p-071

Thursday

Association of novel CSF biomarker candidates with cortical thickness in genetic frontotemporal dementia

Abbe Ullgren, Sofia Bergström, Linn Öijerstedt, Julia Remnestål, Jennie Olofsson, Harro Seelaar, John C. van Swieten, Matthis Synofzik, Raquel Sanchez-Valle, Fermin Moreno, Elizabeth Finger, Mario Masellis, Carmela Tartaglia, Rik Vandenberghe, Robert Laforce, Daniela Galimberti, Barbara Borroni, Chris R. Butler, Alexander Gerhard, Simon Ducharme, Imogen J. Swift, Aitana Sogorb-Esteve, Carolin Heller, Jonathan D. Rohrer, Elena Rodriguez-Vieitez, Anna Månberg, Peter Nilsson, Caroline Graff

State of the art
Over the past few years several novel fluid biomarker candidates have been proposed for frontotemporal dementia (FTD). We have recently reported on a panel of CSF proteins that were able to separate individuals with genetic FTD from controls, with the four most important being neurofilament medium (NEFM), neuronal pentraxin 2 (NPTX2), neurosecretory protein VGF (VGF) and aquaporin 4 (AQP4) (Bergström et al. Mol Neurodegener. 2021; 16(1):79). However, the relationship between these proteins and grey matter atrophy is still unclear. The aim of this study is therefore to analyse how these proteins correlate cross-sectionally to cortical thickness in genetic FTD.
Methodology
We have analysed T1 MRI scans alongside concurrent CSF samples from 202 individuals from the GENFI cohort, including affected mutation carriers (AMC), presymptomatic mutation carriers (PMC) and non-carrier controls (NC). Cortical thickness was estimated with FreeSurfer 7.1.1, and CSF protein levels were measured via a multiplexed antibody-based suspension bead array. The correlations between regional cortical thickness and protein levels were calculated via linear regression, adjusting for age, sex, and total intracranial volume.
Results
Preliminary results show that NEFM and AQP4 levels are associated with cortical thinning among AMC and PMC. AQP4 levels correlate specifically to thinning of the left temporal lobe, while elevated NEFM levels are associated with a more widespread pattern of atrophy.
Conclusion
To conclude, the proposed fluid biomarker candidates continue to show promise and further study will further elucidate their relationship to cortical atrophy in genetic FTD.

Conflicts of interest

N/A