

## **The effect of Erythropoietin and Calcitriol on cardiac damage induced by renal ischemia-reperfusion in rats**

### **Abstract**

**Background:** Cardiac abnormalities and dysfunction are the most important complications after renal ischemia-reperfusion (IR). Thus, investigation and development of effective treatment to decrease cardiac damage induced by renal ischemia are necessary. This study examined the effects of treatment with calcitriol and erythropoietin (EPO) on cardiac injury induced by renal ischemia.

**Aim:** evaluation of the effect of Erythropoietin and Calcitriol on cardiac damage induced by renal ischemia-reperfusion in rats

**Materials and Methods:** Wistar albino rats were unilaterally nephrectomized and subjected to 45 min of renal pedicle occlusion, followed by 24 h reperfusion. Calcitriol and EPO were administered before ischemia. After 24 h reperfusion, blood samples were collected for the determination of biochemical parameters, and cardiac samples were taken for histological studies.

**Results:** Renal IR increased BUN-Cr levels and myocardial injury markers (CK-MB and LDH). Histopathological findings of the IR group confirmed that there were lymphocyte infiltration and intercellular edema in the cardiac samples. Treatment with calcitriol and EPO boosted cardiac function and improved the morphological changes.

**Conclusion:** It seems that calcitriol or EPO administration could protect against the cardiac damage induced by IR. Also, the combination of calcitriol and EPO may exert more beneficial effects than either agent used alone.

**Keywords:** erythropoietin, ischemia-reperfusion, calcitriol, Heart