

Testing for inflammatory proteins can help diagnose progression of Alzheimer's disease

August 26 2021, by Modesta (Maud) Alobawone



PET scan of a human brain with Alzheimer's disease. Credit: public domain

Testing for some inflammatory proteins associated with the nervous and immune systems will help diagnose the earlier onset and progression of Alzheimer's disease, according to a Rutgers study.

The study, published in the journal *Nature Communications*, analyzed 15 cerebrospinal fluid proteins related to cells in the nervous and immune systems in 382 participants. The researchers found that a group of proteins represented by TNFR1 were associated with slower decline in the very early stage of Alzheimer's, while another protein called TREM2 was only useful once dementia set in.

Alzheimer's disease is the sixth-leading cause of death in the United States and the fifth-leading cause of death among Americans age 65 or older. Although scientists have been able to diagnose the disease for many years, they have been unable to identify when people with the earliest cognitive symptoms will show progression of the disease.

Researchers say this is the first study that provides insight into how Alzheimer's disease progresses that can be readily deployed in the clinic. For many families, knowing whether they have a slow or fast form of the disease for a loved one will better assist in customizing treatment plans.

"For many years, the ability to identify the slower or faster progression of Alzheimer's disease eluded the medical community," said William Hu, an associate professor and chief of cognitive neurology at the Rutgers Robert Wood Johnson Medical School. "We hope our study will provide many families with the ease and ability to make certain plans for their loved ones and to bring some equity when undergoing tests during the initial diagnosis of the disease."

Researchers say testing for Alzheimer's and these inflammatory proteins from a single [spinal fluid](#) procedure will eliminate unnecessary testing routines, including repeated PET scans, that many Alzheimer's patients go through.

According to the Centers for Disease Control and Prevention (CDC), Alzheimer's is the most common type of [dementia](#), with more than 5.8

million Americans living with the disease. The CDC estimates this number will double every five years for people beyond age 65.

Dr. Hu is working with Rutgers Innovation Ventures to turn this discovery into a clinical test, and design clinical trials to explore the findings of this study further.

More information: William T. Hu et al, Higher CSF sTNFR1-related proteins associate with better prognosis in very early Alzheimer's disease, *Nature Communications* (2021). [DOI: 10.1038/s41467-021-24220-7](https://doi.org/10.1038/s41467-021-24220-7)

Provided by Rutgers University

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