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Actualities of disproportionate affection of women vs men in Alzheimer's disease

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Abstract

Background: Alzheimer's disease (AD) is a neurodegenerative disease of the elderly, being recognized worldwide as the most common cause of dementia. However, the harm generated by this disease to women and men is disproportionate, in women the disease is recorded twice as much. Numerous research studies have tried to find an answer regarding the causes of this disproportionality. So far, some fundamental differences between macroscopic, microscopic and biochemical structures of female vs. male brain have been investigated. First of all, emphasis was placed on macroscopic structural differences. In this study, a particular role was attributed to APOE4 gene which was shown to be an increased risk factor of AD in women who possess this allele. Hormonal changes in women, such as decreased postmenopausal estrogen, greatly influence disease incidence and prevalence. All these factors tell about the increased susceptibility of women to this disease. However, the definite mechanisms of this disease are incompletely elucidated and further studies are needed.

Conclusions: The identification of pathobiochemical mechanisms based on gender, that influence the incidence and prevalence of Alzheimer's disease is essential. Thus, it could be a target in the development of effective preventive therapeutic strategies from the prodromal phase of the disease. In this context, the development of personalized treatment according to gender specifics should be considered in future.

Key words: Alzheimer's disease, women, APOE4 gene, mitochondria, oestrogen, depression.

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