Hormone replacement therapy is a standard approach to treat menopausal woman. However, negative effects have been frequently evidenced by these therapies, as strokes and breast cancer. Accordingly, there is a great interest in alternative strategies, such as natural therapies. Curcumin is a polyphenol extracted from Curcuma longa roots showing a range of biological properties. The aim of this work was to investigate the potential of curcumin oral supplementation (at 50 and 100 mg/Kg/day) in redox parameters of frontal cortex and striatum and in behavioural alterations displayed by ovariectomy model (OVX). Female Wistar rats were operated and randomly divided into either sham-operated or OVX groups. After 30 days, sham-operated group (n=8) and one OVX group (n=11) were treated with vehicle (refined olive oil), and the other two OVX groups received curcumin at 50 or 100 mg/Kg/day doses (n=8) for 30 days. Elevated plus maze (EPM) test was performed at 28 day of treatment. Thereafter, structures were removed and stored at -80°C until analysis. Increase in tiobarbituric acid reactive species (TBARS or lipoperoxidation index) and drop in non-enzymatic antioxidant potential (TRAP) was found in both structures. In striatum, OVX rats showed increase in carbonylated proteins and decreased levels of thiol reduced content in non-proteic fractions (GSH pool). OVX caused an imbalance in SOD/peroxidases ratio in striatum, suggesting a possible hydrogen peroxide accumulation. OVX rats spent more time in closed arm and travels a shorter distance than control group in EPM test, indicating anxiety-like behaviours. Curcumin attenuated lipoperoxidation and prevents the fall in both TRAP and GSH pool of striatum samples. SOD/peroxidises ratio showed a lower significance and differences observed in OVX rats during EPM were absent in curcumin-treated animals. Thus, curcumin treatment attenuates oxidative stress in CNS structures and show protective effects against anxiety-like behaviour displayed by OVX in rats.

Keywords: Central Nervous System; Curcumin; Menopause; Oxidative stress

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