

Peripheral and brain levels of advanced glycation end products AGEs and incident Alzheimers disease and neuropathology

<https://www.neurodegenerationresearch.eu/survey/peripheral-and-brain-levels-of-advanced-glycation-end-products-ages-and-incident-alzheimers-disease-and-neuropathology/>

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Country

USA

Title of project or programme

Peripheral and brain levels of advanced glycation end products AGEs and incident Alzheimers disease and neuropathology

Source of funding information

NIH (NIA)

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01/09/2016

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1

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

Acquired Cognitive Impairment... Aging... Alzheimer's Disease... Alzheimer's Disease including Alzheimer's Disease Related Dementias (AD/ADRD)... Brain Disorders... Clinical Research...

Research Abstract

ABSTRACT Treatment's for Alzheimer's disease (AD) and cognitive decline is a health priority in our aging population. Compelling small scale studies suggest that elevated dietary, serum and brain levels of Advanced Glycation End products (AGEs), a group of glucose-derived compounds, contribute to cognitive impairment and increased brain pathology in old age. However, the scarcity of autopsy studies from large numbers of well- characterized older adults has made it difficult to obtain evidence linking brain AGEs with impaired cognition in older adults and whether brain AGEs mediate diet and serum AGEs with cognition. These gaps in knowledge impede the development of treatments based on AGEs to decrease the growing burden of AD and cognitive decline. To fill these gaps, the overall goal of this proposal is to test the hypothesis that brain AGEs are related to impaired cognition in older adults through an association with AD and other neuropathologies, and that dietary and serum AGEs are related to brain AGEs. To achieve these aims, we will enroll 700 community-dwelling older adults without clinical dementia from the Rush Memory and Aging Project (MAP, R01AG17911) who undergo annual testing and structured autopsy at death. This study proposes a comprehensive assessment of AGEs levels quantifying dietary, serum and brain AGEs levels. In addition, we will obtain and extract novel post-mortem brain MRI indices which complement available clinical data and traditional post-mortem brain histopathology. This comprehensive large-scale study will 1) provide evidence that brain AGEs levels are related to impaired cognition in older adults, 2) identify the key neuropathologies linking brain AGEs with cognition and 3) test if brain AGEs mediate the association of dietary and serum AGEs with cognition. These data are crucial for developing treatments targeting AGEs for late-life cognitive impairment. Thus, these data have the potential to decrease the growing burden of cognitive impairment and affect the brain health of millions of Americans in our aging population.

Lay Summary

NARRATIVE A comprehensive assessment of dietary, serum and brain levels of Advanced Glycation End products (AGEs) in older adults will determine if AGEs are associated with Alzheimer's disease (AD), cognitive decline, and neuropathology. Identifying modifiable metabolites associated with impaired cognition, has potential to lead to new treatments that may decrease the growing burden of AD and impaired cognition in old age.

Further information available at:

Types:

Investments > €500k

Member States:

United States of America

Diseases:

Alzheimer's disease & other dementias

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