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OUTCOMES AFTER IMPLANTATION OF BARE-METAL, COVERED AND DRUG-ELUTING STENTS FOR THE TREATMENT OF PULMONARY VEIN STENOSIS IN CHILDREN

i2 Poster Contributions
Ernest N. Morial Convention Center, Hall F
Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: PCI - Congenital, Structural, Valvular
Abstract Category: 14. PCI - Congenital, Pediatric and Structural Defects
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Background: Progressive pulmonary vein stenosis (PVS) is frequently lethal. It occurs in isolation and with other congenital heart disease. Surgical and transcatheter approaches are acutely successful but restenosis is common and rapid. We assessed outcomes of PV stenting and compared the patency of stent types in these patients.

Methods: Patients <18y with transcatheter stent placement for PVS at our institution since 1990 were retrospectively identified. Cross-sectional follow-up was obtained. Freedom from diagnosis of stent occlusion, PV reintervention, and survival were assessed by Kaplan-Meier analysis. Patients who died without reintervention or ascertainment of stent patency were censored event-free at time of death.

Results: In 45 patients, 71 PVs were stented. Primary diagnoses included congenital PVS (13%), anomalous PV return (51%) and other defects (36%). Median age at diagnosis was 0.6 (0-16)y; median duration to first intervention was 0.3m (1d-9y). At median follow-up of 37m (1wk-14y), 20 patients died. Survival was 83 ± 6% at 6m and 67 ± 8% at 1y. Types of stents included bare metal in 53 PVs, drug-eluting in 7, and covered in 11. Stenting acutely relieved obstruction in all; average lumen size increase was >100% (pre 3.2 ± 2mm; post 6.8 ± 3.4mm; $p<0.001$). Reintervention occurred in 31 cases; restenting in 5. Freedom from reintervention was 67 ± 7% at 6m; 54 ± 7% at 1y. Angiographic re-examination in 50 stents found 15 occluded at a median of 5m; only 1 of these was drug-eluting or covered. Freedom from diagnosis of stent occlusion was 84 ± 5% at 6m; 77 ± 6% at 1y.

Major acute complications occurred in 5 cases; 1 cardiac perforation and 4 resuscitated arrests, of which 2 were related to PV intervention. A stent embolized in 5 cases with subsequent successful stenting in 3. Stent malposition or obstruction of other PVs was noted in 10. No remote thromboembolic events were documented.

Conclusions: Trancatheter stenting is effective in acute relief of PVS in children, but occlusion and reintervention are common. There was no difference in patency of different stent types, but analysis was limited by sample size. The role of covered and drug-eluting stents in the management of PVS requires further study.