Original Paper

Effect of 3,4 Methylendioxy Meth Amphetamine on hepatocyte and liver enzymes Wistar Rats

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Abstract

Background and Objective: Ecstasy [3,4 Methylendioxy Meth Amphetamine (MDMA)] exerts destructive effects on body organs particularly on the nervous system. The current study was carried out to measure the adverse effects of MDMA on hepatocyte and liver-specific enzymes.

Materials and Methods: In this experimental study, 50 male Wistar rats were randomly divided in equal numbers into 5 groups: control, sham, experimental 1, 2, and 3. Animals in the experimental groups were received, intraperitoneally 2, 4 and 8 mg/kg of MDMA, respectively. The sham group were received normal saline but the control group was not subjected to any injection. Serum samples were collected and levels of three enzymes under study: alanine aminotransferase (ALT), aspartate aminotransferase (AST) and alkaline phosphatase (ALP) were measured. The sections from the liver tissue were prepared counting the hepatocytes. Data were analyzed using SPSS-16 and One-way ANOVA and Tukey's HSD tests.

Results: Data indicated the levels of all three enzymes had been elevated in the animal groups that received MDMA and that the increase was statistically significant compared to sham and control groups ($P<0.05$). Also, in experimental groups the number of hepatocyte were reduced in comparison with controls ($P<0.05$).

Conclusion: This study showed that the MDMA significantly increased ALT, AST, ALP and reduced the number of hepatocytes and these effects are dose depended.

Keywords: MDMA, Alanine transferase, Aspartate transferase, Alkaline phosphatase, Hepatocyte

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