CONTRIBUTION OF THE RECENT RESEARCH CRITERIA FOR THE EARLY DETECTION OF ALZHEIMER’S DISEASE

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Introduction: The International Working Group on Alzheimer’s Disease (AD; Dubois 2007) developed new research criteria, which include the evidence of significant episodic memory impairment associated with at least one biological footprint of the disease.

Aims: We intend to validate this new criteria’s usefulness on a memory clinic basis, using imagiological (MRI) and cerebrospinal fluid (CSF) biomarkers.

Methods: A group of 33 mild cognitive impairment (MCI, Petersen 2001), 17 AD patients (NINCDS-ADRDA) and 14 controls without cognitive impairment were studied. Memory was assessed using the Free and Cued Selective Reminding Test (FCSRT). CSF levels of b-amyloid1-42 and total tau were determined and Ab42/(240+1.18xTau) was calculated. Patients were genotyped for Apolipoprotein E (ApoE) status. T1-weighted volumetric MRI scans were acquired, processed with the FreeSurfer software and automatically obtained for subcortical regions of interest.

Results: The FCSRT allowed us to divide the initial MCI group into MCI (n=22) and prodromal AD (n=11). The prodromal AD group had an increased frequency of the ApoE-e4 allele relative to the MCI group. Both CSF scores and MRI measures of the hippocampus volume were significantly different between MCI and prodromal AD, the latter being similar to AD. Considering memory impairment plus at least one altered biomarker as criteria for AD we achieved sensitivity and specificity values around 85% for the prodromal AD group. On the patient groups, FCSRT, CSF and MRI scores were significantly correlated.

Conclusions: These results support the usefulness of the new criteria for the early diagnosis of Alzheimer’s Disease.

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