GGA3 IS A POTENTIAL CSF MARKER OF ALZHEIMER´S DISEASE


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Alzheimer´s disease (AD) is a slowly progressive neurodegenerative disease and first pathophysiological symptoms probably appear many years prior to clinically detectable cognitive deficits. The diagnosis of Alzheimer´s disease is currently based primarily on clinical symptoms. Biomarkers in CSF like Amyloid beta and tau can help in early and differential diagnosis. More and better biomarkers in CSF to get an improved early and differential diagnosis for pathological aging processes and to give deeper insight into pathophysiological events and signal pathways are needed. The aim of our study was to identify new potent biomarkers in CSF of Alzheimer´s patients versus controls.

With immunanalytical assays we analyzed CSF from 26 AD patients, 10 PD patients, 10 ALS patients and 30 non-demented control subjects for specific proteins involved in intracellular sorting and transport processes associated with the pathophysiology of AD. In our investigation we detected significantly altered levels of Golgi-localizing, γ-Adaptin Ear Homology Domain, ADP-ribosylation Factor-binding protein 3(GGA3) in CSF of AD patients. Members of the GGA protein family are involved in APP processing and regulation of BACE. Association with neuropsychological profile and Abeta and tau levels in CSF was investigated. In contrast no difference of GGA proteins could be detected in CSF of PD and ALS patients versus control subjects.

We conclude that GGA3 seems to be a promising CSF biomarker for diagnosis of AD particularly in differential diagnostically cases and might indicate an important role of GGAs in pathophysiological processes of AD.