ω-3 Protects Motor Disorders and Oxidative Damage Induced by Fluphenazine in Rats

Silva, F.C.[1], Barcelos, R.C.S.[3], Benvegnú, D.M.[3], Boufleur, N.[1], Duarte, M.B.[1], Reckziegel, P.[1], Müller, L.G.[1], Pase, C.S.[1], Bürger, M.E.[3], Soares, F.A.A.[2]

[1]Departamento de Fisiologia e Farmacologia - Centro de Ciências da Saúde, UFSM, RS, Brazil;
[2]Departamento de Química - Centro de Ciências Naturais e Exatas, UFSM, RS, Brazil;
[3]Programa de Pós-Graduação em Farmacologia - Centro de Ciências da Saúde, UFSM, RS, Brazil.

Fluphenazine is a typical neuroleptic drug used in the treatment of psychotic diseases, whose chronic use is related to movement disorders and cognitive impairment. Omega-3 (ω-3) is a component of brain membrane phospholipids and is necessary for neuronal functions. The essential fatty acid (EFA) are important for the histological, anatomical and biochemical integrity of the brain. In this study we evaluated the effects of ω-3 supplementation on motor disorders and lipid peroxidation induced by fluphenazine. Data were analyzed by two-way ANOVA followed by Duncan's test ($p<0,05$). Fluphenazine (12mg/kg/week) induced vacuous chewing movements (VCM= 58,6±15,9) and catalepsy (162,3±6,3 seconds of immobility), and these effects were reversed by ω-3 supplementation (p.o.)(VCM: 38,1±9,4; catalepsy: 142,3±12,7 seconds). Biochemical measures demonstrated that the fluphenazine increased the lipid peroxidation in striatum and substantia nigra (551±90,3 and 745,1±194,4ηmol MDA/g tissue, respectively) and the ω-3 supplementation reversed it (462,2±87,1 and 460,9±56,5 ηmol MDA/g tissue, respectively). We concluded that the ω-3 supplementation may exert protective effects on fluphenazine-induced motor disorders.

Keywords: ω-3, fluphenazine, lipid peroxidation, motor disorders.
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