عنوان مقاله:

Hepatoprotective properties of p-coumaric acid in a rat model of ischemia-reperfusion

محل انتشار:

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خلاصه مقاله:

Objective: The liver as a highly metabolic organ, has a crucial role in human body. Its function is often impressed by changes of the blood flow, hypovolemic shock, transplantation, etc. Maintaining liver function is a major challenge and there are many approaches to potentiate this organ against different stresses. Antioxidants protect organs against oxidative stress. P-coumaric acid (PC) as an oxidant has many beneficial effects. Therefore, PC was used as a pretreatment to test its potential against oxidative stress induced by liver Ischemia-reperfusion injury in rats. Materials and Methods: In order to test the potential hepatoprotective effect of PC against IR injury, five groups of rats were used: Normal (NC; intact group); Sham; p-coumaric acid (PC); IR-CO, and PC-IR. PC, Sham, NC, PC-IR and IR-CO groups that received vehicle or p-coumaric acid at a dose of 100 mg/kg for 7 consecutive days as pretreatment before IR induction. Animals in PC-IR, and IR-CO groups underwent hepatic IR injury. Liver levels of antioxidants were determined and functional liver tests were done. Hematoxylin and eosin staining was done to determine the structural changes of the liver. Gene expression of caspase-3 was also assessed. Results: Hepatic IR injury disrupted liver function by increasing the levels of AST, and ALT, and decreasing GSH, SOD and catalase. PC significantly decreased liver inflammation, reverted liver functional enzymes and antioxidants levels to normal, reduced the gene expression of caspase-3 in PC-IR rats compared to the IR-CO group. Conclusion: These findings revealed that PC through improving liver´s antioxidants, liver functional tests and down-regulating apoptotic gene protein, caspase-3, protects the liver against injury induced by IR.

کلمات کلیدی:

p-Coumaric acid, Antioxidant, ALT, SOD, Rat