

Supravalvular pulmonary stenosis (SVPS) in patients with transposition of the great arteries (TGA) after arterial switch operation (ASO).

Michalak K.W.(1), Moll J.A.(1), Sobczak-Budlewska K.(1), Moll M.(2), Młodzik K.(1), Moszura T.(1), Dryżek P.(1), Moll J.J.(2)

Department of Cardiology, Polish Mother's Memorial Hospital, Lodz, Poland (1)Department of Cardiosurgery, Polish Mother's Memorial Hospital, Lodz, Poland (2)

INTRODUCTION: ASO is currently the method of choice for transposition of the great arteries. Despite excellent early and long-time survival, there are still important complications in postoperative period like SVPS, neo-aortic insufficiency and coronary ostial stenosis. SVPS remain the most frequent indication for reoperation and reinterventions after ASO irrespective of technique of neopulmonary artery reconstruction.

The aim of this study was to establish the frequency of significant SVPS in patients with TGA after arterial switch procedure, its pattern during follow up, risk factors and necessity of reinterventions and reoperations.

METHODS: We reviewed all 665 arterial switch procedures performed between years 1991 – 2013 in Cardiosurgery Department of Polish Mother's Memorial Hospital including patients with simple TGA (412pts-62%), TGA associated with VSD (175pts-26%), TGA with aortic arch anomalies (59pts-9%) and 2 stage operation with pulmonary artery banding prior to the ASO (19pts-3%). The SVPS gradient was acquired from echocardiographic examinations performed during routine control follow-up visits in the Cardiology Department.

RESULTS: The overall mortality was 7,2%; average clinical follow-up duration for survivors (617pts) was 10,2 years. In majority of the cases neopulmonary trunk reconstruction was performed with direct pulmonary artery anastomosis (584pts-88%), in the remaining cases the risk of coronary arteries compression has forced to use the pericardial patch for pulmonary reconstruction (81pts-12%). The significant SVPS (flow speed over 2,5m/s; PG >25mmHg) was observed in case of 54 patients (8%); 7 patients required reintervention because of significant SVPS (PG >40mmHg), 1 patient had balloon plasty of SVPS twice. None of the patients from our study group required reoperation because of pulmonary stenosis. Among analyzed risk factors patch reconstruction ($p<0,001$), non-facing commissures ($p=0,02$) and pulmonary banding ($p<0,001$) were correlated significantly with significant SVPS (cox-regression model).

CONCLUSION: Although the risk of significant SVPS after arterial switch operation is relatively low, relief of supravalvular pulmonary stenosis represents about half of indications for postoperative reinterventions. Lowest risk of SVPS occurs in patients with anatomic correction performed during the neonatal period with direct pulmonary artery anastomosis.