

## **The effect of Calcitriol on the expression of miR-21 and in renal ischemia- reperfusion injury in male rats**

**Background:** Ischemic-renal perfusion injury contributes to acute renal injury. Hypoxic conditions in ischemic injury lead to oxidative stress and apoptotic cell death.

**Aim :** Determination of the effect of calcitriol on miR-21 expression in ischemic-reperfusion injury in male rats

**Material and Methods:** In this study, 18 adult male Wistar rats in 3 groups of 6 were randomly selected. Group 1 (control): Rats in this group will only have a straight nephrectomy. Group 2: Vehicle + I / R, Group 3: Calcitriol + I / R (Calcitriol 10 mg / kg is injected intraperitoneally before ischemia (diluted in ethanol dissolved with normal saline and prepared at a final concentration of 10 mg / kg) I / R ischemia reperfusion (animals underwent unilateral nephrectomy and underwent obstruction of the pedicle of the kidney pedicle for 45 minutes and reperfusion was performed 24 hours later. Calcitriol is administered before ischemia. After 24 hours of reperfusion of blood and tissue samples for examination Biochemical parameters and expression of MicroRNA-21 (miR-21) were collected.

**Results:** Renal ischemia caused renal dysfunction. Ischemia-reperfusion significantly increased urea and creatinine. While treatment with calcitriol reduced these parameters and improved kidney function. Increased expression of miR-21 in renal tissue was observed after ischemia-reperfusion injury. Rats treated with vitamin D3 did not show any changes in miR-21 compared to the group with reperfusion ischemic injury, but its expression was significantly higher than the control group.

**Conclusion:** Calcitriol administration appears to protect the kidney against ischemia-reperfusion injury. These protective effects of calcitriol is probably due to its antioxidant effect.

**Keywords :** Calcitriol, Ischemia-Reperfusion, Kidney, MiR-21