Summary of the DVM thesis No: 25418, Faculty of Veterinary Medicine, Urmia University. The academic year: 2024-2025

Author: Seyed Ali Mirsaadat

Title of thesis: Effects of Morin on ischemia-reperfusion injury in a mice testis model

Summary:

Testicular ischemia-reperfusion (I/R) injury during testicular torsion is strongly influenced by oxidative stress that is not cleared due to excessive reactive oxygen species. This research was conducted to investigate Morin's effect on testicular ischemia/reperfusion injuries in a male mouse model. This study randomly divided 20 healthy male mice into 4 groups of 5. Group 1 (sham): In this group, a low midline laparotomy was performed, without surgical manipulation on the testicles, after 2 hours, we sutured the surgical incision. Then, after 30 days, the testicles were removed and analyzed for sperm evaluation. Group 2 (control): In this group, a low midline laparotomy was created, the testicles were removed and ischemia was created for 2 hours by rotating 720 degrees, and then after 30 days, the testicles were Carrying out evaluations of sperm was collected and analyzed. Group 3 (ischemia group-720 degrees/reperfusion + Morin at 100 μM): In this group, a low midline laparotomy was created, the testicles were removed and rotated 720 degrees for 2 hours. ischemia was created and half an hour before the end of Morin ischemia 100 μM was injected intraperitoneally once. Then, after 30 days, the testicles will be collected and analyzed for sperm evaluation. Group 4 (ischemia group-720 degrees/reperfusion + Morin at the rate of 50 μM): In this group, a low midline laparotomy was created, the testicles were removed and rotated 720 degrees for 2 hours. Ischemia was created and half an hour before the end of Morin ischemia 50 μM was injected intraperitoneally once. Then, after 30 days, the testicles will be collected and examined for sperm evaluation. The findings showed that 720-degree twist/untwist can lead to increased sperm DNA damage and decreased overall sperm motility, viability and sperm plasma membrane (PMF) function. Furthermore, the results showed that administration of Morin to twist/twist mice can reduce DNA damage. Administration of murrain (50 and 100 μM) also increased the percentage of total sperm motility, viability and PMF. In conclusion, high doses of Morin, when given post-sperm cord torsion in mice, provide significant protection against acute testicular torsion/revolution injury.

Keywords: Ischemia-reperfusion, Morin, testis, mice