

论著

心肌缺血/再灌注损伤神经酰胺含量变化和凋亡机制的研究

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摘要 目的: 观察发生心肌缺血/再灌注损伤时神经酰胺的变化并探索它与氧化应激及细胞凋亡之间的关系。方法: 用垂体后叶素 (Pit) 诱发小鼠在体心肌缺血再灌注损伤, 取心肌测定SOD活性及MDA含量, 通过DNA ladder和Dapi荧光染色观察心肌细胞凋亡情况, 通过高效薄层层析及薄层层析扫描, 用随引标准曲线计算心肌组织中神经酰胺的含量。结果: 模型组心肌细胞有凋亡特有的DNA ladder, 凋亡指数和神经酰胺含量及MDA含量均显著高于正常对照组 ($P < 0.01$), SOD活性显著低于正常对照组 ($P < 0.01$), 模型组神经酰胺含量与凋亡指数和MDA含量均呈明显正相关 ($r = 0.970, P < 0.01$; $r = 0.974, P < 0.01$)。结论: 在心肌缺血再灌注过程中伴随着氧化应激和凋亡第二信使—神经酰胺含量的增高, 最终发生了心肌细胞的凋亡。

关键词 [神经酰胺类](#); [心肌再灌注损伤](#); [细胞凋亡](#); [应激](#)

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Changes of ceramide and apoptosis during myocardial ischemia/reperfusion

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Abstract

AIM: To study the change of myocardial ceramide during myocardial ischemia/reperfusion and the relationship between ceramide and apoptosis and oxidative stress. METHODS: After inducing myocardial ischemia/reperfusion (I/R) injury in mice with pituitrin (Pit), myocardial SOD activity and MDA content were measured. DNA agarose gel electrophoresis and fluorescent staining of DAPI were done to check up apoptosis. The content of myocardial ceramide ($\mu\text{g}/\text{kg}$) was measured through HPTLC and scan of thin plate. RESULTS: The myocardium of I/R model group had the phenomenon of DNA ladder. Apoptosis index and ceramide content in I/R model group were higher than those in normal control group ($P < 0.01$). SOD activity in I/R modal group was lower than that in normal control group ($P < 0.01$). The apoptosis index and ceramide content in I/R model group were positive correlative ($r = 0.970, P < 0.01$). The myocardial content of ceramide and MDA were positively correlative too ($r = 0.974, P < 0.01$). CONCLUSION: The results indicate that there are apoptosis, oxidative stress and increase in ceramide content in ischemia/reperfusion myocardium.

Key words [Ceramides](#) [Myocardial reperfusion injury](#) [Apoptosis](#) [Stress](#)

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