GREY MATTER PATTERNS IN COGNITIVE IMPAIRED SUBJECTS USING CSF BIOMARKERS CUT-OFFS

J. Miralbell, G. Spulber, B. Hooshmand, A. Besga, M. Mataró, A. Cedazo-Mínguez, M. Kivipelto, L.-O. Wahlund

Introduction: The key role of imaging in AD diagnosis is highlighted by the inclusion of imaging markers in the newly proposed Dubois criteria for earlier diagnosis. MRI-based measures of atrophy are regarded as valid markers of disease state and progression. The CSF core biomarkers for AD reflect the underlying pathology and provide an independent measure of pathology based on biology. The use of CSF and MRI measures together could improve the early detection of AD.

Aim: The aim of this study was to assess grey matter patterns based on CSF biomarkers cut-offs.

Methods: 41 memory clinic based subjects were used for the present study. The subjects were divided into groups based on normal or abnormal CSF Aβ_{1-42}, t-tau and p-tau levels. Voxel-based morphometry was used to study grey matter (GM) atrophy patterns between study groups.

Results: Subjects with abnormal t-tau levels showed GM volume loss in the right temporal fusiform cortex and right middle temporal and precentral gyrioses. Significant areas of decreased GM also involved the right parahippocampal gyrus, inferior temporal, supramarginal and angular gyrioses. No differences in GM volumes were found between groups according to CSF Aβ_{1-42} and p-tau levels.

Conclusions: Subjects with abnormal CSF levels of t-tau showed GM differences in regions characteristic for AD pathology. These findings support the hypothesis that t-tau levels may be more specifically related to neuron death than Aβ_{42}.