

The course of Alzheimer's disease in adults with Down's syndrome: evidence for the early compromise of frontal lobe function

Summary

People with Down's syndrome (DS) are known to be at very high risk of developing Alzheimer's disease (AD) in middle-age. Recent research has suggested that the early presentation of dementia in this population may differ from that typical of AD in the general population, with the majority of the earliest changes occurring in personality or behaviour rather than in memory. The similarity of this clinical picture to that of frontal type dementia (FTD) has led to the hypothesis that the functions of the frontal lobes are compromised early in the progression of AD in DS, perhaps as a consequence of the developmental abnormality of this brain region.

Within this thesis, two studies are described that test this hypothesis. The first, involving the longitudinal follow-up of a previously identified population sample of older people with DS, examines progression in clinical presentation over time and the sequence of decline on measures of memory and executive function (EF; the cognitive processes associated with the frontal lobes). The second, a cross-sectional study in an expanded sample, examines in detail the relationship between early informant-reported changes and performance on an extensive battery of EF tests (developed specifically for use in this study) as well as on memory measures.

The findings of both studies are supportive of the hypothesis outlined above. Individuals showing personality or behaviour changes at baseline were found to progress to the full clinical presentation of AD over time. In individuals without dementia, such changes were found to be related to poorer performance on EF but not memory measures, indicative of an early selective impairment in frontal lobe functioning. A model for the clinical course of dementia in DS is presented and the clinical implications of these findings are discussed, with particular reference to the assessment, diagnosis, management and treatment of dementia in this population.