

Abstract

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Hypometabolism in Alzheimer-affected brain regions in cognitively healthy Latino individuals carrying the apolipoprotein E epsilon4 allele.

Langbaum JB, Chen K, Caselli RJ, Lee W, Reschke C, Bandy D, Alexander GE, Burns CM, Kaszniak AW, Reeder SA, Corneveaux JJ, Allen AN, Pruzin J, Huentelman MJ, Fleisher AS, Reiman EM.

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OBJECTIVE: To investigate with fluorodeoxyglucose positron emission tomography whether regional reductions in the cerebral metabolic rate for glucose (CMRgl) previously found in cognitively healthy late-middle-aged apolipoprotein E (APOE) epsilon4 carriers extend to members of the Latino Mexican American community.

DESIGN: Prospective cohort study.

SETTING: Banner Alzheimer's Institute, Phoenix, Arizona.

PATIENTS OR OTHER PARTICIPANTS: Eleven APOE epsilon4 carriers and 16 noncarriers from Arizona's Latino community (mean [SD] age, 54.6 [6.4] years) matched for sex, mean age, and educational level and who were predominantly of self-designated Mexican origin.

MAIN OUTCOME MEASURE: A brain mapping algorithm was used to compare cross-sectional regional CMRgl in Latino APOE epsilon4 carriers vs noncarriers.

RESULTS: Participant groups had similar distributions for age, sex, education, family history of dementia, clinical ratings, and neuropsychological test scores. Latino APOE epsilon4 carriers had lower CMRgl than the noncarriers in the posterior cingulate, precuneus, and parietal regions previously found to be preferentially affected in patients with Alzheimer disease (AD) and cognitively healthy non-Latino APOE epsilon4 carriers. Additionally, the Latino APOE epsilon4 carriers had lower CMRgl in the middle and anterior cingulate cortex, hippocampus, and thalamus.

CONCLUSIONS: This study provides support for the relationship between APOE epsilon4 and risk of AD in Latino individuals. It illustrates the role of positron emission tomography as a presymptomatic endophenotype for the assessment of AD risk factors and supports the inclusion of Latino APOE epsilon4 carriers in proof-of-concept studies using fluorodeoxyglucose PET to evaluate promising presymptomatic treatments in cognitively healthy carriers of this common AD susceptibility gene.

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