

P9. FISH OIL AND CONJUGATED LINOLEIC ACID SUPPLEMENTATION ALLEVIATES STRUCTURAL AND FUNCTIONAL SIGNS OF DEPRESSION IN AGED MRL/MPJ-FASLPR MICE

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Inflammation and oxidative stress play an important role in the pathogenesis of depressive disorders and Nuclear erythroid related factor 2 (Nrf2), a master regulator of RedOx homeostasis, is a promising target for depression prevention and treatment. As fish oil (FO, n-3 PUFA) and Conjugated Linoleic Acid (CLA) - composed by 1:1 amount of cis9, trans11 and trans10, cis12 C18:2 isomers - are Nrf2 activator, their preventive ability in relieving functional/structural signs of depression was comparatively evaluated in a murine model of neuropsychiatric lupus (MRL/MpJ-Faslpr). Four groups of mice (n=8 each) were used. Three composed by Old mice (17-weeks old) and one by Young animals (8-10 weeks). Two Old groups were supplemented (po) for 5 weeks with human equivalent doses of FO or CLA. Young or untreated Old mice were used as negative or diseased/positive control, respectively. At the end of the treatment, structural (brain Fatty Acids) and functional decline (oxidative stress, inflammation, neuroplasticity signalling) was evaluated to examine anti-depressive activity of the different supplements. Disrupted redox homeostasis in Old mice associated with compensatory hyperactivation of Nrf2, deterioration of brain Fatty Acids profile, increased pro-inflammatory cytokines and lower synaptic plasticity markers as compared to Young mice. FO and CLA ameliorated all the pathophysiological hallmarks at a level comparable to Young mice. This is the first time that CLA (n-6 and n-7 PUFA mixture) was shown to exhibit anti-depressive effects comparable to that of n-3 PUFA and involvement of Nrf2-mediated mechanisms in anti-depressive effect resulting from FO or CLA intake was hypothesized.

