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MEETING ABSTRACT Open Access

CSF Potential Biomarkers Aβ42 and Tau: associations of Apo E Genotype

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Background

The most promising strategy to detect AD in preclinical or presymptomatic stage need specific biomarkers. In this study we elucidated the relationship between Apo E genotype and CSF biomarkers Aβ42 and Total tau in Alzheimer's Disease (AD) Patients, Non AD (NAD) patients, Neurological controls (NCs) and Healthy Controls (HCs).

Materials and methods

In this study we included 30 HC, 30 AD patients, 40 NAD, and 46 NC from Nehru Hospital, PGIMER, Chandigarh, India after obtaining informed consent from all the subjects. Apo E Genotyping was done according to the Wenham PR etal,1991. The levels of Aβ42 and total tau were determined by ELISA kits Innogenetics, Belgium.

Results

Our data of CSF Aβ42 and tau levels in conjunction with ε4 allele had shown specificity and sensitivity of 100% and 42.8% respectively for the detection of AD. Aβ42 and Apo E ε4 combination had shown specificity 80.8% and sensitivity 72.1 %. The ε4 allele distribution frequency was 40% and 2.5% in AD and NAD respectively, where as ε4/4 genotype and ε3/4 genotype distribution was 10 % and 50 % respectively. Our data has shown that ε4 allele in combination with Aβ42 to have better sensitivity and specificity in the diagnosis of AD. AD patients with at least one ε4 allele had significantly lower CSF Aβ42 levels than those without ε4 allele ($P < 0.001$). There was a positive correlation of Aβ42 with low MMSE scores.

Conclusions

Observation from our study suggest that decreased Aβ42 and increased tau level in CSF along with Apo E ε4 allele as risk factors for AD. Our study also shows ε4 allele incidence to be a risk factor for AD.

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