

The functional contribution of medial temporal lobe regions to profiles of memory impairment in dementia: an interdisciplinary project using neuropsychological and neuroimaging methodologies

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Title of project or programme

Title of PI The functional contribution of medial temporal lobe regions to profiles of memory impairment in dementia: an interdisciplinary project using neuropsychological and neuroimaging methodologies

Principal Investigators of project/programme grant

Title	Forname	Surname	Institution	Country
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Country

- United Kingdom

Total sum awarded (Euro)

796447

Start date of award

02-10-2002

Total duration of award in months

104

The project/programme is most relevant to

- Alzheimer's disease and other dementias

Keywords

Research abstract in English

Little research has been aimed at the development of tasks which separate AD from other neurodegenerative causes of dementia, especially those in which there is also significant memory impairment (eg, frontotemporal dementia, FTD); and in addition many of the currently available tests were developed independently of recent advances in our understanding of human memory. The main aim of the research programme proposed here is to address these issues, using our theoretical knowledge about the bases of memory impairment to develop sensitive and specific measures for differentiating between the most common causes of dementia. The timing of this programme is highly appropriate: recent investigations in nonhuman primates challenge widely held views about the role of medial temporal lobe (MTL) structures in human memory, when considered alongside recent insights from structural neuroimaging and neuropsychological measures for the diagnosis of dementia. Two broad questions will be addressed in our research programme. First, is there agreement between findings from studies of memory in nonhuman primates and humans? If not, what are the commonalities and differences? Second, how can our knowledge of human memory systems be used to create clinically useful tasks that differentiate between dementia conditions (eg, AD versus FTD), and measure conversion to dementia from Mild Cognitive Impairment (MCI)? To undertake this multidisciplinary research project, the co-applicants have the help of an international team of experts in human and monkey neuropsychology, neuroanatomy, neuropathology and neuroimaging. Groups of patients with early AD, MCI, dementia with Lewy bodies (DLB), and the frontal and temporal variants of FTD will be contrasted using computerised tasks inspired by findings from the nonhuman primate literature. Performance on these tests will be compared with results obtained from the use of novel structural neuroimaging methods. To delineate the functional anatomy of regions within the temporal lobe, functional imaging paradigms based on our recently designed neuropsychological tests will be applied, initially in normal volunteers, but later in MCI patients. The long-term goal of the research programme is the development of a battery of theoretically derived, sensitive, accurate and easy to administer tests for use in clinical practice.

Lay summary

In which category does this research fall?

- Basic research