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CSF protein profiles in relation to disease progression rates in patients with amyotrophic lateral sclerosis

Jennie Olofsson, Sofia Bergström, Ulf Kläppe, Peter Nilsson, Caroline Ingre, Anna Månberg

State of the art: Most of the patients with amyotrophic lateral sclerosis (ALS) die within 2-5 years after disease onset. However, the heterogeneity of the disease is reflected in different progression rates with some patients surviving for over 10 years. Currently, markers for ALS and predicting the progression rate are missing. We aim to identify proteins in CSF from ALS patients that might increase understanding of the disease, and aid in distinguishing between the different progression rates.
Methodology: An antibody-based suspension bead array was used to analyse levels of 154 proteins in CSF from 423 individuals from a well characterized Swedish cohort, including ALS patients, ALS mimics, healthy controls and other neurological controls. Additionally, up to four samples from different time points were available for the ALS patients.
Results: So far, a subset of the samples have been analyzed and preliminary results show several proteins with significant differences in levels between ALS patients and controls. Among these, chitotriosidase (CHIT1) and osteopontin (SPP1) were found at elevated levels in patients compared to controls (CHIT1; p=2e-6, SPP1; p=1e-4). Additionally, neurofilament medium (NEFM) showed significant differences in levels between fast and slow disease progressors (p=0.004).
Conclusion: Several proteins, including CHIT1, SPP1 and NEFM, were observed as interesting in a subset of the samples. We are currently analyzing the full cohort to continue the investigation of potential markers for predicting diseases progression rate. Identification of such markers could lead to a more personalized treatment and improved quality of life for the patients.

Conflicts of interest

N/A