Vascular and Aymloid Predictors of Neurodegeneration and Cognitive Decline in Nondemented Subjects.

https://neurodegenerationresearch.eu/survey/vascular-and-aymloid-predictors-of-neurodegeneration-and-cognitive-decline-in-nondemented-subjects/

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Vascular and Aymloid Predictors of Neurodegeneration and Cognitive Decline in Nondemented Subjects.

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Alzheimer's disease & other dementias

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Research Abstract
Alzheimer’s disease (AD) is the most frequent cause of dementia that affects one in 14 persons over the age 65 years and one in six persons over the age of 80 years.
Increased deposition of the protein beta-amyloid (Aß) is a core brain pathology of AD that occurs years before the onset of clinical symptoms of dementia. Together with Aß, cerebrovascular disease, visible as on a MR image as white matter abnormalities, frequently co-occurs. A major question is whether Aß and cerebrovascular disease independently from each other predict disease progression and cognitive decline.
The overall goal of the combined amyloid PET and MRI study is to assess how Aß pathology and vascular white matter damage contribute to cognitive decline through particular neuronal networks at an early stage of the disease.
To this end, we will assess in a prospective 4-year longitudinal neuroimaging study 80 subjects with mild cognitive impairment (MCI) of episodic memory or executive function and 50 elderly cognitively healthy subjects (HC).
Brain changes in association with Aß (florbetaben PET) and white matter degeneration (MRI, DTI) will be assessed in two major networks 1) temporo-parietal network that is typically associated with episodic memory, and 2) a subcortical-prefrontal network that is typically associated with executive function. Specifically, florbetaben PET binding and volumes of WMH and lacunes at baseline will be tested as predictors of fiber tract degeneration (DTI) and grey matter atrophy of those networks and cognitive decline during annual follow-up assessments.
We expect that the results of this study will provide us with a clear understanding of the joint effects of the Aß and vascular white matter pathology on brain degeneration to predict cognitive decline during an early disease stage. This will help to identify subjects at risk of developing eventually dementia and will provide endpoints for clinical trials of disease modifying drugs to prevent dementia.

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