EFFECTS OF ALPHA LIPOIC ACID ON BLOOD GLUCOSE, BODY WEIGHT AND HAEMATOLOGICAL PROFILE OF STREPTOZOTOCIN-INDUCED HYPERGLYCAEMIA IN WISTAR RATS

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ABSTRACT

The study investigated the effects of alpha lipoic acid (ALA) on blood glucose, body weight and haematological parameters in streptozotocin (STZ)-induced hyperglycaemia in Wistar rats. Hyperglycaemia was induced by single intraperitoneal injection of 60 mg/kg body weight dose of STZ into 18 hr fasted animals. Three days after confirmation of diabetes, the normal and diabetic rats were divided into four groups (I-IV) of five rats each. Groups I and II served as the normal and diabetic control animals that was administered with 0.5 mL of distilled water, while Group III and IVreceived 100and 2 mg/kg body weight of ALA and glibenclamiderespectively.Results obtained showed that ALA and glibenclamide produced a steady significant ($P < 0.05$) reduction in fasting blood glucose levels especially after the 6th and 9th day with ALA producing better effect than glibenclamide when compared with the control group. There was a significant ($P < 0.05$) improvement in body weights of diabetic animals treated with ALA with non-significant difference produced in diabetic group that were treated with glibenclamide when compared with the diabetic control group.The RBC count,Hb concentration and PCV of the diabetic control animals were not significantly ($P >0.05$) different from those of normal control group when compared. Administration with ALA and glibenclamide produced a non significant increase on the levels of above parameters when compared with the diabetic control. The total white blood cell andplatelets count obtained in diabetic control rats were significantly lower ($P < 0.05$) when compared with the normal control rats.In addition, neutrophil and monocyte countswere significantly ($P < 0.05$) reduced in the diabetic control group when compared with the normal control animals, where as the lymphocyte and eosinophil counts in the diabetic control animals were not significantly ($P > 0.05$) different when compared with those in the normal control rats. In conclusion, administration of ALA to diabetic animals controlled the increased blood glucose concentration as well as improved the body weight, but the altered haematological parameters were not significantly normalized when compared with the diabetic control group.

Keywords: Diabetes mellitus, Alpha lipoic acid, Streptozotocin, Body weight, Glibenclamide.