

Insulin resistance syndrome and Alzheimer's disease: age- and obesity-related effects on memory, amyloid, and inflammation.

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Insulin plays an important role in memory and other aspects of brain function. The insulin resistance syndrome, characterized by chronic peripheral insulin elevations, reduced insulin activity, and reduced brain insulin levels, is associated with age-related memory impairment and Alzheimer's disease (AD). Our work has focused on specific mechanisms through which this association is forged, including the effects of peripheral hyperinsulinemia on memory, inflammation, and regulation of the beta-amyloid peptide that plays a key role in AD pathophysiology. Our data suggest that excessive insulin invokes synchronous increases in levels of beta-amyloid and inflammatory agents, effects that are exacerbated by age and obesity. This constellation of events may have deleterious effects on memory. Treatments focused on preventing or correcting insulin abnormalities may be of therapeutic benefit for adults with age-related memory impairment and AD.

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