New way to diagnose Alzheimer's disease promises earlier treatment

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Physicians may be able to detect and treat Alzheimer's Disease (AD) in its earliest stages, when patients are experiencing only mild degrees of cognitive impairment, thanks to new diagnostic criteria proposed by an international group of researchers.

Published in *Lancet Neurology*, the development of new guidelines was co-led by Dr. Howard Feldman, head of the Div. of Neurology in the University of British Columbia's Faculty of Medicine.

Feldman, who directs the Clinic for Alzheimer's Disease and Related Disorders at Vancouver Coastal Health, co-authored the paper with French researcher Dr. Bruno Dubois and investigators from countries that include Japan, the U.S. and England. Feldman is a member of Vancouver Coastal Health Research Institute (VCHRI).

The proposed criteria are based on examining the structure and function of the brain using advanced brain imaging techniques as well as looking at spinal fluid for the imprint of the disease. Early detection will allow researchers to test vaccines that might be used preventively or to treat fully affected individuals, or other drug treatments that are directed at the earliest stages of the disease – the best time to reduce symptoms.

Existing criteria, established in 1984, involve a two-step approach of evaluating functional disability and then looking for a cause, meaning diagnosis and treatment is delayed until patients have significant dementia symptoms.

“Integrating the profound neurobiological advances of the last 20 years allow for diagnoses based on more than declining functional ability,” says Feldman, a senior investigator with the Brain Research Centre (BRC) at UBC Hospital. “We now have advanced diagnostic tools – distinctive and reliable biological indicators that can be detected before the patient crosses the dementia threshold of disability.”

The new criteria the researchers are proposing to the scientific community via the article represent a significant shift and will direct scientists and clinicians to a different focus than has been pursued over the last decade, he adds.

New diagnostic measures include a clinical core of early, progressive and significant episodic memory loss plus one or more abnormal biomarkers (biological indicators) characteristic of AD, including atrophy (wasting) of the temporal lobe as shown on Magnetic Resonance Imaging; abnormal amyloid Beta protein concentrations in the cerebrospinal fluid; a specific pattern showing reduced glucose metabolism on Positron Emission Tomography scans of the brain; and a genetic mutation for AD within the immediate family.

AD is a neurodegenerative disease characterized by progressive cognitive deterioration and is the most common form of dementia. The Alzheimer Society of Canada estimates that the disease affects more than 238,000 Canadians and that by 2031 about 750,000 Canadians will suffer from AD and related dementias. Approximately $5.5 billion per year is spent caring for persons with AD and related dementias in Canada. The Alzheimer’s Association in the U.S. estimates there are approximately 500,000 Americans younger than 65 with Alzheimer’s or other dementia.

Source: University of British Columbia