Developing New Methods to Help Study Cognitive Decline in Dementia

A team of researchers from London, Italy and Cambridge, developed a complex statistical technique to try to predict a time when all Alzheimer’s patients are at the same disease stage.

The Challenge

Alzheimer’s disease is the most common form of dementia with over half a million people suffering with the disease in the UK today. Alzheimer’s disease affects the brain, leading to devastating symptoms including memory loss and problems with thinking, problem-solving and language. Understanding more about the disease including how and why people seem to deteriorate at different rates is important so that patients are diagnosed correctly and the most suitable treatments are offered to patients.

One of the main challenges in research is that patients can be at different stages of the disease when they are first assessed by a doctor – and when they could be entered into a research study - which can affect the study results.

The Research

A team of researchers from London, Cambridge and Milan wanted to address this problem by developing a complex statistical technique called temporal clustering to try to predict a time when all patients are at the same disease stage. This is comparable to estimating each individual’s date of disease onset.

The Results

Researchers used data from a questionnaire called the Mini-Mental State Examination which is regularly used to assess mental function in Alzheimer’s disease patients. They found that their method could accurately distinguish between two groups of patients who declined at slower and faster rates, and that the group showing faster decline had higher levels of known risk factors for Alzheimer’s disease including a protein called ApoE4.

The Impact

Further development and use of this method in the future could make it easier for researchers to identify risk factors affecting mental decline for these patients.

For more information about dementia visit: www.nhs.uk/Conditions/dementia-guide/

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