Ductus Arteriosus Stent Implantation in Comparison with Surgically-created Shunts


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Objectives: The present study aims to report the researchers’ experience with the safety, efficacy, short-term outcome, and complications of patent ductus arteriosus (PDA) stenting in neonates with ductal-dependent pulmonary circulation in comparison with surgically-created shunts.

Methods: Between April 2009 and April 2011, 18 infants with duct-dependent pulmonary circulation underwent cardiac catheterization for PDA stenting as the first palliative procedure in a referral center, and 20 infants were treated with surgical aortopulmonary shunts in another center. Follow-up included clinical examination, echocardiography, oxygen saturation and cardiac catheterization studies.

Results: Access and stenting for PDA was successful in 15 patients (83.3%). Mean procedure and fluoroscopy time were 58.43±41.25 minutes and 18.81±5.64 minutes, respectively. Three patients (30%) in the stented group and 6 (30%) in the surgical group (P=0.09) died. After a 6-month follow-up, no patients had significant stent stenosis requiring re-intervention. There was no statistically significant difference in the increase of oxygen saturation in the two groups after the procedure and 6 months after the procedure (P>0.5). Left pulmonary artery diameter, McGoon’s ratio and Nakata index were not statistically significant in the groups (P>0.05), but right pulmonary diameter was larger in the stented group (5.01±0.45 vs. 4.1 ±0.49, P=0.0001).

Conclusions: Stenting for PDA is an appropriate alternative to surgical shunt creation in many patients with duct-dependent circulation. In our sample, there was no significant difference between short-term procedural related outcome and mortality.

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