

Beta-amyloid deposits increase with age, associated with artery stiffness

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Stiffening of the arteries appears to be associated with the progressive buildup of β -amyloid (β) plaque in the brains of elderly patients without dementia, suggesting a relationship between the severity of vascular disease and the plaque that is a hallmark of Alzheimer disease.

Evidence suggested [arterial stiffness](#) is related to brain aging, cerebrovascular disease, impaired cognitive function and dementia in the elderly.

The authors examined the association between arterial stiffness and change in β deposition over time by using [positron emission tomography](#) (PET) of the brain to study 81 patients without dementia who were 83 years or older. Arterial stiffness was measured using pulse wave velocity (PWV) at various sites in the body.

The proportion of patients with β deposition increased from 48 percent at the start of the study to 75 percent at the two-year follow-up. Brachial-ankle PWV (a comparison of [blood pressure](#) in the upper arm and lower leg) was higher among patients with β deposition at baseline and follow-up, while femoral-ankle PWV (a comparison of blood pressure in the upper leg and lower leg) was only higher in β -positive patients at follow-up. The accumulation of β over time was associated with greater central arterial stiffness. The authors acknowledge that while β deposition and [vascular stiffness](#) appear to be associated, the mechanisms for this are not well established.

"This study shows that arterial stiffness, as measured by PWV, is associated with the amount of β in the brain and is an independent indicator of β progression among nondemented elderly adults. ... The exact mechanism linking arterial stiffness and β deposition in the brain needs to be elucidated," Timothy M. Hughes, Ph.D., M.P.H., of Wake Forest University, Winston-Salem, N.C., and colleagues wrote in their *JAMA Neurology* paper.

More information: *JAMA Neurol.* Published online March 31, 2014. [DOI: 10.1001/jamaneurol.2014.186](#)

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