O13-1

Changes in right ventricular function and growth after in-utero pulmonary valvuloplasty in fetuses with pulmonary atresia with intact septum or critical pulmonary stenosis

Tulzer A. (1), Arzt W. (2), Gitter R. (1), Prandstetter C. (1), Grohmann E. (1), Mair R. (3), Tulzer G. (1) Children's Heart Center Linz, Department of Pediatric Cardiology, Kepler University Hospital, Linz, Austria (1); Institute of Prenatal Medicine, Kepler University Hospital, Linz, Austria (2); Children's Heart Center Linz, Department of Pediatric Cardiac Surgery, Kepler University Hospital, Linz, Austria (3)

Objectives: to assess the immediate effects of fetal pulmonary valvuloplasty on right ventricular (RV) size and function as well as in-utero RV growth and postnatal outcome.
Methods: Thirty-five fetal pulmonary valvuloplasties were performed in 23 fetuses with pulmonary atresia with intact ventricular septum (PAIVS) (n=15) or critical pulmonary stenosis (CPS) (n=8) at a median gestational age of 28+4 weeks (23+6 to 32+1). RV morphologic and functional parameters were obtained before and 1-2 days after the procedure and analyzed retrospectively. Longitudinal data was collected only from fetuses who were followed in our center. Outcome was assessed using a prediction- score for a non-biventricular outcome.
Results: There were no fetal deaths. Immediately after successful intervention RV/LV length ratio, TV/MV ratio, RV filling time, RV TVI*HR increased and tricuspid regurgitation velocity decreased significantly. In fetuses followed longitudinally to delivery (n=5) ratios of RV/LV and TV/MV remained constant or improved further. Fetuses with an unsuccessful intervention (n=2) became univentricular all others had either a biventricular (n=15), one and a half ventricular (n=2), or a still undetermined (n=4) outcome. Five of nine fetuses with a predicted non-biventricular outcome became biventricular while 3 of nine still have an undetermined circulation.
Conclusion: In selected fetuses with PAIVS or CPS in-utero pulmonary valvuloplasty leads to immediately larger RVs caused by reduced afterload and increased filling. This is followed by continued RV growth improving the chances for a biventricular outcome even fetuses with a predicted non-biventricular circulation.