中南大学学报(医学版) 2009 34 (06): 487-491 ISSN: 1672-7347 CN: 43-1427/R

论著

清醒犬慢性充血性心力衰竭模型的血流动力学特征

何晓雷1, 刘玉丽2, 张岩2, 张荣利2, 杨碧波1

北京大学1.第三医院心外科, 北京 100083; 2.分子医学研究所, 北京 100871

收稿日期 2008-12-18 修回日期 网络版发布日期 接受日期

摘要

目的:评价犬心肌梗死后快速起搏法建立的类似人类慢性充血性心力衰竭模型的血流动力学特征。方法：5只健康雄性比格犬在全身麻醉下接受开胸手术，安置测压、测距装置和心脏起搏导线后结扎冠状动脉左前降支，6周后以220～260次/min行右心室起搏诱导犬充血性心力衰竭。术前进行多普勒超声心动图检测，起搏前及起搏4周后分别观测和记录多普勒超声心动图和血流动力学数据。结果：手术前和起搏前LVEDD，LVEF和FS的变化均无统计学意义（P＞0.05）。与起搏前比较，起搏4周后LVEDD和LVEDP明显增高（P＜0.05），起搏后和起搏前LVEDD分别为(44.71±3.35) mm和(38.01±1.54) mm，LVEDP分别为(25.63±1.86) mmHg和(10.58±1.23) mmHg（P＜0.05），起搏后LVEF，FS，LV dp/dt max较起搏前显著降低（P＜0.01）。结论：比格犬心肌梗死后快速起搏制备的心力衰竭模型的左心室结构和血流动力学变化特点与人类心力衰竭相似。

关键词 慢性充血性心力衰竭 清醒动物模型 血流动力学

分类号

Hemodynamic characteristics of chronic congestive heart failure model in awake Beagle dogs

HE Xiaolei1, LIU Yuli2, ZHANG Yan2, ZHANG Rongli2, YANG Bibo1

1.Department of Cardiac Surgery, Third Hospital, Peking University, Beijing 100083; 2.Institute of Molecular Medicine, Peking University, Beijing 100871, China

Abstract

ObjectiveTo characterize the hemodynamic changes of chronic congestive heart failure (CHF) model induced by rapid right ventricular pacing after myocardial infarction in awake Beagle dogs.MethodsFive healthy adult male Beagle dogs were prepared for surgery. After the probes for measurement and the pacing leads were implanted, the left anterior descending artery was ligated during the surgery to induce myocardial infarction in the anterior wall of the left ventricle close to the apex. Six weeks after the surgery, rapid right ventricular pacing was initiated at the rate of 220 to 260 beats per minute for 4 weeks to induce CHF. Echocardiography was performed before the surgery. Both echocardiography and hemodynamic measurement were carried out before the rapid pacing and 4 weeks after the rapid pacing when the Beagle dogs were awake.ResultsThere was no significant difference in left ventricle end diastolic diameter (LVEDD), left ventricle ejective fraction (LVEF), and fractional shortening (FS) between pre-operation and pre-pacing. LVEDD ［(44.71±3.35) vs. (38.01±1.54) mm］ and left vertricle end diastolic presure (LVEDP) ［(25.63±1.86) vs. (10.58±1.23) mmHg］ at 4 weeks after pacing significantly increased compared with the pre-pacing data(P＜0.05). LVEF, FS, and LV dp/dt max were significantly declined (P＜0.01).ConclusionLeft ventricle remodeling and hemodynamic changes in the Beagle dog CHF models produced by rapid right ventricular pacing after myocardial infarction are similar to the changes observed in CHF of human beings.

Key words chronic congestive heart failure awake animal model hemodynamics

DOI:

通讯作者 杨碧波 yangb@hotmail.com

作者个人主页 何晓雷1; 刘玉丽2; 张岩2; 张荣利2; 杨碧波1