

Safety and Efficacy of Palliative Stent Implantation in Premature Infants Under 1.4 kg

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Introduction: Premature infants with critical congenital heart disease pose difficult therapeutic problems: Surgery is associated with higher mortality and morbidity. Prolonged medical therapy to delay surgery does not improve survival. Palliative stent implantation may be an alternative in aortic coarctation and Tetralogy of Fallot.

Methods: To assess safety and efficacy of this approach, we collected demographics, procedural parameters, results, complications and late clinical outcomes of all premature infants <1.4 kg undergoing attempted palliative transcatheter stent implantation.

Results: Interventions were attempted in 8 patients (gestational age 26-34 weeks, median 30.5 weeks) and accomplished in all. Five patients (weight 900-1230 g; median 1050 g) underwent stent placement for coarctation with access by carotid cut-down. Fluoroscopy times were 4.4-10.8 min (median 6.6 min). The premounted stents were 3–4 mm in diameter and 7-9 mm in length. There were no procedural complications. One patient with prior septic episodes died from sepsis one week after the procedure; 3 had elective end-to-end repair after 4-5 months; 1 underwent Norwood after 3 months. Three patients underwent palliative stent placement for Tetralogy of Fallot (weight 970-1300g) by jugular vein cut-down. The premounted stents were 3.5–4 mm in diameter and 9-12 mm in length. Fluoroscopy times were 10.8–17.2 min. There were no complications. Elective repair was performed in all patients after 6–10 weeks.

Conclusion: Stent implantation appears to offer safe and effective palliation for premature infants allowing elective surgical repair at the preferred age and size.