

Heart failure evaluation using the Cardiovascular Profile Score in fetal right heart defects

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Introduction

Congestive heart failure in fetuses with congenital heart defects may be assessed by the cardiovascular profile (CVP) score. The aim of the present study is to determine the variables predicting the risk of perinatal death in congenital right heart defects (RHD) to achieve a disease specific CVP score.

Methods

Retrospective analysis of medical records of 28 fetuses with RHD, evaluated at our Perinatal Clinic for a 5 year period. Logistic regression analyses were performed to obtain Odds Ratios (OR) for the relationship between risk of death and CVP score, cardiothoracic ratio, right ventricle pressure, aortic peak velocity, umbilical artery and middle cerebral artery pulsatility index and parameters of LV performance.

Results

Fetal echocardiograms (143) from 28 patients were analyzed. Mortality was 50% by 30 days postnatally. The CVP score predicted the risk of death in fetuses with RHD, OR 0.9252(95%CI 0.866-0.988). Width of the RV/LV was lower in the non-survivors, OR 0.360(95%CI 0.190-0.715). A lower pressure gradient of the TR jet, RV pressure and RV/LV pressure were associated with mortality, OR 0.384(95%CI 0.228-0.646), 0.959(95%CI 0.940-0.978) and 0.395(95%CI 0.237-0.659), respectively. Peak aortic velocity was a protective factor, OR 0.104(95%CI 0.020-0.529).

Conclusion

Fetal echocardiography is useful in predicting outcome in RHD. CVP score is associated with the risk of perinatal death. Estimated RV pressure and LV ejection velocity may be useful as part of right heart defect specific CVP score.