



the compassion to care, the leadership to conquer

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ALZHEIMER'S ASSOCIATION STATEMENT
Regarding an ADNI Biomarkers Article from *Archives of Neurology*
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(Note to reporters: This statement, or excerpts from it, may be attributed to William Thies, PhD, Chief Medical and Scientific Officer, Alzheimer's Association)

This is very well done article, by a top level research team, which uses very sophisticated mathematics for identifying and analyzing possible Alzheimer's disease biomarkers in cerebrospinal fluid (CSF). The findings suggest that low levels of beta amyloid protein and high levels of tau protein in cerebrospinal fluid are a "signature" that is characteristic of Alzheimer's disease, and can also be found in most people with mild cognitive impairment, a condition that often precedes Alzheimer's disease dementia.

The researchers also found that 36 percent of cognitively normal people in the study had the "Alzheimer's signature" biomarkers in their spinal fluid at similar levels to people with Alzheimer's disease. This finding provides further evidence for the idea that there are Alzheimer's-related changes in the brain 10, 15 even 20 years before we see outward symptoms.

No one should be tested now using this biomarker "signature." It needs to be studied further and confirmed in long-term studies.

- For example, this paper may give us good insight into which proteins we need to look at in spinal fluid but we don't know yet what are normal and abnormal measurements. That is, we do not yet have a widely accepted cut off point as we do, for example, with "200" in total cholesterol.
- Nor is the collecting and measuring of these proteins in CSF standardized in medical practice. The Alzheimer's Association is leading a global effort to standardize procedures in collecting, storing, and measuring Alzheimer proteins in CSF.
- In addition, long-term studies are needed that start with cognitively normal participants who can be followed-up for 10 years or more. In this way, we could see how many of those people who have the biomarker signature but do not have symptoms go on to get Alzheimer's disease dementia.

Here's what is exciting to us now. This research brings us one step closer to our vision of detecting and treating Alzheimer's before symptoms start or in the very mildest of cases so that people (and their families) never have to experience the devastating effects of Alzheimer's dementia.

By clearly indicating that we may be able to detect brain changes related to Alzheimer's before we see outward symptoms of the disease, this article provides support for the current effort to revise the Alzheimer's disease diagnostic criteria that is being driven by the National Institute on Aging (NIA) and the Alzheimer's Association. (www.alz.org/documents_custom/Alz_Diag_Criteria_FAQ.pdf)

The proposed new diagnostic criteria reflect the well-accepted idea of a continuum of Alzheimer's disease – from presymptomatic Alzheimer's, to mild cognitive impairment, to Alzheimer's dementia. It is at the earliest stages of the disease that we hope to be able to eventually intervene with disease modifying treatments, when they become available, and for which we need participants for clinical trials now.

Ultimately, this approach envisions what is now common practice in heart disease, where early signs of risk – blood pressure, cholesterol, genetic markers – can be detected and treated to reduce heart attacks or strokes later on.

To get the answers that we all want about how Alzheimer's works, how we detect and treat it earlier, prevent it and eventually cure it, we need long term studies in Alzheimer's, and the allocation of more research dollars to make those large-scale, long-term studies possible. The Alzheimer's Association supports passage of The National Alzheimer's Project Act, which would launch a campaign within the federal government to overcome Alzheimer's disease.

http://www.alz.org/national/documents/Alz_Project_Act_2-24-10.pdf

Additional Background

(1) Finding Alzheimer's-related changes in the brains of cognitively normal people is not unexpected. These results are similar to findings in previously published studies that used PET scans to reveal images of amyloid buildup in the brain. In those studies, many older adults had amyloid plaques in their brains, yet did not yet show Alzheimer's symptoms. Autopsy studies suggest the same thing – that many older adults have plaques and tangles yet do not show dementia symptoms.

(2) The results of CSF beta amyloid and tau protein measurements do not stand alone as a single diagnostic test for Alzheimer's because they are seen in other diseases, too. Brain amyloid deposits may occur in people who do not have Alzheimer's, such as Parkinson disease and dementia with Lewy bodies, as well as in cognitively normal individuals. High tau protein levels are fairly nonspecific and may be seen after stroke and traumatic head injury, and in Creutzfeldt-Jakob disease.

(3) A biomarker is something that can be measured in the body that indicates or reflects the presence or severity of a disease state. For example, cholesterol levels and blood pressure are considered biomarkers of heart disease. Scientists are working hard to discover, verify and quantify biomarkers for Alzheimer's disease.

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