

Intramural coronary pattern in patients with transposition of the great arteries after an arterial switch operation.

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

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

INTRODUCTION: Coronary complications are still the main reason for early mortality after an arterial switch operation (ASO). The high incidence of coronary anomalies in patients with transposition of the great arteries (TGA) may increase the difficulty of coronary transfer and among them intramural pattern was proved to be independent risk factor for early mortality. However recently published studies presented opposite results with no impact of this rare coronary variant on the survival rate.

The aim of this study was to assess the frequency of intramural coronary pattern in patients with TGA and its impact on early and late mortality after ASO. Additionally we presented all coronary arrangements associated with intramural pattern, which occurred in our cohort and the surgical technique to manage them successfully.

PATIENTS AND METHODS: Since 1991 till 2017 we have performed 777 arterial switch operations with overall early mortality 6.9%, late mortality 2.5% and average follow up 12.65 years. This analyzed cohort include the initial learning curve with the higher mortality rate. All patients have detailed graphic and descriptive description of coronary anatomy in surgical report. They were reviewed, to describe the frequency of intramural coronary pattern, its impact on survival rate and the surgical technique used.

RESULTS: Among 777 patients 262 had coronary anomalies (33.7%) and intramural pattern occurred in 26 patients (3.3%). This rare variant was associated in our cohort with 6 different coronary setups but most frequent was 1:0;2:LCA,RCA (10/26) with left coronary artery arising from right coronary sinus close to the posterior commissure and its intramural pattern between great vessels to the left atrioventricular groove. Combined early and late mortality were higher in patients with intramural coronary artery pattern (15.4%) in relation to other coronary variants (9.1%). This difference was not statistically significant ($p=0.284$, log-rank test, Figure), but the number of patients with intramural pattern makes statistics underpowered to confirm significance of the observed difference in mortality.

CONCLUSIONS: Intramural pattern associated with TGA still remains a surgical challenge but team experience seems to modify this risk factor. To reliably confirm or reject the significance of observed impact of this rare coronary variant multicenter data analysis is required.

