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Abstract: To explore if soluble amyloid precursor proteins (sAPP) in CSF improve the identification of patients with incipient Alzheimer disease (AD) in a group of patients with mild cognitive impairment (MCI). A cohort study with follow-up assessments of 58 patients with MCI with baseline CSF sampling was conducted: 21 patients had progressed to probable AD (MCI-AD), 27 still had MCI, 8 had reverted to normal (MCI-NAD), and 2 patients with frontotemporal dementia (FTD) were excluded. Sixteen additional patients with FTD were included to explore the specificity of the CSF markers. CSF concentrations of sAPP?, sAPP?, tau, and A?(1-42) were measured with sensitive and specific ELISAs. Associations between diagnostic status, CSF protein concentrations, and other patient characteristics were explored using multiple logistic regression analyses with stepwise variable selection. The optimal sensitivity and specificity of the best models were derived from receiver operating characteristic curves. The MCI-AD group had significantly higher sAPP? concentrations than the MCI-NAD and the FTD groups. A combination of sAPP?, tau, and age differentiated the MCI-AD and the MCI-NAD groups with a sensitivity of 80.00% and a specificity of 81.00%. The best model for the differentiation of the MCI-AD and the FTD groups included sAPP? and tau, and showed a sensitivity of 95.20% and a specificity of 81.20%.
A?(1-42) and sAPP? did not significantly contribute to the models. These findings suggest that sAPP? may be clinically useful, and superior to A?(1-42), in the early and differential diagnosis of incipient AD.