The etiology of Alzheimer’s disease: an innovative hypothesis of depression, vulnerability and biological interaction

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Title of project or programme

Title of PI	The etiology of Alzheimer’s disease: an innovative hypothesis of depression, vulnerability and biological interaction

Principal Investigators of project/programme grant

Title	Forname	Surname	Institution	Country
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- Netherlands

Source of funding information
Total sum awarded (Euro)

600000

Start date of award

1-1-2006

Total duration of award in months

79

The project/programme is most relevant to

- Alzheimer’s disease and other dementias

Keywords

Etiology of Alzheimer disease, depression

Research abstract in English

Alzheimer disease (AD) is the most common cause of dementia, and is characterized by hippocampal

atrophy and progressive worsening of memory and other cognitive functions. AD has devastating consequences for both patient and caregiver. With increasing age, prevalence increases exponentially to 40 percent at age 86 and over. At present, AD cannot be cured. Due to increased life-expectancy, the prevalence of AD may triple, resulting in 13 million sufferers in the USA alone until 2050. Up to 50 percent of AD patients is also depressed, leading to even worse consequences for patient and caregiver. The cause of this co-occurrence is not known. From my research, it has been hypothesized that in a subgroup depression may be causally related to AD, possibly through hyperactivity of stress regulated brain systems, or through vascular pathology, which are both often seen in depression and AD. I propose an innovative hypothesis explaining the role of depression in the etiology of AD, crossing boundaries of psychiatry, neurology, and epidemiology. I consider dysfunction of stress systems and cardiovascular risk accumulation as vulnerability factors and hypothesize that these factors interact with depression to produce hippocampal atrophy and AD. This model is based on a dynamic stress-vulnerability model and provides a biological basis for the concept of interaction. In epidemiologic research, this measure of interaction has not yet often been used. I will use data from three existing prospective cohorts, making it for the first time possible to approach the hypothesis from different angles and examine the joint effect of depression, prolonged stress exposure, stress hormones, and vascular factors on hippocampal volume and development of AD. This project will contribute to knowledge of the etiology of AD and may identify subgroups at high risk of AD that may particularly benefit from preventive and therapeutic interventions

Lay summary
In which category does this research fall?

- Basic research