Exceptional Cognitive Aging: Neuropsychologic, Anatomic and Pathologic Correlates

https://neurodegenerationresearch.eu/survey/exceptional-cognitive-aging-neuropsychologic-anatomic-and-pathologic-correlates/

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Country

USA

Title of project or programme

Exceptional Cognitive Aging: Neuropsychologic, Anatomic and Pathologic Correlates

Source of funding information

NIH (NIA)

Total sum awarded (Euro)

€ 2,085,005.50

Start date of award

30/09/2014

Total duration of award in years

3

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)... Basic Behavioral and Social Science... Behavioral and Social Science... Brain Disorders... Clinical Research... Clinical Research -

Extramural... Dementia... Diagnostic Radiology... Epidemiology And Longitudinal Studies...
Mental Health... Neurodegenerative... Neurosciences

Research Abstract

DESCRIPTION (provided by applicant): Memory complaints are widespread among the elderly, leading to the belief that a gradual loss of intellectual ability is an inevitable part of ""normal"" aging. However, recent pilot data from our cohort of ""SuperAgers"" in their 80s and 90s suggest that it is possible to have memory test scores at or above the average range for healthy individuals at least 20 to 30 years their junior. Our preliminary data demonstrate that SuperAgers, the focus of the current application, have larger cortical volumes (especially in the cingulate cortex), less prevalence of ApoE4, more von Economo neurons, and fewer markers of Alzheimer neuropathology than their cognitively average age peers. Longitudinal study of larger subject groups and additional neuropathologic analysis is needed to build on these findings and to disentangle cause from effect as we identify factors that promote unusually successful cognitive aging. This application will study a group of octo- and nona-genarians who have memory performance at least at an average level for individuals in their 50s and 60s in order to differentiate the inevitable consequences of time from the cumulative but preventable impact of stochastic phenomena embedded within time. Thus far, 34 SuperAgers and 10 normal agers have completed initial visits (including blood samples), >50% of these subjects have longitudinal data, 100% have agreed to or are considering brain donation, and two individuals have expired and donated their brains, demonstrating the feasibility of following this unusual cognitive aging cohort. This multidisciplinary study will take place in a setting ideally suited for this project, ith an established team of investigators with expertise in cognitive neuroscience and neuroimaging, behavioral neurology, neuropathology and neuroscience, neuropsychology, biostatistics and MR physics. The Northwestern AD Center, funded by the NIA, will support recruitment and collection of additional data. The Specific Aims of the proposed research will: 1) Establish the longitudinal phenotype of SuperAgers through neuropsychological performance as well as MR and amyloid PET imaging. 2) Investigate the prevalence and density of age-related plaque and tangle accumulation, status of basal forebrain cholinergic system and neuronal number in SuperAgers. 3) Establish a resource of behavioral and biological data for further resource sharing and collaborative investigations of SuperAgers. By identifying neurobiologic features that contribute to high memory performance in SuperAgers, it may be possible to help elderly avoid disease and disability, improve quality of life and alleviate a looming public health crisis.

Lay Summary

PUBLIC HEALTH RELEVANCE: The proposed research will characterize, in a comprehensive, interdisciplinary and longitudinal manner, a cohort of octo- and nonagenarians who display unusually successful cognitive aging and whom we have termed SuperAgers. The investigation of this population of elderly has not received extensive experimental attention. Identification of neurobiologic features that contribute to exceptionally successful cognitive aging may make it possible to help elderly avoid disease and disability, improve quality of life, and alleviate a looming public health crisis.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
N/A

Database Tags:
N/A