

## **CEREBROSPINAL FLUID MARKERS OF NEURONAL AND GLIAL CELL DAMAGE TO MONITOR DISEASE ACTIVITY AND PREDICT LONG-TERM OUTCOME IN AUTOIMMUNE ENCEPHALITIS**

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Background: Clinical symptoms and long-term outcome of autoimmune encephalitis are variable. Diagnosis requires multiple investigations, and treatment strategies must be individually tailored. Better biomarkers are needed for diagnosis, to monitor disease activity, and to predict long-term outcome. We investigated the value of cerebrospinal fluid (CSF) markers of neuronal (neurofilament light chain protein = NFL, and total tau protein = T-tau) and glial cell (glial fibrillary acidic protein = GFAP) damage in patients with autoimmune encephalitis. Methods: Demographic, clinical, magnetic resonance imaging, CSF and antibody-related data of 25 patients hospitalized for autoimmune encephalitis and followed for one year were retrospectively collected. Correlations between these data and consecutive CSF levels of NFL, T-tau, and GFAP were investigated. Disability, assessed by the modified Rankin scale, was used for evaluation of disease activity and long-term outcome. Results: The acute stage of autoimmune encephalitis was accompanied by high CSF levels of NFL and T-tau, whereas normal or significantly lower levels were observed after clinical improvement one year later. NFL and T-tau reacted in a similar way but at different speeds, with T-tau reacting faster. CSF levels of GFAP were initially moderately increased, but did not change significantly later on. Final outcome (disability at one year) directly correlated with CSF-NFL and CSF-GFAP levels at all time-points and with CSF-T-tau at LP2. This correlation remained significant after age-adjustment for CSF-NFL and T-tau, but not for GFAP. Conclusion: In autoimmune encephalitis, CSF levels of neuronal and glial cell damage markers appear to reflect disease activity and long-term disability.