One Alzheimer's Protein Builds Up More Quickly in Women

Tau, one of two proteins frequently found in people with Alzheimer's, proliferates more often in women.

September 14, 2021 By Jeanette L. Pinnace

Many researchers believe there must be a specific reason why more women develop Alzheimer's disease (AD) compared with men. Now, study findings published in the journal Brain show that tau, one of two types of proteins identified in the brains of people with AD—the most common form of dementia—amasses in elevated amounts most frequently in women, compared with men, reports MedicalXpress.com.

For the study, scientists from Lund University in Sweden used nuclear medicine imaging to check for tau and amyloid beta protein deposits in the brains of 419 people—210 men and 209 women—from four groups given scans between November 2014 and May 2019. Both proteins are known to collect in the brains of people with Alzheimer's.

Among participants, 153 individuals were not cognitively impaired, 139 suffered from mild cognitive impairment and 127 were diagnosed with Alzheimer's disease. Scans confirmed that some people without cognitive dysfunction as well as those with mild cognitive impairment had no deposits of amyloid beta in their brains, while the protein showed up in imaging for other study participants.

After adjusting for age and the amount of the protein initially present, researchers found that women had more tau deposits in their brains. They also noted that younger people with accumulations of amyloid beta also exhibited a higher rate of tau deposits.

"Tau accumulation rates vary greatly between individuals of the same sex, but in the temporal lobe, which is affected in Alzheimer's disease, we found a 75% higher rate in women as a group compared to men," said Ruben Smith, MD, PhD, an associate professor in the university's Clinical Memory Research Unit, and the first author of the study.

Deposits of tau collect more quickly in those with buildups of amyloid beta who are in the first stages of AD. But researchers want to learn why this accumulation is accelerated in women, especially since high levels of tau seem to precipitate memory loss, which affects women with Alzheimer's more so than men with the condition.

“Our study strongly indicates that the faster spread of tau makes women more prone to develop dementia because of Alzheimer’s pathology compared to men,” explained Oskar Hansson, another professor on the research team and a study co-author. “Future experimental studies will be important to understand the reasons behind this.”

For more about how AD affects women, read “Gender Bias” and "Widows at Risk for Alzheimer’s Face Faster Cognitive Decline."

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