

论文
芩丹胶囊对高血压血管外膜重构及TGF-β1/Smad信号转导通路的影响

葛汝青¹, 张继东¹, 黄山英², 王博¹, 任敏¹, 冯利¹, 郭雪峰¹, 吕怡静¹

山东大学齐鲁医院 1. 中医科; 2. 教育部和卫生部心血管重构和功能研究重点实验室, 济南 250012

摘要:

目的 观察芩丹胶囊(QD)的降压作用以及对血管外膜TGF β1/Smad信号转导通路的影响, 探讨QD改善高血压血管外膜重构的作用机制。方法 将老年自发性高血压大鼠(SHR)随机分为模型组(SHR组)、QD大剂量组(SHR+QDH组)、QD小剂量组(SHR+QDL组)、氯沙坦组(SHR+Los组), 另设老年Wistar-Kyoto(WKY)大鼠空白对照组(WKY组)及正常用药组(WKY+QDH组)。给药组分别灌胃给予相应药物, SHR组和WKY组灌胃给予等量生理盐水。测量各组大鼠收缩压; 免疫组化法观察TGF-β1和Smad7在胸主动脉外膜的蛋白表达; 苦味酸-天狼猩红染色, 偏振光显微镜下观察I、III胶原在胸主动脉外膜的表达; Image Pro Plus 图像分析系统进行定量分析。结果 与SHR组相比, SHR+QDH组、SHR+QDL组和SHR+Los组收缩压均下降(P<0.05); TGF-β1表达降低, Smad7表达增高(P均<0.05); 外膜I、III胶原蛋白表达下降(P<0.05)。SHR+QDH组比SHR+QDL组效果更好(P<0.05)。结论 QD不仅能够有效降低SHR血压, 而且能够干扰TGF β1/Smad信号转导通路, 从而抑制动脉血管外膜I、III胶原的表达, 改善和逆转血管外膜重构。

关键词: 芩丹胶囊; 血管外膜重构; TGF-β1/Smad; I、III胶原

Effect of Qindan capsule on vascular adventitial remodeling and the TGF-β1/Smad signaling pathway

GE Ru-qing¹, ZHANG Ji-dong¹, HUANG Shan-ying², WANG Bo¹, REN Min¹, FENG Li¹, GUO Xue-feng¹, L Yi-jing¹

1. Department of Traditional Chinese Medicine; 2. Key Laboratory of Cardiovascular Remodeling and Function Research, Chinese Ministry of Education and Ministry of public Health, Qilu hospital of Shandong University, Jinan 250012, China

Abstract:

Objective To observe the effects of Qindan Capsule (QD) on the TGF-β1/Smad Signaling Pathway and its effect on blood pressure to investigate its mechanism to improve the remodeling of vascular adventitia. Methods Spontaneously hypertensive rats (SHR) were divided into the model group (SHR group), the QD high dosage group (SHR+QDH group), the QD low dosage group (SHR+QDL group), and the losartan group (SHR+Los group). At the same time, 16 Wistar-Kyoto (WKY) rats of the same age were the normal control (WKY group) and the QD group (WKY +QDH group). All rats were administered with corresponding medicine or normal saline and their blood pressures were measured. The level of TGF-β1 and Smad7 in the thoracic aorta were detected by immune-histochemical staining. I, III collagen were stained with picric-sirius red and observed under a polarizing microscope. The data were quantified by Image Pro Plus. Results Compared with the SHR group, the blood pressure of the SHR+QDH group, the SHR+QDL group and the SHR+Los group were reduced (P<0.05), with decreased expression of TGF β1 (P<0.05), increased Smad7 (P<0.05), and decreased expression of I, III collagen (P<0.05). The SHR+QDL group was better than the SHR+QDL group (P<0.05). Conclusion QD can not only reduce blood pressure in SHR, but also can interfere with the TGF-β1/Smad Signaling Pathway by inhibiting the expression of I, III collagen in the arterial adventitia. Therefore, it can improve and even reverse the remodeling of vascular adventitia.

Keywords: QD capsule; Vascular adventitial remodeling; TGF-β1/Smad; I、III collagen

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通讯作者: 张继东(1949-), 教授, 博士生导师, 主要从事中西医结合治疗心血管病的研究。 E-mail: drzjd@sdu.edu.cn

作者简介: 葛汝青(1985-), 女, 硕士研究生, 主要从事中西医结合心血管病研究。

作者Email:

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