Distinguishing between working memory and inhibition impairment in dementia

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Dementia is often associated with impairments of both working memory and inhibitory control. However, it is unclear whether these are functionally distinct impairments. So far the eye-tracking studies of IC have relied heavily on studies that are based on the average scores from groups that were tested at a given time point. A detailed assessment of individual cases can address questions in relation to the dissociation of cognitive operations, which cannot be resolved by the average scores from a group of diverse patients. A key aim is to determine the value of eye-tracking in detecting early dementia. Are deficits of eye-tracking evident before impairments in traditional cognitive assessment in people with dementia? Do impairments of working memory and inhibitory control emerge at the same time in dementia? The patient group consisted of 18 patients with early dementia (13 males, 5 females). All patients underwent a detailed clinical history, physical/neurological examination and routine investigations. An old control group 18 healthy participants (8 males, 10 females) were volunteers from the local Lytham community. All OC participants underwent a detailed neuropsychological assessment. Tests for the dissociations of neurocognitive inhibitory control (anti-saccade) and working memory span were conducted with reference to the control sample using the revised standardized difference tests. Results: 33% patients from the original sample (N=17) met the Crawford and Garthwaite (2005) statistical criteria for a “strong” dissociation. Some patients revealed a preserved working memory capacity together with poor inhibitory control in the anti-saccade task. A longitudinal follow-up revealed that the defective inhibitory control emerged 12-months before the dementia was evident on the mini-mental state examination assessment. Other cases revealed a poor working memory together with a well-preserved level of inhibitory control. There is increasing evidence that people with early Alzheimer’s disease have subtle impairments in cognitiveinhibitory control that are often undetected by traditional cognitive assessments. We suggest that inhibitory impairment should be a focus of treatment, disease monitoring and assessment in pharmacological drug trials.