山东大学学报(医学版) 2010, 48(2) 33-37 DOI: ISSN: 1671-7554 CN: 37-1390/R

论文

芪芍五味子复方制剂抗CVB3病毒抑制心肌细胞凋亡机制的研究

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摘要：

目的 研究中药芪芍五味子复方制剂抗柯萨奇B3病毒(CVB3)效果及抑制病毒性心肌炎小鼠心肌细胞凋亡的机制。方法 采用细胞培养法观察细胞病变效应(CPE) 与广谱抗病毒药物病毒唑对照,进行复方制剂体外抗病毒实验;BALB/c小鼠接种CVB3建立病毒性心肌炎动物模型,随机分为正常对照组、病毒对照组、复方制剂治疗组和维生素C与病毒唑联用组,观察各组心肌病理变化,Real-time 定量PCR 检测小鼠心肌CVB3RNA水平,流式细胞仪检测心肌细胞凋亡和坏死率。结果 复方制剂体外最大无毒浓度为19 53g/L,预防给药、同时给药和治疗给药3种方式细胞培养所需有效药物浓度均低于病毒唑;与同期病毒对照组小鼠比较,复方制剂治疗组小鼠心肌炎症性病理变化明显减轻,CVB3RNA拷贝数降低(P<0.05),心肌细胞凋亡和坏死率显著降低(P<0.05)。结论 芪芍五味子复方制剂可有效抗病毒,抑制病毒诱导心肌细胞凋亡,对CVB3感染小鼠心肌有良好的保护作用。

关键词： 病毒性心肌炎;柯萨奇病毒B3;中药;细胞凋亡

Antiviral effect and inhibition of cardiomyocyte apoptosis of the Qishaowuweizi compound

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Abstract:

Objective To investigate the antiviral effect against coxsackievirus B3 (CVB3) and inhibition of cardiomyocyte apoptosis of the Traditional Chinese herb—Qishaowuweizi compound (QSW). Methods The cytopathic effect(CPE) was observed in an in vitro antiviral experiment, with Ribavirin, a broad-spectrum antiviral drug, as the control. Male BALB/c mice were randomly divided into the virus control group, the QSW-treatment group and the Vit C plus ribavirin treatment group. The mice were infected with CVB3 to prepare a viral myocarditis model. They were sacrificed on experimental days 7, 14 and 21. The cardiac pathologic changes were checked by a light microscope and CVB3 RNA copy numbers by real-time quantitative PCR. Cardiomyocyte apoptosis and necrosis were detected by flow cytometry (FCM). Results The maximum atoxic concentration of QSW in vitro was 19 ~53g/L. The CPE was more effectively attenuated by QSW than by Ribavirin in different administration groups in vitro. Compared with the virus control group, the QSW-treatment group had alleviated cardiac pathologic changes, decreased CVB3 RNA copy numbers, and lower cardiomyocyte apoptosis and necrosis ratios (all P<0.05). Conclusion The qishaowuweizi compound has heart-protective effect in treating viral myocarditis through inhibiting cardiomyocyte apoptosis.

Keywords: Viral myocarditis; Coxsackievirus B3; Traditional Chinese herb; Apoptosis

收稿日期 2009-08-20 修回日期 网络版发布日期

DOI:

基金项目:

国家自然科学基金(30672710),教育部高等学校博士学科点专项科研基金(20060422047),山东省自然科学基金(Y2003C02)

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