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Short-term memory binding in Mild Cognitive Impairment

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We showed that short-term memory (STM) binding is sensitive to sporadic and familial Alzheimer's disease (AD) but is not affected by healthy ageing, chronic depression in the elderly or other forms of dementia. STM binding deficits were also observed in individuals with a genetic susceptibility for AD in the preclinical stages. Hence, we aim to investigate longitudinally individuals with Mild Cognitive Impairment (MCI) using STM binding tasks. Here we report on preliminary cross-sectional results. A comprehensive neuropsychological test battery and a visual STM task were given to 21 MCI patients and 20 controls. The STM task required participants to recognise changes across two consecutive arrays presenting either single features (colour or shape) or feature bindings. The MCI group performed significantly poorer than controls on standard tests of memory, attention and on the binding condition of the STM task, but not on single feature conditions. Performance on the binding task and on standard memory tests did not correlate. Eight MCI patients clearly performed outwith the range of normality in the binding task. However, they did not significantly differ from the other 13 MCI patients in disease severity or demographic and neuropsychological variables. Six patients with binding impairments showed a multiple domain profile whereas ten patients with a preserved binding function showed an amnesic profile [Chi-square = 5.45, $p = 0.020$]. These results suggest that (1) the binding task is assessing a function different from other memory tests and that (2) STM binding may be differentially impaired in MCI subgroups.