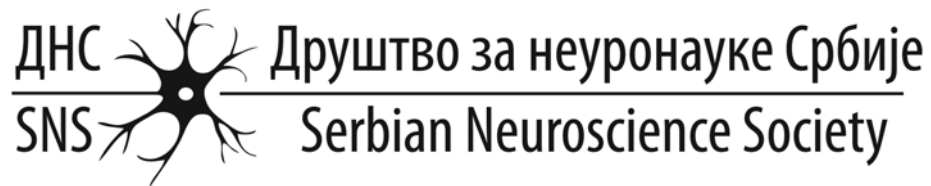




7th CONGRESS OF SERBIAN NEUROSCIENCE SOCIETY
with international participation

BOOK OF ABSTRACTS

Belgrade
October 25-27, 2017.



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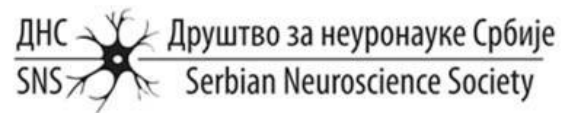
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Introduction. Dystrophic neurites (DNs) are one of the neuropathological characteristics of Alzheimer's disease (AD) and represent the initial phase of neurodegeneration. Microtubule disruption in presynaptic dystrophic neurites that surround plaques impairs axonal transport and leads to the exacerbation of amyloid pathology in AD. Microglia plays a pivotal role in AD pathology as it is able to constitute a physical barrier around amyloid plaques and limit the accumulation of protofibrillar amyloid beta around the fibrillar plaque core. In such a way microglia can mechanically shield the surrounding neurites from the neurotoxic protofibrillar A β aggregates. The use of supplements with omega-3 (ω 3) fatty acids (FAs), docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), such as fish oil, is widespread due to proposed beneficial effects on the nervous system. High DHA consumption has been also associated with reduced risk and lessened AD pathology, yet the mechanisms and therapeutic potential of these supplements remain elusive. **Material and Methods.** We analyzed the effects of the short-term fish oil (FO) supplementation on 4 months old 5xFAD mice, a mouse model with fast and robust development of the AD pathology hallmarks such as amyloid plaques and dystrophic neurites. **Results.** We showed that even the short treatment with FO can affect the microglia clustering around amyloid plaques and increase the microglial plaque envelopment. Consequently, the A β accumulation was reduced and the appearance of DNs substantially suppressed. **Conclusion.** Our findings suggest that increased DHA consumption may play an important role in modulating microglial response and ameliorating AD pathology at least in the early phase of the disease.

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