New technique opens door to early Alzheimer's diagnosis

June 16 2009

A new diagnostic technique which may greatly simplify the detection of Alzheimer's disease has been discovered by researchers at McGill University and the affiliated Lady Davis Institute for Medical Research at Montreal's Jewish General Hospital (JGH). Their results were published June 8 in the *Journal of Alzheimer's Disease*. There is currently no accepted blood test for Alzheimer's, and the diagnosis is usually based on expensive and labour-intensive neurological, neuropsychological and neuroimaging evaluations.

Dr. Hyman Schipper and colleagues at the Lady Davis Institute and McGill University utilized a new minimally-invasive technique called near-infrared (NIR) biospectroscopy to identify changes in the blood plasma of Alzheimer's patients, changes which can be detected very early after onset, and possibly in pre-clinical stages of the disease.

Biospectroscopy is the medical form of spectroscopy, the science of detecting the composition of substances using light or other forms of energy. In NIR spectroscopy, different substances emit or reflect light at specific, detectable wavelengths.

In this study, Schipper and his colleague Dr. David Burns - head of McGill's Biomedical Laboratory for Informatics, Imaging and Spectroscopy at the department of chemistry - applied near-infrared light to blood plasma samples taken from patients with early Alzheimer's dementia, mild cognitive impairment (MCI) == an intermediate state between normal cognition and dementia -- and healthy elderly control

subjects at the JGH/McGill Memory Clinic. Using this technique, the researchers were able to distinguish Alzheimer's from healthy controls with 80 per cent sensitivity (correct identification of patients with the disease) and 77 per cent specificity (correct identification of persons without the disease). A significant number of subjects with MCI tested positively with the Alzheimer group, indicating that the test may be capable of detecting Alzheimer disease even before patients' symptoms meet clinical criteria for dementia.

"We are very encouraged by these data and look forward to testing this potential diagnostic tool in larger-scale studies", said Schipper, Director of the Centre for Neurotranslational Research at the JGH and professor of neurology and medicine at McGill. Researchers have been searching for a minimally-invasive biological marker that differentiates Alzheimer's disease from normal aging and other neurodegenerative conditions for decades.

"The advent of a simple blood test for the diagnosis of early Alzheimer's", remarked Schipper, "would represent a major achievement in the management of this common disorder".

Source: McGill University (news : web)