

Prenatal diagnosis of transposition of the great vessels with a restrictive foramen ovale

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OBJECTIVES: We analyzed our own experience in the prenatal diagnostics of transposition of great arteries with intact ventricular septum and restrictive foramen ovale and perinatal management for this group of patients.

METHODS: We analyzed fetal echocardiograms of patients with a diagnosis of transposition of great arteries with intact ventricular septum at our institution from 2004 to 2017. Based on the echocardiographic findings, we identified predictors of restriction and allocated risk group.

RESULTS: From 2004 to 2017 in our Center a diagnosis of transposition of great arteries with intact ventricular septum in 212 fetuses was established. In 74 cases, during the consultation after 36th weeks, a diagnosis of a restrictive foramen ovale was established. It has been confirmed in 61 (82,4 %) patients after birth – 3 (4,9 %) patients died just after birth before conducting any interventions. An urgent atrioseptostomy was performed in 10 (16,4 %) patients in the delivery room, and in 42 (68,8 %) – during the 1st day of life in the cath lab. The arterial switch operation was performed in 182 cases – in the first hours of life in 89 (48,9 %) cases and on average in 6th±4 a day of life in 93 (51,1 %) cases. The mortality in this group of patients was 3,8 % (n = 7). In all fetal echocardiograms we evaluated the size and anatomy of the oval window, including the opening angle, size and configuration of the aneurysm (if present). The relation in size of all cardiac structures and their Z-score, aortic and pulmonary velocity time integral were measured and analyzed. From September 2016, the routine use of an oxygen test (22 fetuses) was introduced. The maximum and mean velocity on pulmonary veins, left and right ventricular outflow tract, aortic arch and ductus arteriosus velocity time integral was measured before and after the oxygen test.

CONCLUSIONS:

The restriction of the foramen ovale may be underestimated in the prenatal diagnosis of transposition of large arteries, which directly affects morbidity and mortality before surgical treatment. Restrictive foramen ovale requires careful diagnosis and urgent atrioseptostomy right after birth.