Clinical Significance of Subjective Fetal Cardiac Ventricular Disproportion

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INTRODUCTION

Ventricular disproportion (VD) is defined as any subjectively noticeable visual difference between the right and left chambers of the heart and is associated with left heart obstruction. In this study, we hypothesized that VD is a marker for other cardiac anomalies. Therefore, our aim was (1) to report cardiac outcomes in neonates diagnosed prenatally with subjective VD; (2) to evaluate the contribution of objective measurement of the right-to-left-ventricular ratio (RLVR) to prenatal diagnosis of cardiac anomalies.

METHODS

Retrospective case series of all subjective VD diagnosed on routine obstetric ultrasound in a single tertiary centre (January 2007 - December 2013). Fetal and neonatal echocardiography evaluations were done. Neonatal outcome data was reviewed and reported in details. Objective VD was correlated to neonatal echocardiography results using

RESULTS

VD was diagnosed in 60 cases at 16-38 weeks. In 38/60, fetal echocardiography was otherwise normal; however, after birth neonatal echocardiography identified cardiac anomalies in 21 (58%) of the 36 live born (2 fetuses died in utero) - 14 (39%)of which had aortic coarctation. In the other 22/60 cases of VD - additional cardiac abnormality was suspected prenatally, most commonly ventricular septal defect [10/22, 45%] and confirmed after birth. Objective criteria of VD were met in 42/60 (70%) however, did not improve prediction of cardiac abnormalities.

CONCLUSIONS

- Subjective VD, regardless of objective measurement, is associated with cardiac defects.
- A policy of fetal and neonatal echocardiography after diagnosis of fetal cardiac VD appears justified.

Right-to-left ventricular ratios (RLVR) as a continuous value following transformation to gestational age specific z-scores or as categorical value (RLVR > 2 SD for gestational week). Reference values for RLVR for every gestational week were adopted from previously published nomograms constructed from our population.

Subjective diagnosis of ventricular disproportion (n=60)