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Effects of Diabetic Duration on Platelet and Platelet Indices in Streptozotocin-Induced Diabetic Rats

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Abstract : This study aimed to investigate the effect of diabetic duration on platelet and platelet indices in streptozotocin-induced diabetic male and female rats. Thirty-two healthy adult Wistar rats (16 females and 16 males) were randomly divided into 4 groups of eight, including 1) control group (4 females and 4 males who did not undergo any treatment until the end of 28 days), 2) 7-day diabetic group (4 females and 4 males who were diabetic for 7 days and were euthanized after 7 days), 3) 14-day diabetic group (4 females and 4 males who were diabetic for 14 days and were euthanized after 14 days), and 28-day diabetic group (4 females and 4 males who were diabetic for 28 days and were euthanized after 28 days). Diabetes was induced by intraperitoneal injection of streptozotocin (65 mg/kg). After induction of diabetes in the groups, blood samples were taken from their hearts after anesthesia, and platelet counts (PLT) and platelet indices were measured by an automatic blood cell counter (Nihon Kohden, Celltac Alpha VET MEK-6550, Japan). Statistical differences among groups were analyzed using one-way analysis of variance (ANOVA) followed by Tukey's multiple tests. The results of this study showed that PLT and mean platelet volume (MPV) significantly increased in 7 and 14-day diabetic groups compared to the control group, whereas plateletcrit (PCT) and platelet distribution rate (PDW) significantly increased in 14 and 28-day diabetic groups, respectively. Significant differences were observed between female and male rats in PCT and PLT in the 14-day diabetic group and PDW in the 28-day diabetic group. According to the results of this study, measurement and analysis of platelet indices can be used as a method for the early diagnosis of diabetes and its complications.

Keywords : diabetic duration, streptozotocin, female and male rats, platelet indices
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