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POSTER PRESENTATIONS

Biomarkers (non-neuroimaging) / Novel biomarkers

Decreased salivary lactoferrin levels are specific to Alzheimer's disease

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Abstract

Background: Efforts focused on developing new less invasive biomarkers for early Alzheimer’s disease (AD) diagnosis are substantial. Evidences of infectious pathogens in AD brains may suggest a deteriorated defensive system in AD pathology. Lactoferrin (Lf), one of the major antimicrobial peptides in saliva, is an important oral defensive system that may control pathogen dissemination. In previous results, we demonstrated reduced salivary Lf levels in AD patients.

Method: To assess the specificity and clinical utility of salivary Lf for AD diagnosis, we examine the relationship between salivary Lf and cerebral amyloid-β (Aβ) load in two different cross-sectional studies including patients with different neurodegenerative disorders. Participants underwent neurological and neuropsychological examination and saliva sampling, and amyloid- PET neuroimaging. Salivary Lf concentrations were measured using ELISA assay.

Result: Two prospective, cross-sectional, multicenter studies were examined divided in two different cohorts. Study participants for cohort 1 were consecutively enrolled between 2014 and 2018 from the 12 de Octubre University Hospital Neurology Service in Madrid (Spain) and Pablo de Olavide University in Sevilla (Spain). Study participants for cohort 2 were consecutively enrolled between June 2017 and December 2018 as part of the Atherobrain - Heart to Head (H2H) project. Salivary Lf levels were significantly lower in mild cognitive impairment (MCI) and AD patients compared to cognitively normal subjects and frontotemporal dementia (FTD) subjects. The diagnostic performance of salivary Lf in the cohort 1 had an under the curve [AUC] of 0.95 (0.911–0.992) for the differentiation of the MCI/AD group positive for amyloid – PET (PET+) versus healthy group, and 0.97 (0.924–1) versus the FTD group. In the cohort
2, salivary Lf had also an excellent diagnostic performance in the health control group versus prodromal AD comparison: AUC 0·94 (95% CI 0·876–0·989).

**Conclusion:** Salivary Lf has a very good diagnostic performance to detect AD, as reduced salivary Lf levels shown a clear association to amyloid-positive biomarker profile. Our findings support the utility of salivary Lf as a non-invasive and cost-effective AD biomarker in clinical practice and clinical trials.