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左心发育不良综合征胎儿肺静脉的多普勒超声检测

张静，周启昌，章鸣，彭清海，曾施，周嘉炜

中南大学湘雅二医院超声科，长沙 410011

Fetal pulmonary venous Doppler flow patterns in hypoplastic left heart syndrome

ZHANG Jing, ZHOU Qichang, ZHANG Ming, PENG Qinghai, ZENG Shi, ZHOU Jiawei

Department of Ultrasonography, Second Xiangya Hospital, Central South University, Changsha 410011, China

摘要 图/表 参考文献 相关文章 (15)

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摘要

目的：探讨多普勒超声检测左心发育不良综合征(hypoplastic left heart syndrome，HLHS)胎儿肺静脉(pulmonary vein，PV)血流频谱的临床价值。方法：应用多普勒超声检测46例24+0~37+6孕周HLHS胎儿和180例胎龄相匹配的正常对照组胎儿PV血流频谱，测量血流参数：心室收缩波(S波)、心室舒张波(D波)、心房收缩波(A波)和S/D比值，并进行统计学分析比较，与尸检或产后追踪结果对照。结果：HLHS胎儿组PV血流频谱A波反转、S波和S/D比值均较正常对照组胎儿明显增高(P<0.001)，且呈现3种不同类型。卵圆孔右向左分流与卵圆孔限制性左向右分流两组HLHS胎儿均呈现三相波型，但后者的反转A波较前者更高(P<0.001)、D波较前者减低(P<0.001)、S波和S/D比值较前者显著增高(P<0.001)；房间隔完整HLHS胎儿的D波则缺失，呈短而搏动明显的双向血流。结论：HLHS胎儿PV血流频谱的3种不同类型反映了左房高压的不同严重程度，相关信息对于评估胎儿预后和制定围产期处理方案至关重要。

关键词 ： 超声检查，多普勒，胎儿，左心发育不良综合征，肺静脉

Abstract :

Objective: To discuss the value of fetal pulmonary venous Doppler flow patterns in hypoplastic left heart syndrome (HLHS).

Methods: Forty-six HLHS and 180 normal singleton fetuses at 24+0 to 37+6 weeks of gestation were enrolled in this study. The blood flow of pulmonary vein (PV) was detected by color Doppler ultrasound. The systolic wave of ventricle (S-wave), diastolic wave of ventricle (D-wave), atrial contraction wave (A-wave) and S/D ratio of PV were measured. The statistical difference in the above parameters between HLHS and normal fetuses was compared. The diagnosis was also confirmed by autopsy in still birth or postnatal follow-up when the baby was alive.

Results: The PV blood flow in HLHS fetuses had a high possibility of reversed A wave, and the velocity of S wave and S/D ratio were higher than the matched normal controls (P<0.001). There were 3 types of PV blood flow patterns among all fetuses with HLHS. Both the cases with right to left shunt through foramen ovale (FO) and the cases with restricted left to right shunt at FO showed the triphasic patterns of PV with antegrade S wave, D wave and retrograde A wave. However, the latter had a higher velocity of retrograde A wave (P<0.001), lower D wave (P<0.001), and obviously elevated S wave and S/D ratio (P<0.001). The cases with intact interatrial septum showed short and apparent pulsatile back and forth blood flow in the PV, which displayed as absence of D wave.

Conclusion: The 3 types of PV blood flow patterns in the fetuses with HLHS reflect the severity of hypertension in the left atrium, which is extremely vital for the prognosis and the perinatal treatment plan.

Key words : ultrasonography Doppler fetus hypoplastic left heart syndrome pulmonary vein

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