THE LONG-TERM COGNITIVE OUTCOMES OF ALZHEIMER’S DISEASE - INFLUENCE OF APOE GENOTYPE, NSAID THERAPY AND CHOLINESTERASE INHIBITOR TREATMENT

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Introduction: Heterogeneity in cognitive outcomes and response to treatment has been described in Alzheimer's disease (AD). Using the method of mixed models, higher resolution can be obtained to identify potential predictors of long-term outcomes.

Aims: To analyse the impact of the APOE genotype, non-steroidal anti-inflammatory drug (NSAID) therapy and cholinesterase inhibitor treatment (ChEI) on the longitudinal cognitive outcomes in AD.

Methods: The Swedish Alzheimer's Treatment Study (SATS) is a 3-year, open, prospective, non-randomized, multicentre study in a routine clinical setting. In total, 843 patients were treated with donepezil, rivastigmine or galantamine. At baseline and every 6 months, they were assessed with several rating scales, including the Alzheimer's Disease Assessment Scale-cognitive subscale (ADAS-cog), and the dose of ChEI was recorded. Sociodemographic and clinical characteristics were investigated. The relationships of the predictors to longitudinal cognitive ability were analysed using linear and non-linear mixed-effects models, adjusting for sex, age at onset and at baseline, years of education and disease severity at baseline.

Results: Slower long-term cognitive decline was associated with being a non-carrier of the APOE e4 allele ($p = 0.012$), NSAID usage ($p = 0.017$), or a higher mean ChEI-dose ($p < 0.001$). The type of ChEI did not influence the outcome.

Conclusions: In this 3-year AD study in routine clinical practice, the longitudinal outcome was better for non-carriers of the APOE e4 allele and for those receiving NSAIDs or a higher mean dose of ChEI, regardless of the ChEI agent.