

# Insulin Resistance Linked to Decreased Brain Metabolism

BY AMY KARON

Insulin resistance was linked to decreased brain glucose metabolism and predicted worse memory function among late-middle-aged adults at risk for Alzheimer's disease, researchers reported online in *JAMA Neurology*.

Based on the findings, "midlife may be a critical period for initiating treatments aimed at preventing or delaying the onset of Alzheimer's disease," said Auriel A. Willette, PhD, of Iowa State University, Ames, and his associates. Targeting insulin signaling might affect central glucose metabolism and should be studied in presymptomatic Alzheimer's disease, the researchers added.

The investigators performed cognitive testing, blood assays, and fludeoxyglucose F<sup>18</sup> (FDG)-labeled positron emission tomography (PET) for 150 cognitively normal, late-middle-aged adults who averaged almost 61 years old. In all, 72% of participants were women, 69% had a parent with Alzheimer's disease, about 41% had an APOEε4 allele, and almost 5% had type 2 diabetes mellitus, the investigators reported (*JAMA Neurol* 2015 July 27 [doi:10.1001/jamaneurol.2015.0613]).

Based on the homeostatic model assessment, increased peripheral insulin resistance was significantly associated with decreased glucose metabolism, both globally and in large areas of the frontal, lateral parietal, and medial and lateral temporal lobes, Dr. Willette and his associates found.

Insulin resistance and lower glucose uptake were especially robustly associated in the left medial temporal lobe,

and lower glucose metabolism in this lobe was associated with worse immediate and delayed memory performance factors. "This finding provides a potential link between insulin resistance and cognitive decline," they wrote.

The findings also support results from previous studies of older adults that have linked insulin resistance, hyperglycemia, and diabetes mellitus to hypometabolism on FDG-PET.

"Insulin resistance and hyperglycemia are related conditions, and hyperglycemia, even in the prediabetic range, is associated with a significantly increased risk for later development of dementia," they noted.

The investigators reported no relevant conflicts of interest.

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## Blacks With Alzheimer's Have Mixed Pathologies

BY LUCAS FRANKI

Black patients with Alzheimer's disease dementia are much more likely to have an Alzheimer's pathology mixed with another pathology than are white patients, according to Lisa Barnes, PhD, and her associates.

In a prospective study of 122 patients enrolled in the Rush Alzheimer's Disease Clinical Core, just under 20% of black patients had Alzheimer's pathology as the only cause of dementia, compared with 42% of white patients. About 71% of black patients had Alzheimer's pathology mixed with another pathology, such as Lewy bodies and infarcts, while just over half of white patients had mixed pathology. Black dementia patients also had higher rates of arteriolar sclerosis and atherosclerosis. The 41 black decedents were matched two-to-one to 81 white decedents according to age at death, sex, and cognition proximate to death.

"Given that most current therapeutic strategies focus primarily on the modification of amyloid, a central AD pathology, it will be important to develop new treatments that target other common pathologies, particularly in African Americans," the investigators noted in their study (*Neurology* 2015;85:528-34).

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