

**Aortopulmonary Collaterals in Neonates with d-Transposition of the Great Arteries – Clinical Significance early after Arterial Switch Operation**

*Christmann M. (1,3), Wipf A. (1,3), Navarini-Meury S. (1,3), Dave H. (2,3), Quandt D. (1,3), Knirsch W. (1,3), Kretschmar O. (1,3)*

*University Children`s Hospital Zurich, Heart Center, Pediatric Cardiology, Zurich, Switzerland (1); University Children`s Hospital Zurich, Heart Center, Division of Congenital Cardiovascular Surgery, Zurich, Switzerland (2); Children`s Research Center, University of Zurich, Switzerland (3)*

**Objectives:** Purpose of this study is to evaluate the clinical significance of major aortopulmonary collateral arteries (MAPCAs) during the early postoperative course after arterial switch operation (ASO) in d-transposition of the great arteries (dTGA).

**Methods:** Clinical data of 98 patients with simple dTGA between January 2007 and December 2016 at the University Children's Hospital Zurich, Switzerland were analyzed retrospectively.

**Results:** 37 from 98 patients (38%) required cardiac catheterization (CC) due to an early complicated postoperative course or difficult coronary transfer due to special coronary anatomy. In 15 (15%) patients, hemodynamically relevant MAPCAs were found during CC and coil embolization was performed. Patients with relevant MAPCAs had a significantly longer PICU stay (7 versus 6 days,  $p=0.021$ ), longer hospital stay (41 versus 27 days,  $p=0.005$ ), longer mechanical ventilation time (5 versus 3 days,  $p=0.005$ ), longer need for inotropic support (5 versus 4 days,  $p=0.001$ ) and delayed chest closure time (3 versus 2 days,  $p=0.030$ ) in those in whom it was left open in comparison to all other patients. In patients having CC, pre-surgery oxygen saturation was significantly lower in patients with relevant MAPCAs (58% vs 70%,  $p=0.019$ ). Echocardiography had a sensitivity of 53% and a specificity of 100% in detecting relevant MAPCAs, accurately.

**Conclusions:** MAPCAs are frequently found in dTGA patients and can be associated with lower baseline oxygen saturation and a prolonged postoperative course after ASO. Transthoracic echocardiography cannot replace CC as diagnostic tool. If significant MAPCAs are suspected, early CC should be performed for diagnostic and therapeutic reasons.