

Mid term outcome of arterial duct stenting: results of a multicentre study

Milanesi O. (1), Russo M.G. (2), Maschietto N. (1), Marrone C. (2), Gaio G. (2), Calabrò R. (2), Stellin G. (3), Vida V.L. (3), Padalino M.A. (3) and Santoro G. (2)

Department of Pediatrics (1) and Pediatric Cardiac Surgery (3), University of Padua, Italy, Department of Cardiology, Monaldi Hospital (2), 2nd University of Naples, Italy

Background Complex CHD with duct dependent pulmonary circulation carry high morbidity and mortality in neonatal age. Although surgical palliation still represents the gold standard, percutaneous arterial duct (AD) stenting is increasingly deemed a feasible and effective alternative.

Aim. Aim of this multicentre retrospective study is to evaluate feasibility and mid-term outcome of percutaneous AD stenting.

Methods. Between March 2003 and July 2009 all the patients with duct dependent pulmonary circulation were included in the study if AD stenting was planned. Nakata and Mc Goon indexes were calculated in those who underwent a second cardiac catheterization.

Results. 90 patients (pts) were enrolled. Median age at the procedure was 11 days (0-502) mean weight 3.3 Kg (1.4-12.0). Diagnosis were: ToF (34.5 %), PA/PS+IVS(28.5%), Ebstein TV (6 %), complex CHD with PA/PS (31%). The anatomy was judged not amenable for AD stenting in 9 pts. The procedure was technically successful in 77/81 (95%). Major complications occurred in 4 pts (5%): 2 stent migration and 1 incomplete covering of the ductal tissue, requiring not urgent surgical rescue; transient cerebral ischemia in 1 successfully implanted. Operative mortality was 1,2% (1 case due to duct dissection), overall hospital mortality was 5% (4 patients: 1 due to anemia and 1 due to septicaemia, 2 after Blalock Taussig shunt). At the follow-up, 5 patients(6.4%) needed a systemic-to-pulmonary artery shunt, 7 (9%) underwent percutaneous stent dilatation. Complete occlusion of the stent occurred in 1 case (1.2%), in whom PDA was the solo supply to the RPA . The Nakata and McGoon indexes calculated at follow-up angiography increased from 132 ± 67 to 287 ± 94 ($p < 0,0001$) and from $1,6 \pm 0,3$ to $2,1 \pm 0,2$ ($p < 0,0001$) respectively..

Conclusion. Stenting of the arterial duct is feasible, safe and effective palliation. It warrants an effective systemic oxygenation and promotes a significant and balanced pulmonary artery growth