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斑点追踪技术测量三尖瓣环位移评价2型糖尿病患者右心室收缩功能

Evaluation on right ventricular systolic function in patients with type 2 diabetes mellitus using two-dimensional speckle tracking imaging of tricuspid annular displacement

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中文关键词: [斑点追踪显像](#); [糖尿病](#) [2型](#); [三尖瓣环位移](#); [心室功能](#) [右](#)

英文关键词: [Speckle tracking imaging](#); [Diabetes mellitus](#) [type 2](#); [Tricuspid annular displacement](#); [Ventricular function](#) [right](#)

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中文摘要:

目的 探讨斑点追踪显像技术测量三尖瓣环位移(TAD)评价2型糖尿病(T2DM)患者右心室收缩功能的价值。**方法** 2型糖尿病患者44例,依据是否合并糖尿病微血管病变分为无微血管病变组(T2DM I组)19例和合并微血管病变组(T2DM II组)25例,另选正常对照组(NC组)28例。获取心尖四腔切面二维图像以及实时三维图像,将二维图像输入QLab 7.0工作站,获得右心室游离壁三尖瓣环收缩期峰值位移(T1)、室间隔瓣环收缩期峰值位移(T2)、三尖瓣环连线中点收缩期峰值位移(Tm)以及右心室纵向缩短率(Tm%)。将三维实时图像输入TOMTEC工作站,计算出左心室射血分数(LVEF)及右心室射血分数(RVEF)。**结果** 与NC组比较,T2DM I组Tm%、LVEF、RVEF明显减低($P < 0.05$);T2DM II组T1、T2、Tm、Tm%明显减低($P < 0.05$),LVEF、RVEF亦明显减低($P < 0.05$);与T2DM I组比较,T2DM II组T1、T2、Tm、Tm%明显减低($P < 0.05$);三尖瓣环位移各参数与RVEF均呈显著正相关, r 值分别为0.72(T1)、0.68(T2)、0.78(Tm)、0.94(Tm%), $P < 0.01$ 。**结论** 斑点追踪显像技术测量TAD能无创评价T2DM患者右心室收缩功能。

英文摘要:

Objective To estimate the clinical value of tricuspid annular displacement (TAD) with two-dimensional speckle tracking imaging technique in the assessment of right ventricular systolic function in patients with type 2 diabetes (T2DM). **Methods** Forty-four patients with T2DM (19 with DM only and 25 patients with coexisting DM and microangiopathy) as well as 28 healthy subjects (control group) were enrolled. Two-dimensional (2DE) and real-time three-dimensional imaging were obtained all at the apical four-chamber view. The TAD parameters including TAD at the right ventricular free wall (T1), TAD at the interventricular septum (T2), TAD at the midpoint of tricuspid annulus (Tm) and the right ventricular longitudinal shortening (Tm%) were obtained using off-line QLab 7.0 software, while left and right ventricular ejection fraction (LVEF, RVEF) were calculated by using TOMTEC software. **Results** The Tm%, LVEF and RVEF were significantly lower in T2DM I group than those in control group (all $P < 0.05$). T1, T2, Tm and Tm% were significantly lower in T2DM II group than in control group (all $P < 0.05$). LVEF and RVEF in T2DM II group decreased significantly compared with control group (both $P < 0.05$). T1, T2, Tm and Tm% were significantly lower in T2DM II group than those in T2DM I group (all $P < 0.05$). The parameters of TAD correlated positively with RVEF, $r = 0.72$ (T1), 0.68 (T2), 0.78 (Tm) and 0.94 (Tm%), respectively. **Conclusion** Based on STI, TAD is a novel, non-invasive parameter which may be used in detection of right ventricular systolic dysfunction in patients with T2DM.

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