How do individual differences in midlife adiposity and APOE genotype as risk factors for dementia affect brain structure and cognition? A cross-sectional MRI study.

https://www.neurodegenerationresearch.eu/survey/how-do-individual-differences-in-midlife-adiposity-and-apoe-genotype-as-risk-factors-for-dementia-affect-brain-structure-and-cognition-a-cross-sectional-mri-study/

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How do individual differences in midlife adiposity and APOE genotype as risk factors for dementia affect brain structure and cognition? A cross-sectional MRI study.

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Research Abstract
Aims: Obesity and dementia are amongst the largest public health problems in the Western World. Epidemiological studies indicate that midlife obesity doubles the risk of late onset Alzheimer’s disease (LOAD). Hence, adiposity related changes in the brain may provide biomarkers for an individual’s risk of developing LOAD, many years before the onset of dementia. This study aims to investigate the impact of midlife adiposity on the micro- and macrostructure in limbic brain regions and cognition. Adiposity-related changes will be compared with an established genetic risk state for LOAD, carriage of an APOE ?4 allele. This work will establish the link and interaction between these common risk factors.

Methods: 180 adults (35-65 years) will be stratified according to body composition and APOE genotype and cardiovascular health will be recorded. MRI will be used to quantify grey and white matter structure in the brain and off-line working memory and episodic memory tasks sensitive to APOE genotype, will be employed to estimate functional changes.

Outcomes: This study will identify whether midlife obesity is associated with a pattern of structural brain alterations comparable to that observed in APOE ?4 carriers. The results will aid our understanding of how midlife health factors affect dementia risk. Novel imaging and behavioural biomarkers of midlife risk exposure would pave the way for early intervention studies at a time where effects on brain structure and function may be reversible. This study is the first step to the development of such biomarkers.

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