

**Neoaortic root in children with transposition of the great arteries (TGA) after arterial switch operation (ASO).**

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**OBJECTIVE:** Neoaortic root dilatation was described as a factor related with neo-aortic valve regurgitation (NeoAR) – one of the most frequent complication after switch procedure for transposed great arteries.

This study was aimed at assessing aortic root diameters in long term observation after arterial switch. We evaluate the correlation between neo-aortic root diameters or calculated indexes and neo-aortic regurgitation incidence and development.

**METHODS:** Among 545 patients with TGA, who had an arterial switch procedure from the year 1991 to 2009 in Cardiosurgery Department of Polish Mother's Memorial Hospital, 172 were qualified for this study. Inclusion criteria were: over 10 years of follow-up with at least 2 echocardiographic examinations in post-operative period performed in our Department with full aortic root measurements including: aortic annulus (AA), aortic sinus (AS) and sinotubular junction (STJ) diameters. Patients with two stage operation were excluded from this study.

Subjects were divided into three groups: Group 1 – patients with simple TGA (109); Group 2 - patients with TGA associated with ventricle septal defect (51); Group 3 - patients with TGA associated with aortic arch anomaly (12). Each group was divided into patients, who developed neo-aortic regurgitation and those who had no signs of NeoAR during whole follow-up.

Aortic root measurements were normalized using ratio to aortic annulus (AA) and body surface area (BSA), because received values were time depending. Each year values were analyzed separately.

**RESULTS:** Neo-aortic regurgitation occurred in 85 patients (49%): 52 from group 1 (48%); 27 from group 2 (53%); and 6 from group 3 (50%). In majority of cases (84%) it was trivial/mild regurgitation, which occurred and developed in first 6 years after switch operation. None of analyzed root diameters and ratios was statistically significantly correlated with NeoAR occurrence and development.

There were no significant changes in the value of AS/AA, STJ/AA and AS/STJ indexes during whole follow up in 3 analyzed groups, while AS/BSA and STJ/BSA ratios decreased permanently with time after surgery simultaneously in three groups – BSA value increases faster than aortic root diameters during child growth.