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Protective effect of vitamin E on histopathological changes of the adrenal gland in sertraline-treated mice

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Abstract

Sertraline is one of the antidepressants that little information about the side effects of this medication on the adrenal glands is available. The present study was conducted in order to evaluate the protective effects of vitamin E against sertraline-induced injuries on serum and tissue structure of adrenal glands in mice. 40 adult male mice were randomly divided into eight groups, each five. Four groups of mice received vitamin E at the dose of 100 IU/kg body weight orally for 42 days. Three groups of these, following the vitamin E administration, received sertraline at 5, 10 and 20 mg/kg body weight, respectively. The remaining three groups, received sertraline at 5, 10 and 20 mg/kg body weight. And one group was considered as the control. 24 hours after the last treatment, blood samples were collected to measure MDA and TAC levels from the heart. The adrenal glands were removed from the abdominal cavity and histological and histomorphometric changes were examined by light microscope and digital camera. Specific staining methods including toluidine blue for identifying mast cells, periodic acid-Schif to determine carbohydrates and masson's trichrome for determining fibrosis in adrenal tissue were performed. Sertraline at 20 mg/kg, significantly decreased in TAC level and significantly increased the sponge cell diameter, MDA level and thickness of fasciculata and reticularis zones compared to the control group. Although, no significant changes in the thickness of capsule and glomerulosa zone were observed. Specific staining showed that sertraline induced an increase in the fibrosis tissue, but did not change significantly the amount of carbohydrates between the groups. The administration of vitamin E markedly improved the changes observed in these parameters. It could be deduced that Vitamin E reduces the toxicity of sertraline in mice adrenal glands by improving tissue and serum indices.

Key words: Vitamin E, Sertraline, Histopathology, Adrenal gland, Mice

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