

论著

肠缺血再灌注时肠粘膜抗氧化系统及肝、肾功能改变的实验研究

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摘要 目的: 研究肠缺血再灌注损伤时肠粘膜抗氧化系统的改变及对肝、肾功能的影响。方法: 复制大鼠肠缺血再灌注模型, 采用分光光度计生化测定方法检测肠粘膜的还原型谷胱甘肽GSH、谷胱甘肽-S-转移酶GST、过氧化氢酶CAT、丙二醛MDA、超氧化物歧化酶SOD、谷胱甘肽过氧化物酶GSH-Px及血清谷丙转氨酶ALT、谷草转氨酶AST、尿素氮BUN、肌酐Cr的改变。结果: 肠粘膜MDA含量于再灌注2 h显著高于假手术组(P<0.05), 再灌注4 h较假手术组高116%(P<0.05), 24 h较前有所降低但仍高于假手术组(P<0.05); GSH含量于再灌注2 h显著低于假手术组(P<0.05), 再灌注4 h低至假手术组的40%(P<0.01), 12 h恢复; 肠粘膜CAT、SOD和GSH-Px活性未见明显改变; GST活性于再灌注2 h较假手术组低39%, 再灌注4 h达最低, 较假手术组低43%(P<0.05), 12 h恢复至假手术组水平; 血清ALT、AST、BUN及Cr于再灌注2 h显著高于假手术组(P<0.05), 再灌注4 h分别较假手术组高208%、100%、103%、41%(P<0.01), 24 h基本恢复。结论: 肠缺血45 min再灌注使肠粘膜GSH含量和GST活性降低, MDA含量增加, 并造成肝肾功能的可逆性损伤。

关键词 [再灌注损伤](#); [肠粘膜](#); [抗氧化系统](#)

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Changes of gut mucosa antioxidant system and liver, renal function in rats after intestinal ischemia-reperfusion injury

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Abstract

AIM: To investigate the changes of the gut mucosa antioxidant system and liver, renal functions during rat intestinal ischemia-reperfusion injury. METHODS: 30 male Wistar rats underwent 45 min of intestinal ischemia by clamping the superior mesenteric artery followed by reperfusion. The levels of malondialdehyde (MDA), glutathione (GSH), the activities of antioxidant enzymes in the gut mucosa including catalase (CAT), superoxide dismutase (SOD) and glutathione peroxidase (GSH-Px), glutathione S-transferase (GST) activity and serum ALT, AST, BUN, Cr were assayed at 2, 4, 8, 12 and 24 h after reperfusion. RESULTS: The levels of MDA and GSH in the gut mucosa increased and decreased significantly at 2 h of reperfusion, respectively (P<0.05). MDA was still lower than sham at 24 h of reperfusion (P<0.05), while GSH decreased to 40% of sham at 4 h of reperfusion (P<0.01) but returned to the level of control at 12 h. The activities of CAT, SOD and GSH-Px did not show significant changes in rat after intestinal ischemia reperfusion. GST decreased 39% at 2 h of reperfusion compared with the sham group and decreased to 56% of sham at 4 h (P<0.05), but returned to the level of control at 12 h after reperfusion. Serum ALT, AST, BUN and Cr increased significantly at 2 h of reperfusion (P<0.05) and increased 208%, 100%, 103%, 41% compared with control at 4 h of reperfusion (P<0.01). However, at 24 h of reperfusion, they returned to normal. CONCLUSION: Intestinal ischemia/reperfusion diminishes GSH level and GST activity, increases MDA level and causes liver and renal reversible damages.

Key words [Reperfusion injury](#) [Intestinal mucosa](#) [Antioxidant system](#)

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