Summary of the DVSc thesis No. 14657, Doctor of Veterinary Science in Surgery, Faculty of Veterinary Medicine, Urmia University.

The academic year: 2023-2024
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Title: Effects of intraperitoneal administration of Mito-Tempo on ischemia-reperfusion injury in mice testicular torsion and detorsion model: sperm parameters, testis histology assessments and oxidative stress**.**

Abstract:

This study aimed to investigate the effects of Mito-TEMPO (MT) on I/R injury in testicular torsion/detorsion (T/D) in male mice. Forty-two male mice were divided into seven groups, including a control group and 6 treatment groups (360° T/D, 720° T/D, 360° T/D + 0.70 mg/kg MT, 360° T/D + 1 mg/kg MT, 720° T/D + 0.70 mg/kg MT and 720° T/D + 1 mg/kg MT). After inducing 360° and 720° clockwise testicular torsion for 2 hr, sperm parameters, oxidative enzymes, and testicular histopathology were evaluated. The results showed that 720° T/D can increase testicular malondialdehyde levels, abnormal sperm morphology, DNA damage, and testicular histological damage. In addition, it also had adverse effects on sperm total and progressive motilities as well as viability and plasma membrane functionality (PMF). The results also showed that administration of MT to T/D mice could result in a reduction in tissue malondialdehyde levels, abnormal sperm morphology, and DNA damage. It could also increase sperm total and progressive motility, characteristic motility, viability, and PMF. Our results conclude that MT, when administered after spermatic cord torsion in mice, provides significant protection against acute testicular T/D injury **.**

Keywords: ischemia-reperfusion, Mito-Tempo, testis, mice