MODULATORY EFFECTS OF CURCUMIN ON LIPID PEROXIDATION AND ANTIOXIDANT STATUS DURING NICOTINE-INDUCED TOXICITY

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Nicotine, a pharmacologically active substance in tobacco, has been identified as a major risk factor for lung diseases. In the present study, we evaluated the protective effects of curcumin on tissue lipid peroxidation and antioxidants in nicotine-treated Wistar rats. Lung toxicity was induced by subcutaneous injection of nicotine at a dose of 2.5 mg/kg (5 days a week, for 22 weeks). Curcumin (80 mg/kg) was given simultaneously by intragastric intubation for 22 weeks. The enhanced level of tissue lipid peroxides in nicotine-treated rats was accompanied by a significant decrease in the levels of ascorbic acid, vitamin E, reduced glutathione, glutathione peroxidase, superoxide dismutase and catalase. Administration of curcumin significantly lowered the level of lipid peroxidation and enhanced the antioxidant status. The results of the present study suggest that curcumin exerts its protective effect against nicotine-induced lung toxicity by modulating the extent of lipid peroxidation and augmenting antioxidant defense system.

Key words: antioxidant, curcumin, lipid peroxidation, lung toxicity, nicotine

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