



Impact of fluoxetine on liver damage in rats

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Abstract:

Fluoxetine (Flux) is a fluorine-containing drug that selectively inhibits serotonin reuptake. It is widely prescribed as a treatment for depression disorders. Hepatic side effects have been reported during Flux therapy. These reports led us to investigate the involvement of oxidative stress mechanisms in liver injury caused by Flux. It has been shown that exposure to fluoride (F^-) induces excessive production of free radicals and affects the antioxidant defense system. Based on this knowledge, we examined the F^- concentration in serum and urine during administration of Flux.

In our study, the effects of one month of Flux treatment on lipid and protein peroxidation, the concentration of uric acid in the liver and the activity of transaminases and transferases in the serum were investigated in rats. Eighteen adult male Wistar rats were divided into three equal groups of six animals each: (I) controls who drank tap water and received 1 ml of tap water intragastrically; (II) animals that received 8 mg Flux/kg bw/day intragastrically; and (III) animals that received 24 mg Flux/kg bw/day intragastrically. Flux treatment increased the levels of carbonyl groups, thiobarbituric acid reactive species (TBARS) and the uric acid content in the liver. The activities of alanine transaminase (ALT), aspartate transaminase (AST) and glutathione-S transferase (GST) increased in the serum of the treated groups. The Flux levels in the plasma of the treated rats increased significantly in a dose-dependent manner. We observed no changes in the concentration of fluoride in either the serum or the urine of treated rats compared to the control group.

In conclusion, our study indicates that Flux induces liver damage and mediates free radical reactions. Our data also indicate that Flux does not release F^- during metabolism and does not affect physiological levels of F^- in the serum or urine.

Key words:

fluoxetine, oxidative stress parameters, ALAT, AST, GST, fluoride, male rats, liver
