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人参多糖对腹主动脉缩窄大鼠心肌肥厚及心肌能量代谢的影响

Inhibitory Effect of Ginseng Polysaccharide on Energy Metabolism of Myocardia Hypertrophy Induced by Abdominal Aorta Constriction in Rats

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中文关键词: [人参多糖](#) [心肌肥厚](#) [能量代谢](#) [线粒体膜电位](#) [乳酸](#) [游离脂肪酸](#)

英文关键词: [ginseng polysaccharide](#) [myocardial hypertrophy](#) [energy metabolism](#) [mitochondrial membrane potential](#) [lactic acid](#) [free fatty acids](#)

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中文摘要:

目的 观察人参多糖对大鼠腹主动脉缩窄(AAC)所致心肌肥厚的抑制作用及对心肌能量代谢的影响。方法 腹主动脉缩窄法制备大鼠心肌肥厚模型。50只SD大鼠随机分为Sham组、AAC组、人参多糖200, 100, 50 mg·kg<sup>-1</sup>组。术后1周开始腹腔注射给药, 共给药11周。检测大鼠全心质量指数(HMI)、左心质量指数(LVMI); HE染色观察大鼠左室心肌形态学改变; RT-PCR法检测心肌组织心钠素(atrial natriuretic peptide, ANP)mRNA的表达; 紫外分光光度法检测心肌组织中乳酸(LAC)和游离脂肪酸(FFA)含量; 激光共聚焦显微镜定量检测线粒体膜电位(mitochondrial membrane potential, MMP)。结果 与Sham组相比, AAC组的HMI和LVMI显著增加(P<0.01), 左心室ANP mRNA的表达明显上调(P<0.01); FFA和LAC含量显著升高(P<0.01), MMP显著下降(P<0.01)。与AAC组相比, 人参多糖组大鼠心脏HMI和LVMI下降(P<0.01或P<0.05); 明显下调ANP mRNA的表达(P<0.01或P<0.05); FFA与LAC含量显著降低(P<0.01或P<0.05); 心肌细胞MMP显著升高(P<0.01或P<0.05)。结论 人参多糖能有效抑制AAC大鼠心肌肥厚并改善其能量代谢紊乱, 提高线粒体的活力。

英文摘要:

OBJECTIVE To explore the effect of ginseng polysaccharide on hypertrophic myocardium and energy metabolism caused by abdominal aorta constriction(AAC) in rats. METHODS Myocardial hypertrophy model in 50 rats was established by AAC and randomly divided into Sham group, AAC group, and ginseng polysaccharide 200, 100, 50 mg·kg<sup>-1</sup> groups. Receiving therapy for 11 weeks, heart mass index(HMI) and left ventricular mass index(LVMI) were detected. Pathological section was observed by HE staining. The expression of mRNA of atrial natriuretic peptide(ANP) was observed by RT-PCR. Lactic acid(LAC) and free fatty acids(FFA) were measured by ultraviolet spectrophotometry. Mitochondrial membrane potential(MMP) was detected by laser confocal microscopy. RESULTS Compared with sham group, MMP significantly decreased and other indicators significantly elevated in AAC group. Compared with AAC group, ginseng polysaccharide groups reduced expression of HMI, LVMI, ANP mRNA, FFA and LAC(P<0.01 or P<0.05) and raised MMP level(P<0.01 or P<0.05). CONCLUSION Ginseng polysaccharide significantly improves myocardial energy metabolism in AAC rats and protects the function of myocardial mitochondria.

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