

Pittsburgh Compound B finds Alzheimer's-associated plaques in symptom-free older adults

November 10 2008

In the largest study of its kind, Pittsburgh Compound B, an imaging agent that could facilitate the early diagnosis of Alzheimer's disease, has been used to identify amyloid deposition in the brains of clinically older adults.

The findings, published in this month's issue of the *Archives of Neurology*, could not only shed more light on how the illness progresses, but also open the door to the possibility of prevention strategies, said senior investigator William E. Klunk, M.D., Ph.D., professor of psychiatry and neurology at the University of Pittsburgh School of Medicine.

He and study co-author Chester A. Mathis, Ph.D., a Pitt professor of radiology and pharmaceutical sciences, invented the imaging compound, dubbed PiB. It binds to certain forms of amyloid protein plaques that are thought to destroy brain cells and have been found in the brains of Alzheimer's disease patients. Before PiB, the deposits could only be identified during autopsy to confirm the diagnosis in hindsight.

Results of the study, which was led by Howard J. Aizenstein, M.D., Ph.D., associate professor of psychiatry and bioengineering at Pitt, "show that we can detect amyloid deposits before patients develop symptoms of Alzheimer's disease," Dr. Klunk said. "That means we might have a window of opportunity to slow or stop the process."

One surprising finding was that detailed tests of brain functioning conducted by study co-authors, Robert D. Nebes, Ph.D., professor of psychiatry, and Judith Saxton, Ph.D., associate professor of neurology and psychiatry, both of the University of Pittsburgh, showed no decrease in functioning among participants whose scans revealed the presence of the Alzheimer-associated amyloid deposits.

In the study, 43 people age 65 to 88 who had no impairment on cognitive testing were scanned with PiB and positron emission tomography. Nine of them (21 percent) showed early amyloid deposition in at least one area of the brain, which is similar to rates found in postmortem studies. That suggests there may be as many people in this age group with the early brain changes, but no visible symptoms, of Alzheimer's disease, as there are people with recognized Alzheimer's disease.

"The good news is it appears the brain can tolerate these plaques for years before the effects are apparent," Dr. Klunk noted. "The bad news is that by the time the symptoms emerge, the disease has had perhaps a 10-year head start."

He cautioned, "We suspect that people with amyloid deposits and normal brain functioning have a high risk of developing Alzheimer's disease in the future, but we do not yet have proof of this." Therefore, study protocol prohibits telling the research participants the results of their PiB scans.

"We simply do not yet know what a positive PiB scan means in a normal individual," Dr. Klunk explained. "We believe it is better to not reveal the results than to give a mistaken impression about something so important." The researchers plan to follow these individuals for years in this and larger studies to fully understand how the presence of amyloid deposits translates into future risk for Alzheimer's disease.

Source: University of Pittsburgh Schools of the Health Sciences

Citation: Pittsburgh Compound B finds Alzheimer's-associated plaques in symptom-free older adults (2008, November 10) retrieved 1 May 2024 from <https://medicalxpress.com/news/2008-11-pittsburgh-compound-alzheimer-associated-plaques-symptom-free.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.