

Prediction of biventricular versus univentricular circulation in fetal diagnosis

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INTRODUCTION

An important aspect of fetal diagnosis is prediction of univentricular (UV) versus biventricular (BV) circulation, especially if diagnosis is made <22 weeks when termination of pregnancy (TOP) is possible. We sought to determine the accuracy of this prediction in our experience.

METHODS

85 consecutive fetuses with prenatal diagnosis of complex heart malformations (need for intervention <1 year) were eligible but only those 68 who had a postmortem (PM) or postnatal diagnosis were included. The prediction by the attending fetal cardiologist at the time of the first fetal echocardiogram (UV or BV) was compared to the fetal PM or the hemodynamics at the last postnatal follow-up. A prediction of possible UV was analyzed as UV. If there was more than one examination before 22 weeks the final judgement was used.

RESULTS

In no case was the prediction different at fetal follow-up compared to first impression.

TOP

The fetal prediction was UV in 20 and BV in 4. This was confirmed in all.

Fetal deaths

In 1 of 5 the fetal prediction was UV which was confirmed. Four were predicted to be BV, confirmed in 2, but 2 could also have been UV according to PM (1 AVSD, 1 PA/IVS).

Liveborns

In 15 of 39 UV was predicted. Twelve had UV and 3 had BV (1 AVSD and 2 with Coarctation of the Aorta). Twenty-four were predicted to be BV but 4 had UV (2 AVSD, 1 DORV/PA, 1 DILV/TGA).

Diagnosis <22 weeks

Twenty-three of 33 were predicted to be UV and 10 BV. Prediction was incorrect in 2. Both had AVSD predicted to be BV but after live birth one had UV. The other fetus died and PM showed probable UV.

CONCLUSION

The prediction of UV versus BV was correct in 59 of 68 cases and in 31 of 33 diagnosed <22 weeks. Four of 9 with incorrect prediction had AVSD and 2 had Coarctation of the Aorta. In no case of TOP was the prediction incorrect as judged from PM. However PM may not have correctly reflected the postnatal situation in every case had the pregnancy continued.