

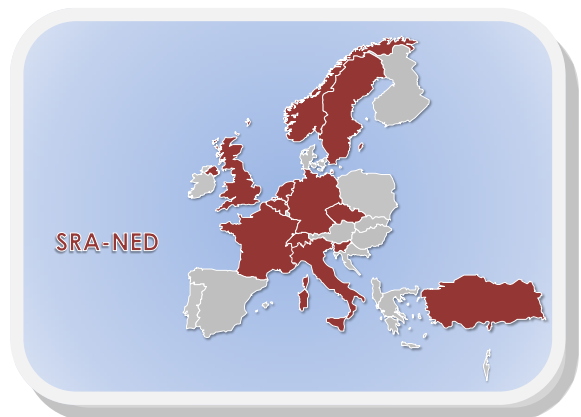
SRA-NED

Harmonization of acquisition and processing of brain imaging biomarkers for neurodegenerative diseases: a strategic research agenda for best-practice guidelines

The diagnosis and prognosis of neurodegenerative diseases such as Alzheimer's, Parkinson's and Huntington's disease are still a major societal challenge. Much can be learned from the structural and functional changes in the brain that can be studied using neuroimaging modalities such as Positron Emission Tomography, Electroencephalography and Magnetic Resonance. Multi-centre studies give the opportunity to accumulate large amounts of data that might allow for more reliable measurements. However, is this really the case? Harmonization of image acquisition and data analysis remains challenging since biomarkers should be specific to the disease. As a result, an inadequate level of calibration protocols prevents comparisons of data from different studies and delays the use of biomarkers in clinical research and drug discovery, ultimately leading to uneven and suboptimal quality of care and the slowing of drug discovery.

This project aims to identify barriers to the large-scale harmonization of imaging biomarkers in neurodegenerative diseases. This goal will first be addressed by conducting a detailed questionnaire in expert centres to detect the main problems associated with the level of calibration protocols. Second, from the information gathered we will develop guidelines to address the most critical barriers for neuroimaging harmonization. The guidelines will help funding agencies to identify topics and actions for funding, with the ultimate aim of developing best practices to be followed for the elaboration of biomarkers in neurodegenerative diseases.

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