The effect of Rhamnetine against to ischemia-reperfusion injury in the kidney

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OBJECTIVES

- Although antioxidant, reactive oxygen species (ROS) scavenging and anti-inflammatory properties of rhamnetin have been shown in previous studies, most of these studies have been conducted at in vitro conditions.

- The purpose of this study was to investigate the possible protective effect of Rhamnetin, as a potent antioxidant on I/R-induced renal injury in rats.

MATERIALS and METHODS

- ***Animals, management and experimental design***

In this study, 28 male wistar albino rat used and weighing 200-250 g.

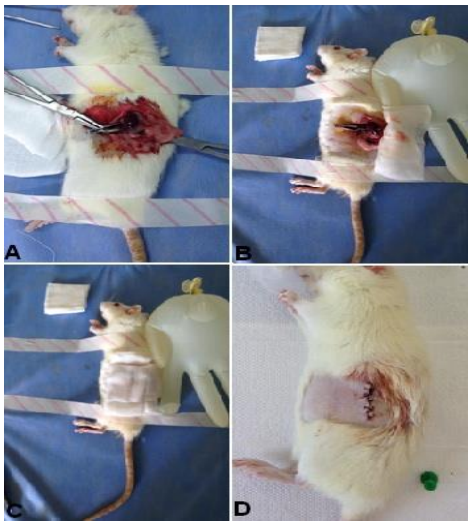
The study was held at DEKAM with the permission of Erciyes University Experimental Animals Local Ethics Committee.

The animals were randomly divided into 4 groups.

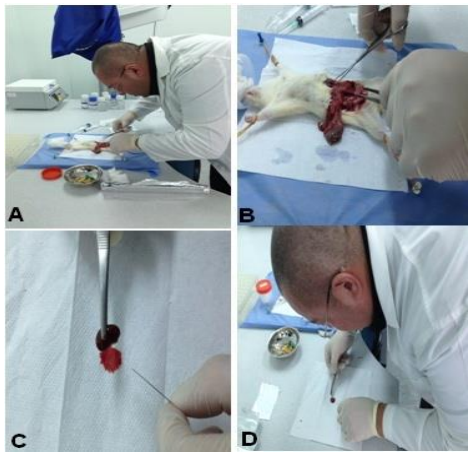
Each experimental group was consisted of seven animals.

ischemia procedure

A-Materials used in the experiment
B-Application of the rat incision



A-Kidney removal from the abdominal cavity,
B-placement of avascular clemp in the renal vein
C-Starting ischemia
D-the suture of the rat after the start of Reperfusion



A-Sacrification of the rat,
B-removal of the kidney from the abdomen,
C-kidney,
D-the kidney was transferred immediately to the laboratory under cold chain and stored at -80°C until biochemical analyses.

MATERIALS and METHODS

1-Control Group (C):
Ischemia/reperfusion was not performed to animals.

2-Rhamnetin Group (R):
100 mg/kg Rhamnetin was administered i.p 30 min prior to ischemia and immediately before the reperfusion period.

3-Ischaemia/Reperfusion Group (I/R):
Rats were subjected to 45 min of renal pedicle occlusion followed by 24 hours reperfusion.

4-Rhamnetin+Ischemia/Reperfusion Group (R+I/R):
Rhamnetin (100 mg/kg i.p) was administered 30 min prior to ischemia and immediately before the reperfusion period. Rats were subjected to 45 min of renal pedicle occlusion followed by 24 hours reperfusion.

RESULTS-1

- When the MDA levels between the groups were examined, the increase in I / R group was statistically significant compared to the control group ($p < 0.05$).

- There was a decrease in Rhamnetin and R+I/R groups compared to the control group and it was statistically significant ($p < 0.05$).

- Furthermore, although there was a decrease in R+I/R group compared to Rhamnetin group, it was statistically insignificant ($p > 0.05$).

RESULTS-2

- SOD activity was significantly lower in the I/R group compared to the control group ($p < 0.05$).
- However, although there was an increase in SOD activity when compared to control group, R+I/R group was statistically insignificant ($p > 0.05$).

RESULTS-3

- When GST enzyme activity was examined, there was an increase in I/R and R+I/R groups compared to control group and a significant decrease in Rhamnetin group compared to control group ($p < 0.05$).

- In addition, there was a significant decrease in Rhamnetin group compared to I/R group, but it was statistically significant in R+I/R group compared to Rhamnetin group
- ($p < 0.05$).

CONCLUSIONS

These results show that treatment with Rhamnetin may prevent the kidney damages due to ischaemia result in increasing oxidant stres peroxidation damages further.

Thank you for your participation