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论著

雷米普利对大鼠高血压并发左心室心肌肥厚伴心肌舒张功能不全和血管纤维化的作用

石海莲[1]，刘 燕[1]，马春来[2]，周吉燕[1]，胡之璧[1]，吴大正[1]

（1. 上海中医药大学中药研究所药理研究室，上海市复方中药重点实验室，上海 201203；2. 复旦大学附属华山医院，上海 200040）

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摘要 目的 探讨雷米普利对舒张性心力衰竭的治疗作用。方法 45只雄性Spargue-Dawley大鼠随机分为假手术组、心肌肥厚模型组和雷米普利治疗组。采用腹主动脉缩窄手术制备心肌肥厚模型，造模12周后ig给予雷米普利1 mg·kg^{-1}，每天1次，连续12周。颈动脉插管法测定大鼠左心室舒张末压（LVEDP）、左心室收缩压（LVSP）和左心室压变化速率最大值（$\pm dp/dt_{max}$）；测定心脏重量指数和左心室重量指数(LVMI)；Van Gieson染色法测定心肌间质和心肌血管纤维化程度；实时PCR法测定胶原Ⅰ型和胶原Ⅲ型mRNA表达。结果 与假手术组相比，模型组大鼠LVEDP和LVSP分别升高了103.9%和37.7%；LVMI、心肌间质和血管纤维化分别增加了35.5%，306.3%和104.1%；胶原Ⅰ型和胶原Ⅲ型mRNA表达分别上调2.1倍和4.4倍。与模型组大鼠比较，雷米普利组大鼠LVEDP，LVSP和LVMI分别降低了62.5%，27.4%和18.6%；大鼠心肌间质和心肌血管的纤维化分别降低了44.9%和55.6%；心肌组织胶原Ⅰ型和胶原Ⅲ型mRNA表达分别降低了44.8%和67.0%。结论 雷米普利能改善高血压并发左心室心肌肥厚伴心肌舒张功能不全大鼠的心肌舒张功能，可能与其延缓心肌纤维化的病理进程有关，提示雷米普利对舒张性心力衰竭可能有一定的治疗作用。

关键词 雷米普利 心肌肥厚 舒张功能 心肌纤维化

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Effects of ramipril on diastolic dysfunction and cardiac fibrosis in hypertensive rats accompanied by left ventricular hypertrophy

SHI Hai-lian[1], LIU Yan[1], MA Chun-lai[2], ZHOU Ji-yan[1], HU Zhi-bi[1], WU Da-zheng[1]

(1. Institute of Materia Medica, Shanghai Key Laboratory of Complex Prescription, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China; 2. Huashan Hospital, Fudan University, Shanghai 200040, China)

Abstract

OBJECTIVE To investigate therapeutic action of ramipril on diastolic heart failure. **METHODS** Forty five Spargue-Dawley rats were randomly divided into sham, model and ramipril groups. Left ventricular hypertrophy was induced by abdominal aorta banding for 12 weeks. Then the rats were treated with carboxymethylcellulose or ramipril 1.0 mg·kg^{-1} for 12 weeks, respectively. Systolic and diastolic functions were obtained by hemodynamic studies *in vivo*. The left ventricle mass index (LVMI) and heart weight index were calculated by morphometric analysis. The cardiac fibrosis was detected by Van Gieson staining. Gene expressions of collagen Ⅰ and collagenⅢ were determined by Real- time PCR, respectively. **RESULTS** Compared with sham-operated rats, the left ventricle end diastolic pressure (LVEDP) and left ventricle systolic pressure (LVSP) of rats in model group increased by 103.9% and 37.7%, respectively; LVMI, cardiac interstitial and vascular fibrosis was significantly increased by 35.5%, 306.3% and 104.1%; gene expression of collagen Ⅰ and collagenⅢ increased 3.1- and 5.4- fold in model rats, respectively. Ramipril decreased the elevated LVEDP, LVSP and LVMI by 62.5%, 27.4% and 18.6%, respectively; ramipril decreased cardiac interstitial and vascular fibrosis as well as collagen Ⅰ and collagenⅢ mRNA expression by 44.9%, 55.6%, 44.8% and 67.0%, respectively. **CONCLUSION** Ramipril improves diastolic function in rats with pressure overload-induced cardiac hypertrophy with diastolic dysfunction partly by inhibiting cardiac fibrosis development.

Key words ramipril cardiac hypertrophy diastolic function cardiac fibrosis

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通讯作者　胡之璧 zhibihu@hotmail.com