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The diagnostic value of cerebrospinal fluid tau protein in dementing neuropsychiatric disorders

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Background

Cerebrospinal fluid (CSF) total tau protein (tT) is increased in Alzheimer's disease (AD) and it has been proposed as a diagnostic marker of AD, useful in the work-up of demented patients. The aim of the present study was to investigate the diagnostic aid of tT in terms of every day practice in the differential diagnosis of AD from other dementing neuropsychiatric disorders.

Materials and methods

Double-sandwich ELISA (Innotest htau antigen, Innogenetics, Belgium) was used to quantify tT in 61 healthy controls, 62 patients with AD, 27 patients with vascular dementia (VD), 20 patients with alcohol-related cognitive disorder (ARCD), 10 patients with depression, 7 with frontotemporal dementia (FTD) and 12 patients with Dementia with Lewy bodies (DLB) or Parkinson's disease with dementia (PDD).

Results

Total tau was always helpful in the differential diagnosis of AD from normal aging or depression and a positive test (increased tT) almost confirmed, while a negative test almost excluded AD diagnosis. In the differential diagnosis from ARCD a positive test always confirmed the diagnosis of AD, while normal tT was helpful (excluded AD) only in cases with low clinical probability for AD. In the differential diagnosis from synucleinopathic or vascular dementia, when the "probable" NINCDS-ADRDA criteria were met, the help of tT was little, but when the "possible" criteria were met a positive test raised the confidence of AD diagnosis at least to "probable" levels, while a negative test was usually also of some aid. When the case was doubtful, a negative test almost excluded AD diagnosis. However in the differential diagnosis of AD from FTD, the discriminating value of tT was inadequate.

Discussion

CSF tT may offer significant additional information over that of clinical criteria of AD, for the discrimination of AD from normal ageing, depression, ARCD, synucleinopathic dementia and, possibly, VD. However, for the differential diagnosis from FTD, the diagnostic help of tT is limited.