Stent extraction and coarctation repair after palliative stenting in neonates with critical coarctation

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Objectives: Surgery is the treatment of choice for critical aortic coarctation. Surgical repair should be performed as early as feasible, but can be problematic in premature, low birthweight newborns and is associated with a higher (peri-)operative risk in these patients. Therefore palliative coarctation stenting in these newborns or infants in cardiogenic shock can be a feasible approach in order to stabilize these patients until corrective surgery.

Methods: A retrospective data analysis of newborn patients who presented with a critical aortic coarctation in our institution from April 2011 to August 2014 was performed.

Results: In total, ten infants with critical aortic coarctation underwent this two-staged procedure. Median age at stent implantation was 22 days (median weight 3.2 kg), median age at surgery was 4.1 months. Hypoplastic aortic arch was described in all but one patient, who had an interrupted aortic arch type B. Five patients had a bicuspid aortic valve. Six patients were diagnosed with concomitant intracardiac anomalies (ventricular septal defects, atrial septal defects, mitral stenosis or mitral dysplasia).

Follow-up data was available for nine patients for up to 36 months (median 19 months) after surgery and showed a stable outcome without reoperations. Two patients required reinterventions at the distal aortic arch due to recurring stenosis. One preterm infant with several comorbidities and an atrioventricular septal defect died one month after surgery due to sepsis.

Conclusion: Palliative stenting followed by surgical stent removal and coarctation repair are safe and efficient procedures in infants with critical coarctation who are not suitable for primary aortic coarctation repair.