

SUMMARY

INTRODUCTION:

Contrast induced nephropathy (CIN) is an important complication that can cause permanent failure in renal functions. Possible mechanisms of CIN are renal medullar ischemia and reduction of antioxidant enzymatic activity due to the contrast agent. In this study, we aimed to search the effect of trimetazidin (TMZ) on renal functions and total antioxidant capacity using rats given a contrast agent.

MATERIALS AND METHODS:

28 Wistar rats were included in the study and were divided into four groups. 24 hour urine was collected using metabolic cages. Serum and 24-hour urine creatinin levels were measured and creatinin clearance was calculated. Rats were dehydrated for 24 hours in order to set off radiocontrast nephropathy. No drugs were administrated to the first group (control group); contrast agent was given to the second group; trimetazidine 10mg/kg was given to third group; trimedazidine and contrast agent were given to fourth group. On fifth day, blood samples were obtained to measure creatinin levels. 24-hour urine was collected by putting rats in metabolic cages for one day. After sacrifice, right kidney was excised for histopathologic evaluation. Left kidney was excised for measuring malondialdehyde (MDA) and total antioxidant capacity. Nephropathy was determined histopathologically. Histopathological and biochemical results between groups who have taken trimetazidin and not taken trimetazidin were compared. Contrast induced nephropathy (CIN) was defined as an increase of 0,5 mg/dl or increase of 25% and more in serum creatinin over baseline.

RESULTS:

No significant differences between serum creatinin, urinary creatinin, creatinin clearance, TAS and MDA levels were found. Significant differences between control and contrast groups were found about tubuler, medullar and vascular lesions. No significant differences between trimetazidine + contrast group and control group were found. Similar results obtained in both trimetazidine and control group suggest that trimetazidine is not nephrotoxic and trimetazidine protects against contrast induced nephropathy.

CONCLUSION:

Trimetazidine when given with contrast agent reduces renal injury. Trimetazidine reduces the risk of contrast induced nephropathy. Its beneficial effect may be relevant with its anti-ischemic effect on renal medulla. For determining the mechanism, further studies focused on the antioxidant and antiischemic effects of trimetazidine are needed.