Evaluation of Aqueous Extract of Berberis Integerrima Root on the Testis Tissue and Testosterone Levels in Stereptozotocine (STZ) Induced Diabetic Rats

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Abstract

Background and Objectives: Use of medicinal plants in treating diabetes is of particular clinical importance. This study was carried out with the aim of assessing the effect of aqueous extract of berberis integerrima on testosterone level and changes of testicular tissue in diabetic rats.

Methods: In this study, 40 male rats were divided into 5 groups as follows: 1- Control group (N), 2- Normal +barberry (N+B), group 3- Diabetic group (D) received Stereptozotocine (65 mg/kg bw, i.p.), 4- Diabetic+barberry group, 5- Diabetic+glibenclamide (0.6 mg/kg bw) group. The treatment groups daily received Barberry root extract (500 mg/kg bw) or glibenclamide intra gastric by gavage for 6 weeks, and the experimental period for each rat were 6 weeks. After finishing the treatment period, the animals were anesthetized and their testes were removed and transferred to 10% formalin. After fixing the samples, tissue sectioning, and staining by H & E technique, histological studies were performed by an optical microscope. The one-way analysis of variance (ANOVA) followed by Tukey’s post-hoc test was used for analysis of the data. The Statistical significance level was considered p<0.05.

Results: In this study, diabetes caused a significant decrease in testosterone level, diameter of seminiferous tubules, spermiogenesis coefficient, thickness of the epithelium, significant increases in interstitial tissue thickness and blood glucose in diabetic group compared to other groups. Administration of barberry root extract in diabetic rats restored these changes towards normal level.

Conclusion: The results of this study showed that aqueous extract of Berberis Integerrima root has a desirable effect on the testosterone level, blood glucose, and histological changes of testes during the course of diabetes.

Keywords: Berberis Integerrima; Streptozotocin; Testosterone; Testis; Diabetes Mellitus.