

Six years results of endovascular stenting of coarctation of the aorta in children – single center experience

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Objective: To describe the experience and outcomes of stent implantation in patients with native (CoA) and postoperative (rCoA) coarctation of the aorta performed in single Paediatric Cardiology Center.

Methods: Retrospective data collection was analyzed. Primary endpoints were peak systolic catheter gradient reduction, stented segment diameter increase. Early and late complications, changes in antihypertensive medication after stenting were recorded.

Material: Between 1998 and 2010, 70 pts with arterial hypertension (AH) underwent stent implantation (CoA-52pts, rCoA-18pts). For primary treatment 71 stents were used (9-Palmaz, 38-Cheatham-Platinum, 18-covered Cheatham-Platinum, 4-Intrastent, 2- Advanta). Covered stents were implanted due to small aneurysms after balloon angioplasty (3pts), coexistence of PDA (5pts), severe coarctation (12pts). Median patients age was 13.4+/-3.4yrs (3-18).

Results: There was significant improvement ($p<0.001$) in pre versus post stent coarctation diameters (5.45+/-2.42mm (1-11.5, med.4) vs (15.59+/-2.69mm (6.5-22, med.16) and systolic gradient (34.55+/-10.35mmHg (16-67, med.32) vs. 2.77+/-4.6mmHg (0-18, med.0). During follow-up period 6.05+/-4.02yrs (0.2-14.5 med.6) 58%pts did not need antihypertensive treatment and all the others have better control of AH on lower doses of medications. About 93% (65/70) of the procedures were followed up by CT and confirmed good post-procedural anatomy in the first year after stent implantation. Stents fracture (5) and neointimal hyperplasia (6) were confirmed in CT during later follow-up. Additional procedures were performed in 46/189pts (24,33%) – stent redilation - 9, covered stent implantation due to small aneurysms – 2, aortic arch narrowing – 2, stent fracture with in-stent stenosis – 5.

Conclusions: 1. Stent implantation in native and postoperative coarctation of the aorta has good acute, intermediate, and long-term outcome 2. Continuous follow-up of patients after stent treatment of aortic coarctation is required due to associated long-term morbidity related to aortic wall complications, systemic hypertension, recurrent obstruction as well and need for additional interventions.