

題名:Rat Liver Ischemia/Reperfusion Induced Proinflammatory Mediator

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摘要:Objective. Ischemia/reperfusion (I/R) of the rat liver induces injury; however, few studies have investigated gene expressions associated with this phenomenon. In this study, gene chip and real-time polymerase chain reactions (PCR) were used to study the expressions of the proinflammatory mediators and antioxidants after I/R.

Materials and Methods. Ischemia was induced by clamping the common hepatic artery and portal vein for 40 minutes followed by 90 minutes reperfusion. Blood samples collected before ischemia and after reperfusion were analyzed for alanine amino transferase, lactic dehydrogenase, hydroxyl radicals, nitric oxide (NO), and tumor necrosis factor (TNF). Expressions of TNF, interleukin 12 (IL12), cyclooxygenase II (COXII), and other inflammatory mediators were analyzed by gene chips. COXII, TNF, and antioxidants of mitochondrial superoxide dismutase (SOD(Mn)), catalase, and heat shock protein 70 (HSP70) were double confirmed by real-time PCRs.

Results. This protocol resulted in elevations in the blood concentrations of NO, hydroxyl radicals, TNF, ALT, and LDH ($P < .01$) in the I/R but not the sham-operated group.

Reperfusion induced significant increases in the expressions of TNF, IL12, COXII,

SOD(Mn), catalase, and HSP70. Real-time PCR also demonstrated increases in mRNA expressions of the proinflammatory mediators and antioxidants.

Conclusions. This protocol resulted in oxidative stress, nitrosative stress, and liver injury. The increases in expressions of both proinflammatory mediators and antioxidants suggested that an imbalance between inflammation and anti-inflammation could be the possible reason for the liver injury after I/R.