CSF BIOMARKERS MAY BE USED TO DIAGNOSE AND MONITOR NEURODEGENERATIVE DISEASES

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Cerebrospinal fluid biomarkers may be used to monitor processes in the brain. Applications are available for research and clinical routine in patient management for several neurological diseases, including Alzheimer's disease (AD). Usages include diagnosis, prognosis, patient stratification and monitoring of treatment effect and toxicity. Within dementia research, major efforts are devoted to the discovery and validation of biomarkers for early diagnosis of AD. This is largely motivated by the ongoing development of disease modifying AD drugs. The most promising CSF biomarkers for early diagnosis of AD are decreased levels of β-amyloid42, reflecting amyloid plaque pathology, increased levels of total-tau, reflecting axonal degeneration, and increased levels of abnormally phosphorylated tau, reflecting tangle pathology. Most AD patients have this CSF biomarker pattern already at early stage, before onset of clinical dementia. However, multi-center investigations have found considerable between-center variation in biomarker levels which is an obstacle towards broad implementation of CSF biomarkers. Therefore, a global quality control program started in 2009. This program is run by The Alzheimer's Association and now includes more than 60 laboratories world-wide. The program may aid in development and implementation of CSF biomarkers for early AD diagnosis.