EFFECTS OF STREPTOZOTOCIN IN RATS WISTAR METABOLISM

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INTRODUCTION AND OBJECTIVES: The most widely used method for induction of diabetes is by administration of toxic alloxan and streptozotocin (STZ). The study aimed to compare the application of different doses of streptozotocin in experimental diabetes mellitus induction. MATERIALS AND METHODS: 24 recently weaned rats were divided into 3 groups (n = 8): 1- Control non diabetic (C), 2- Diabetic induced with 60 mg/Kg of STZ (DM60), 3- Diabetic induced with 70 mg/Kg STZ (DM70). After drug administration, induction of diabetes mellitus was confirmed by fasting glucose levels for two consecutive days and the experiment was conducted during 30 days. The results were submitted to ANOVA and Tukey's test (p<0.05). RESULTS AND CONCLUSIONS: The fasting glucose levels of animals DM60 and DM70 groups were higher than the control group (C= 113,35±6,71; DM60= 410,78±42,24; DM70= 517,74±68,94; p<0,0001), suggesting that the two doses cause diabetogenic effects. The insulin concentrations declined with increasing dose of STZ in animals, (C= 0,81±0,15; DM60= 0,35±0,04; DM70= 0,21±0,02; p= 0,0004), which is meaningful when comparing the control group to others. The total protein and albumin were lower in diabetic animals (total protein: C= 5,46±0,17; DM60= 4,85±0,09; DM70=4,71±0,09; p= 0,0007) (albumin: C= 3,19±0,08; DM60= 2,84±0,03; DM70= 2,84±0,06; p= 0,0004). The lipid profile showed no statistical difference between groups (total cholesterol: C= 34,50±2,29; DM60= 36,88±2,90; DM70= 42,50±2,93; p= 0,1272) (HDL-cholesterol: C= 18,85±3,11; DM60= 11,11±1,52; DM70= 19,01±2,97; p= 0,0747) (triglycerides: C= 90,73±18,67; DM60= 107,51±12,74; DM70= 93,39±18,65; p= 0,7552). Both doses of STZ caused diabetogenic effects, but the dosage of 60 mg/Kg would serve as an alternative animal model for type 2 diabetes, simulating the syndrome in humans. Due to the severity caused by the higher dose, this would not be the most appropriate.

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KEY WORDS: streptozotocin, diabetes mellitus, rats