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速度向量成像技术评价急性肺血栓栓塞患者右心室功能

Velocity vector imaging evaluation on right ventricular function in patients with acute pulmonary thromboembolism

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作者	单位	E-mail
谢芳	河北联合大学附属医院超声科, 河北 唐山 063000	lmsh1225@163.com
黄宇玲	河北联合大学附属医院心血管内科, 河北 唐山 063000	
李海朋	唐山市协和医院超声科, 河北 唐山 063000	

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中文摘要:

目的 应用速度向量成像(VVI)技术检测急性肺血栓栓塞(APTE)患者右心室功能的变化,探讨VVI技术对右心室功能的评估价值。**方法** 选择APTE患者46例,按肺动脉压力分为轻中度肺动脉高压(PH)组和重度PH组;另选健康志愿者30名作为对照组。常规测量右心室横径、右心室前壁厚度及运动幅度、主肺动脉内径、肺动脉收缩压;启动VVI模式,在心尖四腔切面测量右心室游离壁及室间隔右心室面的基底段、中间段、心尖段的运动速度、应变和应变率(SR),并计算右心室射血分数。**结果** 随着肺动脉压力负荷增大,右心室及主肺动脉内径逐渐增加,右心室壁运动幅度及右心室射血分数在轻中度PH组增加,在重度PH组明显减低($P < 0.05$)。肺动脉压轻中度增高后,右心室部分心肌运动速度、应变和SR代偿性增强;肺动脉压重度增高后,右心室各节段心肌运动速度、应变和SR均明显减低,差异均有统计学意义($P < 0.05$)。**结论** VVI技术可定量无创评估APTE患者右心室功能的变化。

英文摘要:

Objective To evaluate local and global function of right ventricle in patients with acute pulmonary thromboembolism (APTE) with velocity vector imaging (VVI). **Methods** Totally 46 APTE patients were selected and divided into mild and moderate pulmonary hypertension group (PH I) and severe pulmonary hypertension group (PH II). Thirty healthy volunteers were enrolled as control group. Routine measurement was made of right ventricular diameter (RV), right ventricular wall thickness (RVAW), the movement range of RVAW, the main pulmonary artery (MPA) as well as pulmonary artery systolic pressure (PASP). Then velocity (V), strain (S) and strain rate (SR) of the basal, middle, apical segments of right ventricular free wall and septal wall were measured with VVI, and right ventricular ejection fraction (RVEF) was calculated. **Results** With the rise of pulmonary artery pressure, RV and MPA increased gradually while the movement range of RVAW and RVEF increased in PH I, but decreased in PH II (both $P < 0.05$). Right ventricular part myocardial V, S, SR increased in PH I, but decreased in PH II ($P < 0.05$). **Conclusion** VVI can be used to make quantitative assessment of the right ventricular function in patients with APTE, and is a new effective technology for the evaluation of right ventricular function.

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地址:北京市海淀区北四环西路21号大猷楼502室 邮政编码:100190 电话:010-82547901/2/3 传真:010-82547903

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