral toxicology is aimed to assess preclinical changes of the Central Nervous System due to exposure to neurotoxic agents. This work was aimed to identify the most important needs and challenges to be addressed in this discipline, considering the rapid changes of exposures and scenarios occurring in the general environment and in occupational settings.

Methods: Published literature was considered including ad-hoc meeting reports, using MEDLINE resources through PUBMED and OVID systems. Further information was obtained directly from experts in the field.

Results: The total number of studies using neurobehavioral methods is constantly increasing, including occupational, environmental and pediatric exposure. Starting from a few articles in the early 1970's (although the number is underestimated since not all the articles of those years are indexed in MEDLINE) they reached about 180 during 2003 (Fig.1). Regulatory agencies adopt scientific data obtained through neurobehavioral assessment. Three major areas of future challenges were identified: a) specific technical issues regarding testing development, b) epidemiological issues regarding the study design, including the need for meta-analysis/multi-center studies and for longitudinal observation, and statistical issues regarding the most adequate models for the analysis and treatment of complex neurobehavioral datasets, c) the need for scientific consensus on the significance of neurobehavioral findings.

Conclusion: Neurobehavioral toxicology is an expanding scientific discipline that needs further resources for a better definition of its scopes and standardization.

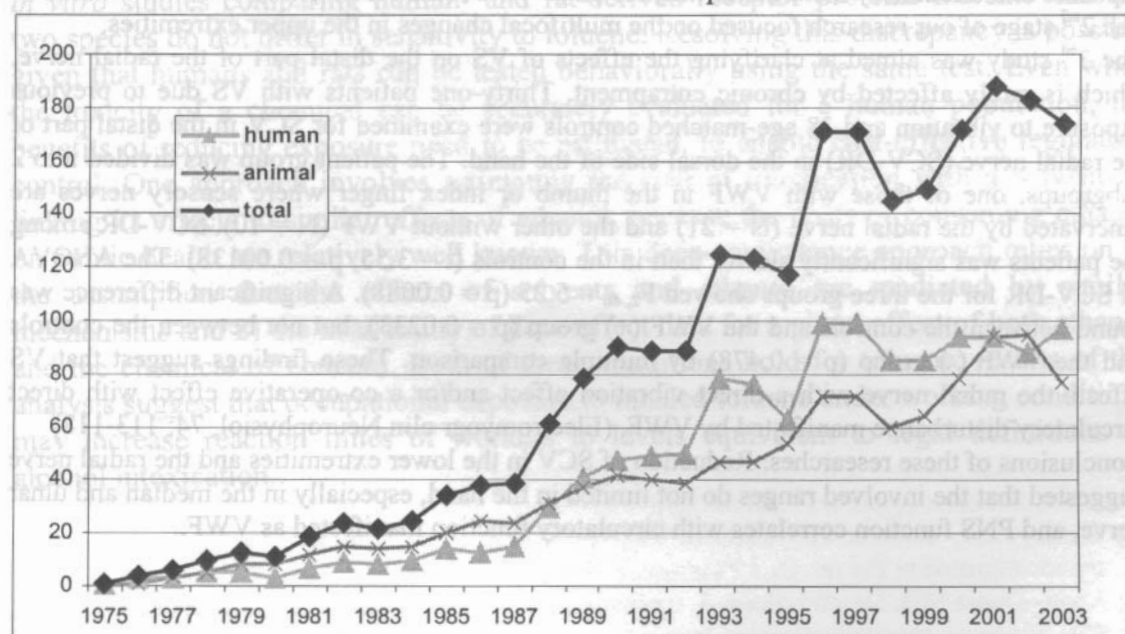


Fig. 1: Number of articles using neurobehavioral methods indexed by MEDLINE