عنوان مقاله:

Troxerutin affects the male fertility in prepubertal type 1 diabetic male rats

محل انتشار:

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خلاصه مقاله:

Objective(s): Diabetes can gradually cause damage to the function and structure of male gonads. This survey was conducted to investigate the effect of troxerutin on hormonal changes, serum oxidative stress indices, and testicular function and structure in prepubertal diabetic rats.Materials and Methods: Fifty prepubertal (6 weeks old) male Wistar rats were divided into five groups including Control, Troxerutin, Diabetic, Diabetic+Troxerutin, and Diabetic+Insulin. Type I diabetes was induced by 55 mg/kg of streptozotocin intraperitoneally. The groups were treated with 150 mg/kg/day troxerutin via oral gavage or 4-6 IU/day insulin via subcutaneous injection for 4 consecutive weeks. Blood sugar (BS) and serum levels of insulin, FSH, LH, testosterone, glutathione peroxidase (GPX), superoxide dismutase (SOD), malondialdehyde (MDA), and total antioxidant capacity (TAC) were analyzed. Testis and epididymis were removed for histopathologic study and analysis of sperm parameters.Results: Troxerutin significantly reduced the BS in the diabetic group similar to insulin but could not affect insulin, FSH, or LH significantly. Troxerutin caused a significant increase in testosterone and GPX but had no significant effect on serum MDA, TAC, and SOD levels. In addition, troxerutin had a better effect than insulin on diabetes-induced testicular structural damage. Sperm analysis results also revealed that troxerutin and insulin could improve sperm number, motility, and viability in diabetic rats.Conclusion: According to these results, it can be derived that administration of troxerutin is a suitable protective strategy for side effects of diabetes in testis of prepubertal diabetic male rats.

کلمات کلیدی:

Diabetes, FSH, LH, Oxidative stress, Prepubertal, Troxerutin