

ORAL PRESENTATION

Open Access

# Right ventricular outflow tract deployment of stents in the management of tetralogy with hypoplastic pulmonary arteries

A Nohkrin<sup>1\*</sup>, K Drozdovski<sup>2</sup>, A Bashkevitch<sup>2</sup>, A Savchuk<sup>3</sup>, E Karalkova<sup>3</sup>, I Turchinova<sup>3</sup>, E Karatshan<sup>4</sup>, W Novick<sup>5</sup>

From 23rd World Congress of the World Society of Cardio-Thoracic Surgeons  
Split, Croatia. 12-15 September 2013

## Objective

Patients with tetralogy or double outlet right ventricle with pulmonary stenosis who present with cyanosis before 4 months of age remain a treatment challenge. Those patients presenting as newborns are especially difficult to manage. We have introduced a coronary stent into the right ventricular outflow tract (RVOT) as an alternative to performing a systemic to pulmonary artery shunt.

## Methods

The databases in Minsk and Kemerovo were queried to identify all patients undergoing stent deployment in the RVOT. Additionally all patients less than 4 months of age receiving a systemic to pulmonary shunt for TOF or DORV/PS were identified. A total of 35 patients were identified. The data for those receiving stents was compared to those receiving shunts.

## Results

Twelve (12) children received a stent and 23 received shunts. Age (days) and weight (kg) respectively were  $59.2 \pm 30.9$ ,  $3.7 \pm 0.9$  for stent patients and  $64.2 \pm 40.9$ ,  $3.9 \pm 1.3$ , for shunt patients (p, NS for age and weight). Pre-procedural saturations and pulmonary artery size (mean branch size in mm) were  $74.6\% \pm 13.6$ ,  $4.8 \pm 1.3$  for shunts and  $76.7 \pm 11.2$ ,  $3.9 \pm 0.8$  for stents (p, NS sats,  $p = 0.017$ , size). Secondary procedures were required in 3/12 stent patients and 6/23 shunt patients. Initial procedure mortality was 0/12 (0%) stents and 2/23 (8.7%) shunts.

The time interval between initial procedure and complete repair was  $17.7 \pm 5.2$  months for shunt patients and  $6.5 \pm 4.2$  months for stent patients ( $p < 0.001$ ). Repair type was trans-annular patch or right ventricular pulmonary artery conduit in 89% (16/18) shunt patients and all patients with stents (9/9) had a trans-annular patch. Post repair procedures consisted of coiling collaterals in 2/9 with stents and none with shunts. Survival through complete repair was 100% (9/9) in stents and 85% (17/20) in the shunts.

## Conclusion

Stents placed in the RVOT of infants with tetralogy can be performed with low mortality and improve total survival.

## Authors' details

<sup>1</sup>Pediatric Cardiac Surgery, Research Institute for Complex Issues of Cardiovascular Diseases, Siberian Branch of the Russian Academy of Medical Sciences, Kemerovo, Russia. <sup>2</sup>Pediatric Cardiac Surgery, National Children's Cardiac Surgical Center, Minsk, Belarus. <sup>3</sup>Pediatric Cardiology, National Children's Cardiac Surgical Center, Minsk, Belarus. <sup>4</sup>Pediatric Cardiology, Research Institute for Complex Issues of Cardiovascular Diseases, Siberian Branch of the Russian Academy of Medical Sciences, Kemerovo, Russia. <sup>5</sup>Department of Surgery, University of Tennessee Health Sciences Center and International Children's Heart Foundation, Memphis, TN, USA.

Published: 11 September 2013

doi:10.1186/1749-8090-8-S1-O312

Cite this article as: Nohkrin et al.: Right ventricular outflow tract deployment of stents in the management of tetralogy with hypoplastic pulmonary arteries. *Journal of Cardiothoracic Surgery* 2013 **8**(Suppl 1):O312.

\* Correspondence: nohkrin\_av@rambler.ru

<sup>1</sup>Pediatric Cardiac Surgery, Research Institute for Complex Issues of Cardiovascular Diseases, Siberian Branch of the Russian Academy of Medical Sciences, Kemerovo, Russia

Full list of author information is available at the end of the article