Coronary anomalies in children with transposition of the great arteries (TGA) and their impact on long term follow up after arterial switch operation.


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INTRODUCTION: Coronary anomalies are frequently associated with the TGA. Current method of choice for treatment - arterial switch operation (ASO) includes switch of the great vessels and coronary arteries transplantation thus the coronary anomalies increase the difficulty and force operator to modify the reimplantation sites what may cause significantly higher risk of severe postoperative complications.

The aim of this study was to establish occurrence of the coronary anomalies in patients with TGA after arterial switch operation and their impact on long term follow up including coronary complications.

METHODS: We reviewed all 690 arterial switch procedures performed between years 1991–2014 in Department of Cardiosurgery of Polish Mother’s Memorial Hospital in Lodz including patients with simple TGA(424pts-62%), TGA associated with VSD(182pts-26%), TGA with aortic arch anomalies(64pts-9%) and 2 stage operation with pulmonary artery banding prior to the ASO(20pts-3%). All of the operations were performed with modifications introduced by JJM. The patients’ medical records were reviewed retrospectively to gather clinical and echocardiographic data before surgery, during the perioperative period and postoperatively.

RESULTS: The overall mortality was 7.2% and mean clinical follow was 9.4(SD:5.9) years. Coronary anomalies was observed in 236 patients (34%). The most frequent anomalies are: Cx extending from the RCA (1:LCA;2RCA-Cx) - 49% (115 cases); 1:LCA,RCA;2:Cx - 15% (35 cases) and all arteries arising from right sinus (1:0;2:RCA,LCA) – 11% (26 cases). Among 206 routine coronarography examinations, performed usually between 5 and 10 years after ASO, in 10 cases (5%) mild disturbances were observed with no need of interventions or reoperations. Patients with coronary anomalies had significantly higher risk of reinterventions (RR-3.16;CI95%:1.28-7.79;p=0.012), however they were not related to the coronary arteries. There was no significant correlation between presence of the coronary anomalies and early and late deaths (p=0.59), perioperative complications (p=0.89) and reoperations (p=0.17). During follow up there was 1 reoperation related to the coronary arteries (LCA occlusion) in patient without coronary anomaly.

CONCLUSIONS: Coronary anomalies in children with TGA are common finding and occur in about 1/3 of patients. The most frequent anomaly is Cx extending from the RCA. Coronary anomalies increase the risk of reinterventions during follow up.