Original Paper

Effects of Curcumin supplementation on BDNF and Oxidative/antioxidative process in rat’s hippocampus which exposed to lead

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Abstract

**Background and Objective:** Lead threaten living creature’s life as air pollutant and causes several diseases such as degenerative disease of nervous system. This research was conducted to determine the effect of Curcumin on BDNF changes and oxidative/antioxidative process in rat’s hippocampus which exposed to Lead acetate.

**Materials and Methods:** In this experimental study, 40 male Wistar rats were randomly assigned to four groups of ten: Base, Sham(control), lead and Curcumin+Lead. lead and Curcumin+Lead groups received 20 mg/kg lead acetate and Curcumin+Lead group also received 30 mg/kg Curcumin, peritoneally for 8 weeks (3 days in weeks). MDA (oxidative stress biomarker) and TAC (total antioxidative capacity) levels were measured by TBARS and FRAP methods, respectively, and hippocampus BDNF level was measured by ELISA method in rat hippocampus region. Data was analyzed by one-way ANOVA test and Tukey at P<0.05 level.

**Results:** Injection of lead acetate significantly increased MDA, non-significantly decreased hippocampus BDNF and significantly decreased TAC levels in the Lead group compared with control groups. On the other hand, curcumin administration led to non significantly decreased MDA, nonsignificantly increased BDNF and significantly increased TAC levels compared with other groups (P<0.05).

**Conclusion:** This study showed that Curcumin adminstration in long term lead acetate-treated male Wistar Rats did not increased BDNF of hippocampus, but it prevent the reduction of BNDF due to lead-intoxification.

**Keywords:** Air pollution, Oxidative stress, Nervous system disease, Curcumin, BDNF

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