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论著

美托洛尔对大鼠冠状动脉微栓塞后心肌细胞凋亡及caspase-12活化的影响及意义

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摘要 目的： 探讨美托洛尔对大鼠冠状动脉微栓塞后心肌细胞凋亡及caspase-12活化的影响及意义。方法：30只大鼠随机分为假手术组、微栓塞组、美托洛尔组（每组n＝10），经左室注入42 μm微栓塞球，建立大鼠冠状动脉微栓塞模型，假手术组注射生理盐水代替微栓塞球，美托洛尔组为微栓塞术前30 min静脉注射美托洛尔。各组术后6 h分别心脏超声检测左室射血分数（LVEF）,TUNEL检测心肌细胞凋亡，Western blotting 检测凋亡蛋白caspase-12的活化。结果：① 与假手术组比较，微栓塞组LVEF显著下降（P＜0.05）；与微栓塞组比较，美托洛尔组LVEF没有显著差异。② 与假手术组比较，微栓塞组心肌细胞凋亡率、活化的caspase-12含量显著增加（均P＜0.05）;与微栓塞组比较，美托洛尔组心肌细胞凋亡率、活化的caspase-12含量显著减少（均P＜0.05）。结论： 美托洛尔抑制大鼠冠状动脉微栓塞后心肌细胞凋亡及caspase-12活化。

关键词 美托洛尔 冠状动脉微栓塞 细胞凋亡 半胱氨酸天冬氨酸蛋白酶12

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Effects of metoprolol on cardiomyocyte apoptosis and caspase-12 activation after coronary microembolization in rats

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Abstract

<FONT face=Verdana>AIM: To investigate the effects of metoprolol on cardiomyocyte apoptosis and caspase-12 activation after coronary microembolization in rats. METHODS: 30 rats were randomized to sham-operated group (S group), coronary microembolization group (CME group) and metoprolol group. Coronary microembolization models were produced by injection of 42 μm microspheres (3000/0.1mL) into the left ventricle during 10 seconds ascending aorta occlusion in rats. The S groups were injected saline instead. Intravenous metoprolol was infused into the rats assigned to the metoprolol groups.Cardiomyocyte apoptosis was detected with in TUNEL staining. The activation of caspase-12 was measured by Western blotting analysis. Left ventricular ejection fraction (LVEF) was assessed by transthoracic two-dimensional echocardiography. RESULTS: ① LVEF was significantly decreased in CME group compared to S group (P<0.05). No statistical difference between the metoprolol group and CME group was observed. ②Compared with S group, the apoptosis rate of cardiomyocytes and the levels of activated caspase-12 proteins in CME group were significantly increased (all P<0.05). Compared with CME group, the apoptosis rate of cardiomyocyte and the levels of activated caspase-12 proteins in metoprolol group were significantly decreased (all P<0.05). CONCLUSION: Metoprolol inhibits the apoptosis of cardiomyocytes and the activation of caspase-12 after coronary microembolization.
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Key words Metoprolol Coronary microembolization Apoptosis Caspase-12

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