

P1-43

Prenatal Prediction of aortic coarctation: 15 years of experience

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Introduction (or Basis or Objectives): To assess which parameters provides the best prenatal prediction of coarctation of aorta (CoAo) and how our approach change during the years.

Methods: We selected all cases of right prevalence prenatally diagnosed in 2000-2015; then we reviewed the prenatal echocardiograms and postnatal outcome of the infants with and without coarctation of the aorta established postnatally, to identify how our percentage of reliability has changed over the years and which echocardiographic findings proved to be the most useful.

Results: Between 2000 and 2015, 143 fetuses referred for great vessel disproportion and cardiac asymmetry were studied. We divided it into two groups:

GROUP 1: From 2000-2007 we suspected CoAo in 70 fetuses (EG 29 +/- 4) and the diagnosis was confirmed in 38 cases (54%). The benchmarks were basically tricuspid valve/mitral valve ratio with the main pulmonary artery/AAo ratio (0.7) GROUP 2: From 2008-2015 we suspected CoAo in 73 fetuses (EG 28+/- 4) and the diagnosis was confirmed in 55 cases (75%). The false positive rate was lower in the second group , the improvement was due to a combination of parameters used: aortic annulus size compared gestational age (z-score of the ring valve < -2) , the z-score of ascending aorta (AAo) (< - 1,5) and aortic isthmus (three vessels and trachea view)(< - 2) related to EG, tricuspid valve/mitral valve ratio with the main pulmonary artery/AAo ratio. The earlier in the EG much more meaning we give it(< 28 W).

Conclusions: Prenatal diagnosis still remains burdened with a high rate of false positives, but the use of the z score related to gestational age and the construction of a multi-parametric scoring system allowed us to lower the margin of error in this diagnosis.