INTEREST OF CSF AMYLOID BIOMARKERS TO DIFFERENTIATE FRONTOTEMPORAL DEMENTIA FROM ALZHEIMER DISEASE

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Accurate diagnosis in Alzheimer disease (AD) is becoming a requirement in order to optimize patient healthcare. Recently, the scientific community revisited AD diagnosis criteria by including neuroimaging and cerebrospinal fluid (CSF) biomarker (Aβ42 peptides, total and phosphotylated PTau) Among other CSF biomarkers, the soluble Amyloid precursor protein (sAPP) α and β isoforms, and additional Aβ peptides (Aβ38, Aβ40) are also potentially interesting in prodromal and differential diagnosis of AD. Recently, we have investigated the relationship between the sAPPα/β levels and the Aβ fragments in Neurochemical Dementia Diagnostics (NDD) positive and negative sample (Gabelle, 2010). We now evaluated on a larger cohort the clinical interest of these amyloid biomarkers to distinguish patients with AD, Frontotemporal Dementia (FTD) or other neurological diseases (OND). We investigated 128 CSF (52 AD, 34 FTD, 42 OND) with ELISA Tau, PTau, Aβ42 and with Multiplex assays for sAPPα/β, Aβ38, Aβ40, Aβ42. We confirmed a statistical significant increase of sAPPβ in AD versus FTD patients (p=0.02). In addition, we observed a lower concentration of Aβ38 in FTD patients than in AD (p=0.02) or OND (p<0.001). Interestingly, for differentiating AD the ratio Aβ38/Aβ42 was better in terms of sensibility and specificity than Aβ peptides alone or other ratios (Aβ40/Aβ42 or Aβ40/Aβ38); while for differentiating FTD from OND it was the ratio Aβ40/Aβ38 which was surpassing the others combinaisons. Our results are important for the further use of these analytes for AD and FTD diagnosis, as well as, to progress towards the understanding of dementia pathophysiological pathways.