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ABSTRACT BOOK

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Room Atlantic 1
Room Atlantic 2

POSTER SESSION 2

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THE EFFECTS OF DIFFERENT DIETARY REGIMENS ON CHOLESTEROL METABOLISM IN THE CEREBELLUM OF AGING RATS

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Aims: Dietary restriction (DR) has numerous beneficial effects on organism, starting from positive effect on life expectancy, to protective effects on cardiovascular system, blood lipid levels, immune response, glucoregulation, and neurological functions. Previously it has been shown that DR changes expression of genes and proteins involved in cholesterol metabolism, in both cerebral cortex and hippocampus. Herein we investigated cholesterol homeostasis in cerebellum, as a brain structure involved in motor and cognitive functions.

Methods: We examined the effect of 4 different DR regimens (intermittent fasting and limited daily feeding of various onset and duration), on cholesterol metabolism in cerebellum of aging male Wistar rats. We used western blot to examine changes in the level of proteins playing the major roles in cholesterol biosynthesis (SREBP1 and HMGCR), transport (ApoE and LRP1) and elimination from the brain (CYP46).

Results: Detected changes in the expression level of selected proteins indicated that the effect of DR is highly dependent on the type of dietary regimen and the age when implemented. Positive effect is mainly noticed in the group of 18 months old rats.

Conclusions: This study showed the potential of dietary restriction as an alternative to pharmacological treatment of high blood cholesterol levels and confirmed beneficial effects of DR as a healthy lifestyle in prevention of age related disorders.