Summary of DVM Thesis No. 16348, Faculty of Veterinary Medicine, Urmia University.
Academic Year: 2022-2023
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Thesis Title: Evaluation of the Protective Effects of Atorvastatin in Hepatotoxicity Induced by Acetaminophen in Male Wistar Rats.

Summary:
The aim of this study is to investigate the protective and therapeutic effects of Atorvastatin on liver toxicity induced by Acetaminophen. This study was conducted on a total of 8 groups of 4 male Wistar rats. The four control groups include the negative control, which received only distilled water; the positive control 1, which was poisoned with 700 mg/kg of Acetaminophen on the first day and then received only distilled water on the following days; and the positive control group 2, which received distilled water for 28 days and was poisoned with 700 mg/kg of Acetaminophen on the last day. The treatment control group received only 50 mg/kg of Atorvastatin per day. After the 4 control groups, there were 4 test groups:
Test 1, which were poisoned on the first day like positive control 1 and received 10 mg/kg of Atorvastatin daily for the remaining 28 days. Test group 2, which first received 28 days of Atorvastatin with the same dose as test 1, but they were poisoned on the last day. Test 3, which was poisoned on the first day like the positive control group 1 and test 1, and then received Atorvastatin at a dose of 50 mg/kg for 28 days. Test 4, which received Atorvastatin at a dose of 50 mg/kg for 28 days and were poisoned on the last day like positive control 2 and test 2. After the 28-day study period ended, 24 hours following the 28th day, a blood sample was collected from the atrium of the heart under anesthesia using Ketamine and Xylazine. Subsequently, a liver sample was obtained after sedation with an overdose of anesthesia followed by an autopsy. Consequently, upon histopathological examination and analysis of liver enzymes, the positive control group 2 exhibited a significant difference in histopathology and liver enzymes when compared to positive control group 1. This difference can be attributed to the liver's regenerative capacity over the long term, specifically within the 28-day period during which they did not receive Atorvastatin. Test group 3, unlike test group 1, displayed a significant difference ($P<0.05$) in terms of liver enzymes and histopathology compared to positive control group 1. This finding indicates that liver tissue regeneration significantly increased and liver enzymes decreased in test group 3 in comparison to positive control group 1, respectively. Both test groups 2 and 4 demonstrated a significant difference ($P<0.05$) in terms of liver tissue regeneration and liver enzymes, respectively, with an increase and a decrease observed in comparison to positive control group 2. However, there was no significant difference observed between these two test groups in terms of their effects. In a more comprehensive study comparing the periods before and after poisoning and drug treatment with Atorvastatin at two different doses, when compared to positive control groups 1 and 2, it was found that Atorvastatin had a more pronounced effect when administered before poisoning. In other words, groups 2 and 4, which first received Atorvastatin for 28 days and were subsequently poisoned on the last day, exhibited lower vulnerability in terms of liver enzymes and histopathology. Regarding necropsy and macroscopic observation, no significant differences were observed among the different groups.

Keywords : Hepatotoxicity , Rat , Atorvastatin , Acetaminophen .