Prenatal evolution of heart defects detected during 11-13+6 weeks’ scan in a Referral Centre of Perinatal Cardiology

Wlasienko P., Hamela-Olkowska A, Jalinik K., Dangel J.H.
Perinatal Cardiology Clinic, 2nd Dept.of Obstetrics and Gynecology, Medical University of Warsaw, Poland

Introduction.
It is possible to evaluate fetal heart during 11-13+6 weeks’ scan in a referral fetal cardiology centre. Early diagnosis allows further genetic testing and better planning of antenatal care. There is still little knowledge about prenatal evolution of heart defects and about limitations of first trimester diagnostics.

Methods:
Between 2004-2009 in our referral centre 797 fetuses were examined between 11-13+6 w.o.g. according to international U/S examinations safety regulations. In every case a follow-up ECHO exam in the second and/or third trimester was performed. In cases of prenatal diagnosis of CHD a further genetic testing was offered.

Results:
42 fetal heart defects were diagnosed (30[72%] in the first trimester) including both complex (HLHS, AP with VSD) and simple (AVSD, VSD) cardiac lesions. In 13[31%] fetuses also a chromosomal aberrations were confirmed. There were 18 TOP, 9 IUD and 15[36%] neonates were life-born (including fetuses with trisomy 21 and trisomy 18). There was a statistically significant correlation between increased nuchal translucency and the presence of congenital heart defects, extracardiac malformations (ECM) or chromosomal abnormalities (p<0.001). ECM were diagnosed in another 9 fetuses (acrania, omphalocele, megacystis, NIHF).

We observed a progression of cardiac failure in a fetus with trisomy 18, PS and VSD (live born) and a fetus with CHB and left isomerism (heterotaxy) who died in utero. However in a fetus with a large disproportion between LV and RV in the first trimester, there was a final diagnosis of CoA in neonate and a correction with good result was undertaken.

We also reported problems with diagnosis of truncal anomalies (i.e. TOF) and small ventricular defects in the first trimester. In our study group the final diagnosis was confirmed after 16. week of gestation.

Conclusions:
The first trimester echocardiography is feasible in a referral prenatal cardiology centre. Because both the progression of fetal circulatory system failure and regression of cardiac symptoms were noticed there is a necessity of further cardiac evaluations throughout the pregnancy after the first trimester ECHO. There is a strong need of genetic counseling of patients due to correlations of heart defects with chromosomal aberrations.