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Blood test could diagnose Alzheimer's disease, UT Southwestern researchers find in statewide study

DALLAS – Oct. 6, 2010 – A set of proteins found in blood serum shows promise as a sensitive and accurate way to diagnose Alzheimer's disease, researchers at UT Southwestern Medical Center have found as part of a statewide study.

An analysis of the proteins, plus a clinical exam, proved 94 percent accurate in detecting suspected Alzheimer's and 84 percent accurate in ruling it out in people without the disease, the researchers said.

"This research uses a novel technology that makes it possible to analyze several biomarkers in a single blood sample in a cost-effective way," said Dr. Ramón Díaz-Arrastia, professor of neurology at UT Southwestern and senior author of the study which was published in the September issue of the *Archives of Neurology*.

Researchers have been seeking a simple blood test for Alzheimer's for years, Dr. Díaz-Arrastia said, but no single substance, or "biomarker," has been shown to be useful. Such a test, he said, would be comparable in principle to measuring blood cholesterol as a biomarker of cardiovascular disease.

Alzheimer's disease is an incurable degenerative brain disease, which currently afflicts about 5.3 million people over 65 in the U.S., according to the National Alzheimer's Association. By 2050 that number is expected to reach 11 million or more.

The disease is difficult to diagnose, particularly in its early stages when it resembles other cognitive problems. Currently, a definitive diagnosis is possible only after examining the brain tissue of deceased individuals. Tests for suspected Alzheimer's are often expensive or invasive, and not every patient is able or willing to undergo them, the researchers stated.

A blood test would provide a convenient diagnostic method that could be performed by health care workers nearly anywhere. In addition, a definitive diagnosis is important because treatments specifically targeting Alzheimer's might not be effective against other forms of neurodegenerative disease or cognitive decline, Dr. Díaz-Arrastia said.

Researchers associated with the Texas Alzheimer's Research Consortium, a five-university group funded by the state, carried out the research. In the current study, the scientists analyzed blood

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samples from 197 Texas patients who had suspected Alzheimer's and 203 people without the disease.

The researchers measured more than 100 blood proteins and created a mathematical analysis that could measure a person's risk of having Alzheimer's. The analysis, combined with information from a clinical exam, accurately detected Alzheimer's 94 percent of the time, and correctly ruled out Alzheimer's 84 percent of the time in people without the disease, Dr. Díaz-Arrastia said.

Neither the blood test nor a clinical exam alone was as accurate on its own as the blood test and clinical exam combined, the researchers found.

"Having a diagnosis is an important step, but it's not the end of the road unless you've got a treatment or a cure," Dr. Díaz-Arrastia said.

The next step in the work is to determine whether the biomarker test can detect accurately Alzheimer's in preserved blood serum from patients who have been diagnosed definitively by an autopsy.

Other UT Southwestern researchers participating in the study were Dr. Guanghua Xiao, assistant professor of clinical sciences; Dr. Joan Reisch, professor of clinical sciences and family and community medicine; and Dr. Perrie Adams, professor of psychiatry.

Also participating were researchers from Texas Tech University Health Sciences Center, University of North Texas Health Science Center, Baylor College of Medicine, and Marshfield Clinic Research Foundation.

The study also was funded by the National Institutes of Health.

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