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Effect of plasmalogens on beta-amyloid content in brain tissues of mice of different ages

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Alzheimer's disease (AD) is the most common form of dementia affecting the elderly. Beta-amyloid peptides (Aß), especially the Aß42 variant, play a key role in the pathogenesis of the disease by forming amyloid plaques in brain tissues. In this work, the effect of plasmalogens (Pls) on the clearance of Aß42 from the brains of mice with Alzheimer's disease and different age groups (3, 6, 14 and 24 months) was studied, the study included 21-day intraventricular administration of Pls. In mice with AD (3 months) and elderly mice (14 months) Pls significantly reduced Aß levels in the brain, meninges, and deep cervical lymph nodes, indicating increased lymphatic clearance through the meningeal lymph vessels. The effect was absent in older mice (24 months) due to lymphatic dysfunction and in young/middle-aged mice with low baseline Aß42 levels. The findings highlight the potential of Pls as a therapeutic agent for early AD and age-related cognitive decline with limitations in severe aging.

Keywords: plasmalogens, Alzheimer's disease, age, cognitive functions, amyloid beta, lymphatic clearance

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