

Alzheimer's diagnosis: new blood test can detect disease

Breakthrough boosts hope of early treatment

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The test could speed up diagnosis and could be in use in little more than a year
ALAMY

A simple blood test that can detect the onset of Alzheimer's has been developed by scientists in a breakthrough for combating the disease.

The test could speed up diagnosis in GP surgeries and boost the development of drugs to tackle the condition. At present there is no effective treatment but the illness will affect 600,000 Britons by 2025.

Researchers showed that the test had more than 90 per cent accuracy in spotting toxic proteins in the brain that can be an early indication of the disease. This could enable doctors to identify the illness before memory loss or mental decline.

Randall Bateman, from Washington University School of Medicine and one of the scientists behind the test, said that the procedure could be in use in little more than a year as a means of recruiting people en masse for clinical trials.

Alzheimer's spreads in the brain for years and even decades before symptoms appear. Billions of pounds have been invested in drugs to tackle beta amyloid, the protein believed to be its primary cause, but all trials have failed. Many researchers think this is because the drugs were used too late and that interventions will work only if the disease is caught before it has caused extensive brain damage.

By spotting the beta amyloid years earlier, scientists hope that the test will allow them to measure these interventions in cognitively normal people.

Although brain scans known as Pet scans can also be used to identify the build-up of these proteins in the brain, they are too costly and time consuming to be used at scale. This has made the search for a quick early diagnostic tool one of the key goals of Alzheimer's research, with backing from all the big dementia charities as well as the Bill and Melinda Gates Foundation.

Professor Bateman said that his blood test, details of which were published in the journal *Neurology*, was sufficiently advanced that it might be the answer. "The big benefit with this test is that you can run trials much faster, recruit and identify people much more quickly," he said. "If we are running 50 per cent more trials we will get to effective therapies much faster. To me that translates into helping millions of people."

The study involved 158 older people, who had both Pet scans and blood tests. Most appeared cognitively normal at the start of the study, but the Pet scan showed some had the protein build-up that is characteristic of the very early stages of Alzheimer's. He and his colleagues found that the verdict of the blood test corresponded with that of the Pet scan, considered the gold standard, 90 per cent of the time.

There was also evidence that when it did not give the same answer it was because the Pet scan was wrong, rather than the blood test.

"What we found was that if a blood test was abnormal and the Pet said normal, more than half the time the blood was correct. Later, people's Pet scans became abnormal. People who had an abnormal blood test were 15 times more likely to have an abnormal Pet scan within five years or so."

Sara Imarisio, the head of research at Alzheimer's Research UK, said that a test to spot Alzheimer's early could be revolutionary advance in beating the disease.

"Alzheimer's brain changes begin decades before dementia symptoms start to show and life-changing drugs are likely to be most effective at these early disease stages.

“An accurate and reliable blood test for Alzheimer’s that can pick up these early changes could revolutionise dementia research and dramatically improve how we select people for early-stage drug trials.”

However, she cautioned that although this test picked up beta amyloid build-up, the team behind it had not yet made the final connection to show that the people identified as most at risk also went on to develop full-blown dementia.

James Pickett, from the Alzheimer’s Society, agreed and added that he now wanted to see this procedure tested in a larger population group. However, he said that it was already very promising.

“This test will speed up dementia research by identifying those at risk of Alzheimer’s who might be suitable for clinical trials aimed at preventing or delaying the development of dementia,” he said.

“While the idea of an Alzheimer’s blood test feels like it has been around for decades, advances in technology over the last couple of years mean that it is now a becoming a reality, and fast.

“This is an incredibly exciting area of progress in dementia research.”

Analysis

Amid all the excitement about an Alzheimer’s blood test, there is one word no one is using: screening. At first, this seems odd. If it lives up to its promise this would be a simple, cheap and effective test that could be done in a GP surgery. So why not use it?

The answer is as depressing as it is simple: because there is no point. Even if we could spot early signs with 100 per cent accuracy, there is still nothing we could do with the information. That is why most people would rather live in ignorance.

The search for an Alzheimer’s cure has been one of the greatest failures in modern medicine. Pharmaceutical companies have spent billions developing drugs to tackle beta amyloid, the protein still believed to be behind the disease. Each of their drugs made it through early testing, passed two rounds of clinical trials, then failed at the final stage. None did so much as slow the disease.

During the two decades in which the hunt for a protein killer has failed not all research has been unsuccessful. Until a few years ago, the only way to know if you had Alzheimer’s was to die. Only then could doctors spot the tell-tale clumps in your autopsied brain. This is no longer the case.

Brain scans, and to a lesser extent cerebrospinal fluid tests — which require what is effectively a minor operation — have allowed doctors to follow the progress of Alzheimer's patients while knowing for certain that that is what they actually have.

Now it is possible that blood tests will take that further, and allow them to do so at scale — and start early. Then we can begin to understand a mysterious condition right from the time its insidious proteins begin to build their webs in our brains.

Maybe the lesson is with Alzheimer's we put the cart before the horse. We have been trying to cure a condition that we could not yet even reliably spot. Now, that is changing.