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# A Possible Blood Test for Alzheimer's Disease

**AP**
Alexis McKenzie, right, executive director of an Alzheimer's assisted-living home in Washington, walks with resident Catherine Peake in February

JUNE SIMMS: This is SCIENCE IN THE NEWS in VOA Special English. I'm June Simms.

SHIRLEY GRIFFITH: And I'm Shirley Griffith. Today we tell about Alzheimer's disease. More than a century after its discovery, Alzheimer's disease is still destroying people's brains. There is no known cure. But research may offer hope for the future.

(MUSIC)

JUNE SIMMS: Alzheimer's disease affects memory and personality -- the qualities that make people individuals. The disease robs their ability to perform simple activities like putting on clothing or even swallowing. People with the condition begin to forget simple things, like where they left the key to their car. As time passes, they forget more and more. They may forget what a key is used for.

Victims of Alzheimer's can forget the names of their husbands, wives or children. Then they forget who they are. Finally, they remember almost nothing. It is as if their brains die before the other parts of the body.

Alzheimer's patients do die from its effects or conditions linked to it. But death may not come for many years.

SHIRLEY GRIFFITH: An estimated thirty million people around the world have Alzheimer's disease. Alzheimer's affects people of all races equally. Women are more likely to develop the disease than men. This is partly because women generally live longer than men.

The disease generally develops differently in each person. Yet some early signs of the disease are common. The victims may not recognize changes in themselves. Or they may struggle to hide them.

JUNE SIMMS: Media reports tell about older adults found walking far from their homes. They do not know where they are or where they came from. These people often are suffering from Alzheimer's.

Victims of the disease can become angry and violent as the ability to think and remember decreases. They sometimes shout and move with no apparent purpose or goal. Or they may become very quiet.

SHIRLEY GRIFFITH: Probably the most-common early sign of Alzheimer's is short-term memory loss. People with the disease cannot remember something that happened yesterday, for example. Also, they have increasing difficulty learning and storing new information. Slowly, thinking becomes much more difficult. The victims cannot understand a joke, or cannot cook a meal, or perform simple work.

Another sign is difficulty solving simple problems. Alzheimer's patients might not know what to do if they see food burning. They also may have trouble following directions or finding their way to places they have known all their lives.

Another sign is struggling to find the right words to express thoughts or understand what is being discussed. People with Alzheimer's seem to change. Quiet people may become noisy and aggressive. They may easily become angry and lose their ability to trust others.

(MUSIC)

JUNE SIMMS: Alzheimer's disease normally affects people more than sixty-five years old. But rare cases have been discovered in people younger than fifty.

Alzheimer's is identified in only about two percent of people who are sixty-five. But the risk increases to about twenty percent by age eighty. By eighty-five or ninety, half of all people are found to have some signs of the disease.

SHIRLEY GRIFFITH: About five million people in the United States have Alzheimer's. That number is expected to more than double by the year twenty fifty as the number of older Americans increases. The Alzheimer's Association says medicines approved for use are effective in half the patients who take them. Among those fifty percent, the drugs are effective for six to twelve months.

JUNE SIMMS: For years, scientists have been attempting to learn who may develop Alzheimer's. If the condition could be identified before its worst signs appear, people might get at least temporary medical help.

The most widely-held belief about the cause of Alzheimer's is that a protein -- called beta-amyloid -- builds up in patients' brains. It has also been found in the spinal fluid of Alzheimer's patients. Large amounts of this protein may destroy a person's ability to think.

But some scientists question whether beta-amyloid causes the disease. They think that the protein build-up may result from it. Still, most researchers say thick tangles or plaques of the protein are responsible for the condition. Plaques are unusual clusters, or groups, of proteins. The researchers say beta-amyloid destroys communication links in the brain.

(MUSIC)

SHIRLEY GRIFFITH: Among older people, Alzheimer's is the most-common form of dementia - the loss of abilities needed to have a normal life. Other mental conditions may seem like Alzheimer's. Those conditions need medical treatment that is different from treatment for Alzheimer's. A correct diagnosis, or identification, is important.

The best way to diagnose the disease has been a medical examination of the brain after a person dies. Doctors say methods to test the living have presented problems, like high costs. One such method is an MRI or magnetic resonance imaging. Another imaging test is positron emission tomography, also known as PET. It makes scans or pictures that doctors can study.

JUNE SIMMS: Researchers know that people's brains start changing ten to fifteen years before they show signs of Alzheimer's disease. That is why they are exploring ways to test people early so they can delay, or someday even stop, the progress of the disease.

Madhav Thambisetty is with the National Institutes of Aging, part of America's National Institutes of Health. Dr. Thambisetty led a study that used a blood test to measure levels of beta-amyloid in the brain. The test could be given to seemingly healthy people before any signs or symptoms of Alzheimer's appear.

MADHAV THAMBISETTY: "We're looking for blood proteins that might be indicative of the extent of brain damage that we know occurs very early on in patients with Alzheimer's disease."

In the study, researchers studied blood samples from fifty-seven older volunteers who had no symptoms of Alzheimer's. They also used PET scans to measure the amyloid protein. They found that volunteers with high blood levels of amyloid had much higher levels of it in the part of the brain that controls memory. Dr. Thambisetty found the results interesting.

MADHAV THAMBISETTY: "Recent studies suggest that the deposition of amyloid might happen several years before symptoms of memory impairment begin in somebody with Alzheimer's disease."

SHIRLEY GRIFFITH: Another test for the disease uses a new kind of brain scan to identify protein in the brain. In January, the United States Food and Drug Administration held hearings about a special radioactive dye that connects to the protein. The special dye can be seen on PET scans.

People who were near the end of their lives agreed to have both the brain scan and an autopsy performed after they died. An autopsy is a medical examination of the body after someone dies. The researchers reported that in almost all of the people, the scan results were nearly the same as the autopsy results.

JUNE SIMMS: Neil Buckholtz is chief of the Dementias of Aging Branch at the National Institute on Aging. He says early intervention is important in the fight against the disease.

NEIL BUCKHOLTZ: "How these changes progress over time, so that we'll be able to target those for drug intervention, and again, eventually we'll be able to slow the progression and, hopefully, stop the disease in its tracks."

The United States recently announced new steps for fighting Alzheimer's disease. Last month, the government made fifty-million dollars immediately available for research on the disease. It also announced plans to increase research spending by eighty million dollars in the next fiscal year, which begins in October.

SHIRLEY GRIFFITH: In nineteen six, a German doctor, Alois Alzheimer, described a dementia patient whose brain was examined in an autopsy. Her brain had sticky structures and nerve cells that appeared to be mixed together. Today, researchers are still working to uncover the causes of, and treatments for, this stubborn medical mystery.

(MUSIC)

JUNE SIMMS: This SCIENCE IN THE NEWS was written by Christopher Cruise, with reporting by Carol Pearson.

SHIRLEY GRIFFITH: I'm Shirley Griffith with June Simms, who was also our producer. Join us again next week for more news about science in Special English on The Voice of America.