Cognitive and neuroimaging predictors of instrumental activities of daily living.

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Abstract

Impaired ability to conduct daily activities is a diagnostic criterion for dementia and a determinant of healthcare services utilization and caregiver burden. What predicts decline in instrumental activities of daily living (IADLs) is not well understood. This study examined measures of episodic memory, executive function, and MRI brain volumes in relation to baseline IADLs and as predictors of rate of IADL change. Participants were 124 elderly persons with cognitive function between normal and moderate dementia both with and without significant small vessel cerebrovascular disease. Random effects modeling showed that baseline memory and executive function (EXEC) were associated with baseline IADL scores, but only EXEC was independently associated with rate of change in IADLs. Whereas hippocampal and cortical gray matter volumes were significantly associated with baseline IADL scores, only hippocampal volume was associated with IADL change. In a model including cognitive and neuroimaging predictors, only EXEC independently predicted rate of decline in IADL scores. These findings indicate that greater executive dysfunction at initial assessment is associated with more rapid decline in IADLs. Perhaps executive function is particularly important with respect to maintaining IADLs. Alternatively, executive dysfunction may be a sentinel event indicating widespread cortical involvement and poor prognosis.