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Abstract:
The National Institute on Aging-Alzheimer's Association (NIA-AA) guidelines for Alzheimer's disease (AD) propose the categorization of individuals according to their biomarker constellation. Though the NIA-AA criteria for preclinical AD and AD dementia have already been applied in conjunction with imaging AD biomarkers, the application of the criteria using comprehensive cerebrospinal fluid (CSF) biomarker information has not been thoroughly studied yet. The study included a monocentric cohort with healthy (N = 41) and disease (N = 22) controls and patients with AD dementia (N = 119), and a multicentric sample with healthy controls (N = 116) and patients with AD dementia (N = 102). The CSF biomarkers \(\beta\)-amyloid 1-42, total tau, and phosphorylated tau at threonine 181 were measured with commercially available assays. Biomarker values were trichotomized into positive for AD, negative, or borderline. In controls the presence of normal CSF profiles varied between 13.6 and 25.4 % across the studied groups, while up to 8.6 % of them had abnormal CSF biomarkers. In 40.3-52.9 % of patients with AD dementia, a typical CSF profile for AD was detected. Approximately 40 % of the potential
biomarker constellations are not considered in the NIA-AA guidelines, and more than 40 % of participants could not be classified into the NIA-AA categories with distinct biomarker constellations. Here, a refined scheme covering all potential biomarker constellations is proposed. These results enrich the discussion on the NIA-AA guidelines and point to a discordance between clinical symptomatology and CSF biomarkers even in patients with full-blown AD dementia, who are supposed to have a clearly positive for AD neurochemical profile.