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多功能超声检测胎儿右室双出口及法洛三联症右心到:

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Title: Multifunctional echocardiography for right ventricular function in fetuses suffering from double outlet right ventricle or Tetralogy of Fallot

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关键词: [脉冲多普勒](#); [M型超声](#); [RT-3DE](#); [胎儿](#); [右心室功能](#)

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摘要: 目的 探讨脉冲多普勒(PW)、M型(MME)、实时三维容积(RT-3DE)超声心动图在右室双出口及法洛三联症胎儿右心功能检测中的应用价值。 方法 采用PW、MME、RT-3DE三种方法,分别测量30例右室双出口及法洛三联症胎儿和30例正常胎儿的Tei指数、右室舒张末期容积(right ventricular end-diastolic volume, RVEDV)、收缩末期容积(right ventricular end-systolic volume, RVESV)、每搏量(stroke volume, SV)和射血分数(ejection fraction, EF)等指标,并进行对比分析。 结果 PW测量异常组胎儿右室Tei指数为(0.48±0.09),正常组为(0.36±0.05),异常组测值明显高于正常组;MME与RT-3DE测量的异常组胎儿右室EF分别为(60.04±7.69)、(52.04±7.26),差异有统计学意义(P<0.05);PW测量的Tei指数与RT-3DE的ROC诊断曲线较一致,与MME差异较大。 结论 RT-3DE可不依赖于任何解剖假设准确地评价胎儿心功能,且具有较好的重复性;由于右心室形态的不规则,MME在心室内径的测量上存在较大的误差,其相关测值的准确性和可重复性均较RT-3DE差。

Abstract: Objective To evaluate the value of the Pulsed Doppler (PW), M-mode echocardiography (MME), real-time three-dimensional volumetric

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echocardiography (RT-3DE) in the assessment of right ventricular function of the fetuses with double outlet right ventricle (DORV) or Tetralogy of Fallot (TOF).

Methods PW, MME, and RT-3DE were performed respectively in 30 fetuses with DORV or TOF and 30 normal fetuses in our department from December 2010 to December 2012. Data including Tei index (TI), right ventricular end-diastolic volume (RVEDV), end-systolic volume (RVESV), stroke volume (SV) and ejection fraction (EF) were analyzed and compared in the 2 groups.

Results The results of fetal right ventricular TI by PW was significantly higher in the abnormal group than in the normal group (0.48 ± 0.09 vs 0.36 ± 0.05 , $P < 0.05$). MME indicated that EF in abnormal fetuses was 60.04 ± 7.69 , while RT-3DE showed the index was 52.04 ± 7.26 , with the former significantly higher than the later ($P < 0.05$). TI by PW was consistent with in the receiver operating characteristic (ROC) curve of RT-3DE, but was significantly different from that of MME.

Conclusion RT-3DE evaluates the right ventricular function of fetuses with complex congenital heart disease accurately without depending on any anatomical assume, with good repeatability. Due to the irregularities of the right ventricular morphology, there is a large error in ventricular diameter measurement by MME. The accuracy and repeatability of MME are lower that that of the RT-3DE.

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李晓瑜, 郑俊平, 蒋演, 等. 多功能超声检测胎儿右室双出口及法洛四联症右心室功能[J]. 第三军医大学学报, 2013, 35(21): 2375-2379.
