View this article online at: patient.info/news-and-features/alzheimers-blood-test-could-predict-disease-20-years-in-advance

Blood test could predict Alzheimer's 20 years before symptoms

Researchers may be one step closer to developing a blood test for Alzheimer's disease which is 94% accurate in detecting early changes in the brain.

The study, published in the journal Neurology, reported that levels of the Alzheimer's protein amyloid beta in the blood can be measured and used to predict whether it has accumulated in the brain. The protein is known to build up for up to twenty years before someone develops the symptoms of Alzheimer's disease, meaning the test could be used to detect early changes and provide earlier treatment.

Alzheimer's disease is an incurable cause of dementia. It is progressive and affects brain functions including memory. It affects around 850,000 people in the UK, more commonly in older age groups. Around one in 14 people over 65 and one in six people over 80 have Alzheimer's.

Researchers from Washington University School of Medicine in St Louis found that combining blood amyloid levels, age and the presence of the genetic variant APOE4 (all of which are risk factors for Alzheimer's) could detect early brain changes with 94% accuracy. They believe that this could be even more accurate than using a PET brain scan which is the current gold standard diagnosis.

The study involved 158 adults over the age of 50. All but 10 had normal cognitive function, and when the blood test results alone were compared with a PET scan, the test agreed with the scan 88% of the time. To improve accuracy, they combined the results with major risk factors for Alzheimer's: age and APOE4 genetic variant. This raised the accuracy to 94%.

Some of the blood tests were initially considered false positives as levels of amyloid beta were picked up by the tests but not the PET scan. However, some people with mismatched results tested positive on brain scans up to four years later, suggesting that the test could detect the protein much earlier than a PET scan. This is especially positive as it is now thought that treatment needs to begin as early as possible before memory loss begins to be effective.

Whilst the test could be made available within years, the researchers note that it will be far more valuable once there are treatments to halt and prevent the development of dementia.

"Right now we screen people for clinical trials with brain scans, which is time-consuming and expensive, and enrolling participants takes years," explained senior author of the study, Randall J. Bateman, MD, Professor of Neurology. "But with a blood test, we could potentially screen thousands of people a month. That means we can more efficiently enrol participants in clinical trials, which will help us find treatments faster, and could have an enormous impact on the cost of the disease as well as the human suffering that goes with it."

The creation of a blood test brings financial benefits as PET scans are extremely expensive to run. The cost can act as a barrier to research, explains Bateman.

"If you want to screen an asymptomatic population for a prevention trial, you would have to screen, say, 10,000 people just to get 1,500 or 2,000 who would qualify. Reducing the number of PET scans could enable us to conduct twice as many clinical trials for the same amount of time and money. It's not the $4,000 per PET scan that we're worried about. It's the millions of patients who are suffering while we don't have a treatment. If we can run these trials faster, that will get us closer to ending this disease."

This study was published in the journal Neurology.

Last updated by: Milly Evans 02/08/2019	
Peer reviewed by: Natalie Healey 02/08/2019	

View this article online at: patient.info/news-and-features/alzheimers-blood-test-could-predict-disease-20-years-in-advance

Discuss Blood test could predict Alzheimer's 20 years before symptoms and find more trusted resources at Patient.