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The fetal heart in monochorionic twin pregnancies: how much are we missing?

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Introduction: Twin pregnancies have an increased risk of cardiac structural and functional abnormalities compared with singleton pregnancies. This risk appears to be even greater when we refer to monochorionic pregnancies. The aim of this retrospective study is to review the incidence of cardiac disease in a population of monochorionic twins. Methods: Retrospective review of all monochorionic twin pregnancies referred for a fetal cardiac scan in our institution. Data about gestational age and cardiac diagnosis was reviewed. Chorionicity and type of cordal insertion was confirmed through the histologic analysis of the placenta. Results: Between January 2007 and December 2010, 3803 fetal cardiac scans were performed in our department. Of these, 166 were monochorionic twin pregnancies. In 12 (7.2%) of these there was a diagnosis of congenital heart disease in one of the twins. The cardiac diagnosis was: simple complete transposition of the great arteries (2), transposition of the great arteries with a ventricular septal defect (2), aortic stenosis and coarctation of the aorta (1), right isomerism with aortic atresia (1), ventricular septal defect (3), pulmonary valve stenosis (1), pulmonary atresia with intact ventricular septum (2). In the 3 cases of pulmonary stenosis and atresia, a diagnosis of twin to twin transfusion syndrome (TTTS) was also made by echocardiography. The cardiac malformations were diagnosed in the receptor twin, and in all 3 cases laser therapy was successfully performed. In 10 cases, the type of cord insertion was assessed. The most frequent type of cord insertion was central (12), followed by marginal (4), and velamentous (3). In one case information about cord insertion was not available. Conclusions: During the period of the study, the incidence of cardiac disease in our population of monochorionic twins appears significant. The reason for these different cardiac malformations is not yet clear, but one may speculate that hemodynamic imbalance based on a single placenta with anatomoses is a frequent event and may contribute to the “remodeling” of cardiac anatomy.