

Blood test for Alzheimer's: Study identifies procedure that detects early stages

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(Medical Xpress) -- A new blood test that will diagnose Alzheimer's disease may soon hit the market, thanks to an innovative study from the Research Institute of the McGill University Health Centre (MUHC). Their findings have characterized a unique biochemical diagnosis, which identifies patients with this devastating disorder. This research, published in the month's issue of the *Journal of Alzheimer's Disease*, has implications for the half-a-million Canadian sufferers and many millions more worldwide.

"Until now, there has been no definitive [diagnostic tool](#) for Alzheimer's, other than postmortem analysis of [brain tissue](#)," says senior author Dr. Vassilios Papadopoulos, director of the MUHC Research Institute. "Our clinical study shows that a non-invasive [blood test](#), based on a biochemical process, may be successfully used to diagnose Alzheimer's at an early stage and differentiate it from other types of [dementia](#)."

The biochemistry behind the test

Papadopoulos and colleagues based the Alzheimer's blood test on the production of a brain hormone called dehydroepiandrosterone (DHEA). This hormone is present at high levels in the brain where it has a wide range of biological effects.

The researchers were able to promote the production of DHEA, using a chemical process called oxidation, in blood taken from non-Alzheimer's patients. However, oxidation of blood from Alzheimer's patients did not

result in an increase of DHEA.

"There is a clear correlation between the lack of ability to produce DHEA through [oxidation](#) in the blood and the degree of [cognitive impairment](#) found in Alzheimer's disease," says Papadopoulos. "We demonstrated we could accurately and repetitively detect Alzheimer's disease, with small samples of blood. This test also allowed for differential diagnosis of early stages of Alzheimer's disease, suggesting this can be used as a test to diagnose the disease in its infancy."

Treatment implications

"There are many candidate disease-modifying therapies that target the underlying development of [Alzheimer's disease](#), which are in clinical trials," adds Papadopoulos. "However, the implementation of any therapy is dependant on the reliability of the diagnosis."

Currently the diagnosis of Alzheimer's follows the sequence of family history, information, mental assessment and the physical exam, focusing on neurological signs.

"An accurate, easy and specific non-invasive biochemical test that correlates with clinical findings is vital. We believe our results demonstrate that the DHEA-oxidation blood test can be used to diagnose Alzheimer's at a very early stage and monitor the effect of therapies and the evolution of the disease."

More information: A lead study on oxidative stress-mediated dehydroepiandrosterone formation in serum: The biochemical basis for a diagnosis of Alzheimer's disease, *Journal of Alzheimer's Disease*. www.j-alz.com/

Provided by McGill University Health Centre

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