DIFFERENT CEREBROSPINAL FLUID BIOCHEMICAL PATTERNS IN PATIENTS WITH DEMENTIA WITH SUBCORTICAL WHITE MATTER LESIONS AND PURE ALZHEIMER’S DISEASE

M. Bjerke, U. Andreasson, Å. Edman, H. Zetterberg, K. Blennow, A. Wallin

Department of Psychiatry & Neurochemistry, Institute of Neuroscience & Physiology/University of Gothenburg/the Sahlgrenska Academy, Mölndal, Sweden

Introduction: Alzheimer’s disease (AD) and vascular dementia (VaD) are intertwined by mixed dementia (MD) harbouring varying degrees of AD pathology in combination with cerebrovascular disease. It is still unclear whether vascular and mixed dementia are driven by white matter lesions (WML), being the most obvious vascular lesion, per se or AD pathology.

Aim: The study aim was to assess whether there is a difference in the cerebrospinal fluid (CSF) profile, of selected proteins, between dementia with WML, AD, and healthy controls.

Methods: The study included 30 controls, 30 AD patients and 26 patients with subcortical WML (9 VaD and 17 MD). The protein panel included total tau (T-tau), hyperphosphorylated tau 181 (P-tau_{181}), amyloid β 1-42 (Aβ_{1-42}), neurofilament light (NF-L), myelin basic protein (MBP), heart fatty acid binding protein (H-FABP), four matrix metalloproteinases (MMPs), and two tissue inhibitor metalloproteinases (TIMPs). Immunochemical methods were utilized for quantification of the proteins in CSF and data analysis was performed with a multivariate discriminant algorithm.

Results: The concentration of MBP, TIMP-1, P-tau_{181}, T-tau, NF-L, and MMP-9 contributed the most to the separation between VaD and MD patients with WML and AD, with a sensitivity of 97% and a specificity of 81% (AUC=0.93). As expected, T-tau, P-tau_{181} and Aβ_{42} contributed the most in the differentiation between AD and controls, while MBP and NF-L performed the best in discriminating VaD and MD from controls.

Conclusion: The finding of different neurochemical fingerprints of subcortical WML and ‘pure’ AD speaks in favour of the notion of different etiologies.