CSF BIOMARKERS AND CLINICAL CORRELATES IN SPORADIC EARLY ONSET ALZHEIMER DISEASE (EOAD)

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Introduction: Type 2 diabetes and hypertension are risk factors for cognitive decline while insulin and glucose metabolism are known to play a role in Aβ metabolism and in the onset of sporadic Alzheimer disease, however few studies on CSF biomarkers and glucose metabolism in human are available.

Aim: To evaluate the possible correlation between cerebrospinal fluid biomarkers (Aβ1-42, TAU and PTAU181) and cardiovascular risk factors: hypertension, BMI, LDL hypercholesterolemia, ApoE polymorphism and glycemic control in sporadic EOAD.

Methods: 26 sporadic EOAD (NINCDS-ADRDA) consecutive patients, mean age 63.6±4.9 y, 58% females, were studied. CSF levels of Aβ1-42, TAU and PTAU181 were quantified by ELISA (Innogenetics); ApoE genotype was determined by restriction polymorphism analysis.

Result: Cardiovascular risk factors were highly prevalent in this population (BMI³25: 53.8%, LDL³130 mg/dL: 46.2%, history of hypertension: 38.5%), but no correlation was found with CSF biomarkers. A direct correlation was found between Aβ1-42 values and MMSE scores (r=-.462, p=.026) and an inverse correlation with plasma glucose levels (r=-.646, p=.002); further analysis demonstrated that this inverse correlation was found only in ApoE4 carriers (r=-.736, p=.010). In addition, TAU levels were significantly higher in ApoE4 carriers (p=.03).

Discussion: In this population cardiovascular risk factors are particularly relevant and the correlation between Aβ1-42 and plasma glucose may indicate the strong role of insuline/glucose metabolism in cognitive decline and Aβ1-42 accumulation in sporadic EOAD.