

论文

硫酸镁对小鼠肾缺血再灌注损伤保护作用

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摘要:

目的 观察硫酸镁对小鼠肾缺血再灌注损伤的抗氧化保护作用。**方法** 雄性小鼠随机分为假手术组、模型组和硫酸镁高、低剂量(120、60 mg/kg)组,无创动脉夹夹闭左肾蒂45 min和再灌注3 h制备急性肾缺血再灌注损伤模型,检测肾脏指数、血清尿素氮(BUN)和肌酐含量、肾组织丙二醛(MDA)含量以及超氧化物歧化酶(SOD)和谷胱甘肽过氧化物酶(GSH-Px)活力,HE染色观察肾组织学变化。**结果** 硫酸镁高、低剂量组小鼠肾指数分别为(0.72±0.05)和(0.74±0.07)、血清BUN含量为(12.36±2.24)和(15.58±1.92)mmol/L、血清肌酐水平为(98.23±4.37)和(114.63±6.24)μmol/L、肾组织MDA含量为(2.11±0.24)和(2.27±0.21)nmol/(mg·prot),肾组织SOD活力为(4.03±0.68)和(3.51±0.58)U/(mg·prot),硫酸镁高剂量组肾组织GSH-Px活力为(323.90±23.50)U/(mg·prot),与模型组比较,差异均有统计学意义($P<0.05$),且肾组织病理变化较轻。**结论** 硫酸镁对小鼠急性肾缺血再灌注损伤具有保护作用,其机制可能与抑制脂质过氧化反应有关。

关键词: 硫酸镁 肾缺血再灌注损伤 抗氧化

Protective effects of magnesium sulfate on renal ischemia-reperfusion injury in mice

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Abstract:

Objective To investigate whether magnesium sulfate could protect kidney against ischemia/reperfusion (I/R) injury. **Methods** Kunming male mice were randomly divided into sham group and model group and treated with magnesium sulfate(120 mg/kg and 60 mg/kg). I/R were induced by occlusion of left renal pedicle for 45 minutes followed by a three hours of reperfusion except sham group. After the reperfusion, the blood samples were collected and blood urea nitrogen(BUN) and serum creatinine were measured for the evaluation of renal function. The content of malondialdehyde(MDA), superoxide dismutase(SOD) activity, and glutathione peroxidase(GSH-Px) activity in left kidney tissues were detected, and histological examination was carried out. **Results** Compared with the model group, renal dysfunction of the mice treated with magnesium sulfate was improved; the content of MDA in the kidney tissues was decreased and the activities of SOD and GSH-Px were increased. The changes in the biochemical parameters were associated with histological change of the kidneys, particularly in the high-dose magnesium sulfate group. **Conclusion** The findings suggest that magnesium sulfate has renal-protective effects on renal I/R injury in mice, which is probably related to inhibition of lipid peroxidation.

Keywords: magnesium sulfate renal ischemia-reperfusion injury antioxidation

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