THE BIOCHEMICAL AND HISTOLOGICAL EFFECT OF DIAZEPAM ON THE LIVER OF ALBINO MALE RATS

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ABSTRACT

Diazepam is a benzodiazepine derivative that is commonly used for its sedative and anxiolytic activities. The liver plays a major role in the metabolism of this drug. The aim of this study was to investigate the effects of different doses of diazepam on liver enzymes and histology in albino male rats. Forty (40) adult albino male rats were uniformly divided into four groups of ten rats each. Group 1 served as control received distilled water for 8 weeks. While groups 2, 3 and 4 were respectively gavaged with 2mg/kg/day, 5mg/kg/day and 10mg/kg/day of diazepam suspension daily for 8 weeks. At the end of the treatments, animals were sacrificed, liver tissues were obtained for the histopathology analysis and serum for the colorimetric assay of alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), gamma- glutamyl transferase (GGT) and albumin concentrations. The results of the present study showed that treatment of rats with the respective doses of diazepam suspension significantly (P<0.05) increased the serum enzymatic levels of ALT, AST and ALP and significantly decreased serum albumin level in group3 compared to group 1 and 2 . Also, the serum levels of ALT, AST and ALP enzymes were highly significantly (P<0.001) increased and the serum albumin level was highly significantly decreased in group 4 compared to group 1 and 2. Concerning the GGT serum levels; it was increased significantly in group 2 compared to group 1 and in group 3 compared to group 2. And, highly significantly in group 3 and 4 compared to group 1. Also, highly significantly in group 4 compared to both group 2 and 3. In conclusion; Diazepam when taken in large doses and for long periods might affect the hepatic cell and might leads to liver damage and hepatotoxicity.

Keywords: Diazepam, liver enzymes, liver histology, hepatotoxicity.