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Author: Hediye Zoodi

Title of thesis:

Effects of intraperitoneal administration of *Tribulus Terrestris* aqueous extract on ischemia-reperfusion injury in rat testicular torsion and detorsion model: sperm parameters assessments and histological

Summary

Ischemia-reperfusion (IR) injury arising from testicular torsion can result in bilateral testicular damages via germ cell apoptosis and spermatogenesis disruption. The main objective of this study was to explore the effects of Tribulus Terrestris aqueous extract (TTAC) on ischemia-reperfusion injury in rat testicular torsion and detorsion model. Experiments were performed on three equal groups of 6 male Wistar rat each. Following anaesthesia, IR was induced by 720° clockwise torsion of the testis. In group 1 (Sham) only laparotomy was performed. In group 2 (I/R): A 3-hour interval ischemia, three-hour reperfusion was performed. In group 3 (I/R/TTAC): The same as group I/R as well as 200 mg/kg TTAC (IP) 30 min before termination of ischemia was performed. The animals were kept for 60 days and then the testis were removed for sperm parameter and histological assessments. IR caused significant decreases in sperms concentration, motility and viability compared to the TTAC treated group (P<0.05). Further, IR resulted in histological damages in testes. Notably, treatment of TTAC improved IR-induced negative changes in the above-mentioned parameters (P<0.05). These findings provide evidence that TTAC treatment could have potentially protective effects against long-term reproductive injuries following unilateral testicular IR.

Keywords: Ischemia-reperfusion, Tribulus Terrestris, testis, rat