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The protective effect of antioxidants against hepatic ischemia reperfusion injury in rat

Min-Su PARK

Surgery, Kyunghee University, Korea

Introduction : Hepatic ischemia reperfusion (I/R) injury is a major complication of liver surgery, including hepatic surgery, liver transplantation, and trauma. Antioxidants including citric acid, cassia tora and hesperidin reduces oxidative stress and inflammation during hypoxia and reoxygenation. Our objective was to investigate the protective effect of antioxidants against hepatic I/R injury in rat.

Methods : We fed Sprague-Dawley rats citric acid, cassia tora and hesperidin (100 mg/kg/d). One week later, ischemia was induced by clamping the common hepatic artery and portal vein of rats for 30 minutes. Rats were randomized to three major groups that were treated as follows: (1) the sham operated group; (2) the I/R group; (3) the I/R-antioxidants group. Albumin, bilirubin, AST, ALT, nitric oxide, superoxide dismutase, catalase, glutathione peroxidase and antioxidant were measured .

Results : Compared with the sham group, the I/R group had higher expression of AST and ALT and lower expression of catalase, superoxide dismutase, glutathione peroxidase, antioxidant, nitric oxide and albumin. Compared with the I/R group, the I/R-antioxidant group had higher expression of catalase, superoxide dismutase, antioxidant and nitric oxide and lower expression of AST and ALT.

Conclusions : These results suggest that antioxidant therapy has a significant therapeutic potential in ischemic liver injury.

Corresponding Author. : **Min-Su PARK** (ikireida@hanmail.net)