Difficulties of fetal echocardiography: coarctation of the fetal aorta

Venchikova N, Novikova I
Republican scientific-practical center "Mother and a child", Belarus, Minsk, Belarus

Objective
Coarctation of the aorta is one of the most common congenital heart disease, the frequency of which is about 8%. This defect is characterized by a narrowing of the distal aortic arch. Early correct diagnosis, preferably in the prenatal period, may reduce perinatal mortality and long-term complications.

Methods
There were 35 cases of prenatally detected coarctation in fetuses. Important ultrasound signs were revealed with fetal echocardiography.

Results
In 31 of the 35 fetuses coarctation was confirmed by postnatal studies and after surgery (88%). Ventricular disproportion in the fetus (left lower right) rises a suspicion of coarctation of the aorta. Ventricular disproportion is more sensitive in the second trimester and less in the third trimester. In 31 of the 35 the disproportion ratio (RV/LV) is more than 1.6 (89%). Isthmus / duct ratio is less than 0.7 in 33 of 35 fetuses with coarctation (95%). Results below 0.7 are suspicious for aortic coarctation and the smaller, the more likely hypoplasia or coarctation of the aorta. Coarctation of the aorta is almost always associated with a disproportion in the main vessels. Pulmonary artery/ aorta ratio is more than 1.6 in 29 of the 35 fetuses (82%). Reverse flow through the foramen ovale from left to right was determined in 13 of the 35 fetuses (37%). Coarctation was revealed in 3 of the 35 fetuses with persistent left superior vena cava (9%).

Conclusion
Precise prenatal diagnosis of coarctation is very difficult. Specific ultrasound signs allow to diagnose more accurately this anomaly. Prenatal diagnosis improves survival and reduces neonatal mortality. Delivery should be carried out in a specialized perinatal center in case of suspicion of coarctation the aorta.