

Test finds evidence of early-stage Alzheimer's

Scientists hope examination of brain, spinal fluid can help diagnose disease

By Tina Hesman

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WASHINGTON — Alzheimer's disease starts years or even decades before symptoms begin. Now scientists at Washington University and the University of Pittsburgh say they can see evidence of the disease in the brains and spinal fluid in people in the early stages of dementia and in a few people who don't yet have memory problems.

Anne M. Fagan Niven, a researcher at Washington University, presented the results of the universities' joint study this past week at the annual meeting of the Society for Neuroscience.

The technique is not yet available in the doctor's office, Fagan said, but the researchers are moving closer to being able to detect Alzheimer's disease before brain cells start to die.

Initially, the test could be used to monitor experimental drugs and determine whether a person with memory problems has Alzheimer's disease or another brain defect. Eventually, the test or similar measures could be used to identify people at risk of developing the disease who could benefit from treatments to stop or slow brain cell death.

Fagan and her colleagues examined two dozen people, including some in the early stages of dementia and some with no symptoms of disease. The researchers drew fluid from the volunteers' spinal columns and probed the fluid to determine the levels of a protein called Amyloid-beta 42, which also is known as A-beta 42.

The protein builds up in brains of people with Alzheimer's disease and forms plaques. The plaques kill brain cells, producing memory loss.

In people without Alzheimer's disease, the protein is made in the brain, gets dumped into the spinal fluid and is flushed into the blood for disposal. But when the protein begins to build up in the brain, more A-beta gets absorbed into plaques, leaving less to reach the spinal fluid, Fagan said.

She and her colleagues found that people with symptoms of Alzheimer's disease had low levels of the A-beta 42 protein in their spinal fluid.

The scientists also used a compound, called PIB, which helps researchers detect plaques during brain scans. As expected, Fagan found that the people with dementia and low levels of the protein in spinal fluid also had A-beta 42 plaques in their brains.

But three people who didn't show any symptoms of Alzheimer's disease also had low A-Beta 42 levels in their spinal fluid and plaques in their brains. The researchers are tracking the volunteers to find out whether they will develop the disease.

Fagan cautioned that the only definitive test for Alzheimer's disease is still a brain autopsy.