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Right ventricular outflow tract stenting in very low birth weight newborns

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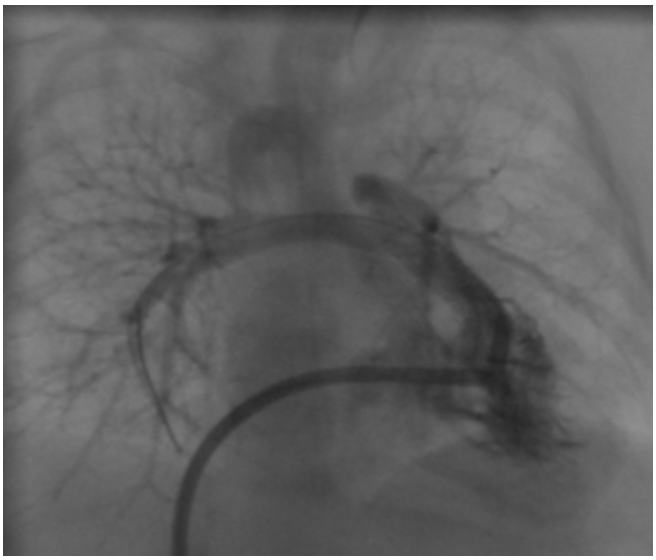
Background: Correction of neonatal pulmonary atresia with ventricle septum defect (PA/VSD) depends on development of pulmonary arteries. Very low birth weight newborns (VLBW) demand individual strategies to achieve appropriate growth of pulmonary arteries.

Objective: We report about our experience in VLBW with PA/VSD between 1,2 and 1,4 kg weight.

Methods: Clinical, echocardiographic and angiographic data were reviewed for four patients who underwent six right ventricular outflow tract (RVOT) stenting procedures from June 2008 to February 2010.



Results: All patients were interdisciplinary discussed before deciding for intervention. Antegrad pulmonary artery perfusion was preferred to avoid systemic run-off as seen by stenting of the duct. 4 patients underwent stentimplantation in the RVOT. All stents used were coronary artery cobalt-chromium stents (diameter 4 to 5,5mm). Three patients had no major complication during or after undergoing intervention. Two patients had atrial flutter due to mechanical manipulation in the right atrium which could had been terminated without electrical cardioversion. One patient died 12 hours afters intervention due to right coronary artery compression. Time interval between intervention and surgery ranged from 2 to 4 months. The three survivors had been surgically corrected between 3,2 en 5,1 kg weight. Median diameter of pulmonary artery trunk increased from 3,8mm to 8,2 mm at moment of surgery. Resection of the RVOT stent was possible in all cases and demanded extended resection of infundibular myocardium.

Conclusions: Our experience in RVOT stenting is based on a non-representative and small number of VLBW newborns. RVOT stentimplantation in patients below 1,5 kg is technically feasible. Balance between ethical aspects and feasibility in such high-risk procedures in critically ill newborns is essential.