Orofacial Dyskinesia and Oxidative Stress Reserpine-induced in Rats: Beneficial Effects of $\omega$-3

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Several neurological diseases are related to oxidative stress (OS) and neurotoxicity. Our objective was to evaluate the preventive effects of $\omega$-3 on an OS animal model (reserpine-induced orofacial dyskinesia-OD). In this model, the increased dopamine metabolism can generate OS and neuronal degeneration, causing OD, catalepsy and oxidative stress, evaluated by vacuous chewing movements (VCMs), immobility time and lipid peroxidation, respectively. $\omega$-3 is an essential fatty acid necessary to the brain neuronal integrity. Data were analyzed by one-way ANOVA followed by Duncan's test ($p<0.05$). The results of this study showed that reserpine improves the immobility time by the catalepsy test (49.71±6.01 seconds) and the vacuous chewing movements (VCM=104.83±32.97) and acute $\omega$-3 administration decreased the immobility time (39.62±10.45 seconds) but not completely the VCM (84.70±38.42). This is corroborated with an increase in thiobarbituric acid reactive substances in substantia nigra (150.57±61.40 ηmol MDA/g tissue) in the presence of reserpine and their partial reduction with $\omega$-3 supplementation (122.14±22.21 ηmol MDA/g tissue). In the striatum reserpine didn’t cause damage (371.62±67.39 ηmol MDA/g tissue), when compared with the control group (363.80±66.71) but when associated with $\omega$-3 presented lower values (215.73±27.07 ηmol MDA/g tissue). We noticed that acute $\omega$-3 demonstrated protective effect on motor disorders and partially in oxidative stress reserpine-induced. Studies with more time $\omega$-3 administrations are necessary to observe better beneficial effects.

Keywords: $\omega$-3, reserpine, oxidative stress, orofacial dyskinesia.

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