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二维斑点追踪成像技术评价心脏淀粉样变性与高血压左心室肥厚患者左心室收缩功能

Two-dimensional speckle tracking imaging in evaluation on left ventricular systolic function in patients with cardiac amyloidosis and hypertensive left ventricular hypertrophy

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中文关键词: [超声心动描记术](#) [斑点追踪成像](#) [心脏淀粉样变性](#) [高血压](#) [肥大左心室](#) [心肌应变](#)

英文关键词: [Echocardiography](#) [Speckle tracking imaging](#) [Cardiac amyloidosis](#) [Hypertension](#) [Hypertrophy, left ventricular](#) [Myocardial strain](#)

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中文摘要:

目的 探讨斑点追踪成像(STI)评价心脏淀粉样变性(CA)与高血压左心室肥厚(HLVH)患者心肌收缩功能及鉴别诊断价值。方法 对25例CA(CA组)、20例HLVH(HLVH组)及27名健康志愿者(对照组)行二维超声心动图检查,记录二尖瓣、乳头肌和心尖水平左心室短轴及心尖四腔、三腔、二腔心脏切面图像,应用QLab 8.1软件测量左心室壁16节段收缩期(CS)、径向(RS)及纵向(LS)峰值应变,计算各水平的平均CS、RS、LS及整体CS、RS、LS(GCS、GRS、GLS);针对上述各参数绘制ROC曲线。结果 ①与对照组相比,CA组水平CS、RS、LS及GCS、GRS、GLS明显减低($P<0.001$);HLVH组GCS、GRS、GLS减低,各水平LS及心尖CS、乳头肌水平RS减低($P<0.05$);②与HLVH组相比,CA组各水平CS、RS、LS及GCS、GRS、GLS减低($P<0.001$)。③ROC曲线分析显示GCS、GRS、GLS鉴别CA和HLVH较DT、E/e'准确率高(曲线下面积分别0.88, 0.90, 0.99 vs. 0.74, 0.82),以GLS $>-12.91%$ 为界值鉴别二者具有最高敏感度(100%)和特异度(95%)。结论 STI可评价CA患者和HLVH患者左心室各方向心肌收缩功能;GLS鉴别二者较为准确、实用。

英文摘要:

Objective To analyze strain characteristics of cardiac amyloidosis (CA) and hypertensive left ventricular hypertrophy (HLVH), and to observe clinical value of speckle tracking imaging (STI) in differentiating CA from HLVH. **Methods** Totally 25 patients with CA (CA group), 20 with HLVH (HLVH group) and 27 healthy subjects (control group) were examined with echocardiography. Two-dimensional images were obtained, including left ventricular apical four-chamber view, three-chamber view, two-chamber view and 3 short-axis views (basal, papillary muscle and apical planes). The peak systolic circumferential strain (CS), radial strain (RS) and longitudinal strain (LS) of 16 segments were measured using QLab 8.1 software. The basal, mid-LV and apical strains (CS, RS, LS) were obtained by averaging the corresponding strain values of segments at each level. The global CS, RS, LS (GCS, GRS, GLS) were obtained by averaging the corresponding strain values of all 16 segments. ROC curves were used to analyze value of routine echocardiographic and strain parameters in differentiating CA from HLVH. **Results** ①Compared with control group, the global, basal, mid-LV and apical strains (CS, RS, LS) in CA group significantly decreased ($P<0.001$), while the global strains (GCS, GRS, GLS), basal LS, mid-LV LS, apical LS, apical CS, mid-LV RS in HLVH group decreased ($P<0.05$). ②Compared with HLVH group, the global, basal, mid-LV and apical strains (CS, RS, LS) in CA group significantly decreased ($P<0.001$). ③Analysis of ROC curves demonstrated that strain parameters (GCS, GRS, GLS) had higher accuracy for discriminating CA from HLVH than those of DT and E/e' (AUC 0.88, 0.90, 0.99 vs. 0.74, 0.82, respectively). Taking GLS $>-12.91%$ as the cutoff value, GLS had highest sensitivity (100%) and specificity (95%) in differentiating CA and HLVH. **Conclusion** 2D-STI is a feasible technique for assessing cardiac longitudinal, circumferential and radial systolic function in patients with CA and HLVH. GLS could be applied as a useful tool in discriminating CA from HLVH.

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