THE EFFECT OF HYPERTENSION AND AGE AT ONSET ON CEREBROSPINAL FLUID BIOMARKERS IN ALZHEIMER’S DISEASE

Shima Mehrabian¹, Panagiotis Alexopoulos²,³, Marion Ortner², Latchezar Traykov¹, Timo Grimmer², Armina Janyan⁴,⁵, Margarita Raycheva¹, Alexander Kurz², Hans Förstl², Janine Diehl-Schmid²

¹Department of Neurology, University Hospital "Alexandrovska", Bulgaria
²Department of Psychiatry, Technische Universität München, Germany
³Department of Psychiatry, University of Patras, Greece
⁴Department of Cognitive Science and Psychology, Research Center for Cognitive Science, New Bulgarian University, Bulgaria
⁵Laboratory for Cognitive Studies in Language, National Research Tomsk State University, Russia

Introduction: It is not clear whether increased cardiovascular risk translates into more abnormal cerebrospinal fluid (CSF) markers in Alzheimer's disease (AD) subjects.

Aim: The aim of the study was to examine the impact of hypertension on CSF biomarkers amyloid-β1-42 (Aβ42) and total tau (t-tau), and to assess the modifying role of age at onset in this relation in 101 AD patients.

Methods: The CSF levels of Amyloid-β 1-42 (Aβ1-42) and t-tau of 101 subjects (mean age 66±8.9) with mild to moderate AD (42 late-onset AD (LOAD) and 59 early-onset AD (EOAD)) were assessed. Of these patients 38% had (treated or untreated) arterial hypertension. Linear regression analyses adjusted for age, gender, MMSE, ApoE, and education showed that AD patients with hypertension had significantly lower CSF t-tau level in comparison with non-hypertensive AD subjects (p=0.001). Further analysis showed an interaction (p=0.003) between hypertension and age at onset of AD on t-tau. The effect of hypertension on t-tau was observed only in the EOAD group. There were no significant differences in CSF Aβ1-42 levels between the groups. In addition, hypertension was not associated with worse performance on memory, language, visuospatial and executive tasks.

Conclusions: Our findings did not show an association between hypertension, and Aβ1-42 levels and cognitive functions. The results showed lower t-tau levels in hypertensive AD patients, which is in contrast with previous data. This effect was modified by EOAD group.