A STUDY OF TOMM40 POLYMORPHIC POLY-T VARIANT, RS10524523, IN FINNISH PATIENTS OF ALZHEIMER’S DISEASE CARRYING APOE 33 GENOTYPE

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Introduction: Translocase of outer mitochondrial membrane 40, also known as Tom40, is a protein which in humans is encoded by the TOMM40 gene on chromosome 19. It has been described that a variable-length, deoxythymidine homopolymer (poly-T) within intron 6 of the TOMM40 gene is associated with the age of onset of late-onset Alzheimer’s disease (AD). In addition, poly-T variants are in linkage disequilibrium with the ApoE alleles, so that ApoE4 is predominantly associated with the longer forms of poly-T while ApoE3 either short or long forms.

Aims: We were interested to measure length of poly-T in patients carrying ApoE3/3 genotype in two reasons. Firstly, length of poly-T variation exists in three different forms: short/short, short/long or long/long. Secondly, age-of-onset may cover the large spectrum from midlife to very old age.

Methods: TOMM40 poly-T variant was screened in 94 sporadic Finnish AD patients (age range from 43 to 98) using both sequencing analysis and gel electrophoresis method. The CSF levels of AB42, total tau and phosphorylated tau in some patients were measured by Innotest kit. In addition, we studied how MMSE scores differed in patients between poly-T groups.

Results: Age-of-onset distribution in all patients between different poly-T forms were as follows: 73 years for short/short; 71 years for short/long and 78 years for long/long. No significant differences were found in biomarker levels or MMSE.

Conclusions: In this preliminary study, age-of-onset distribution differed between poly-T forms, but not significantly. In general, our study did not find differences between poly-T forms.