

Results of endovascular stenting of coarctation of the aorta in 189 patients – Polish registry

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Objective: To describe the combined experience and outcomes of stent implantation in patients with native (CoA) and postoperative (rCoA) coarctation of the aorta performed in four Polish cardiology centers.

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 1997 and 2009, 189 pts with arterial hypertension underwent stent implantation (CoA- 142 pts, rCoA– 47 pts). For primary treatment 192 stents were used (52 Palmaz, 84 Cheatham-Platinum, 34 covered Cheatham-Platinum, 22 other). Median patients age was 15.5 yrs (5-57) - 74,6% were below 18 yrs, 10% above 40 yrs.

Results: There was significant improvement ($p < 0.001$) in pre versus post stent coarctation diameters (5.45 +/- 2.69 mm (1-16, med.5) vs (14.23 +/- 3.19 mm (5.2-22, med.14) and systolic gradient (42.98 +/- 16.32 mmHg (15-111, med.40) vs. 7.45 +/- 8.70 mmHg (0-37, med.4). Successful reduction in the post stent gradient (<20 mmHg) was achieved in 91,9% of primary procedures. Acute complications were encountered in 10/189 (5%) procedures (stent migration -6, stroke -1, transient arm neuropraxia -2, acute aorta dissection-1). During follow-up period 4.43 +/- 3.17 yrs (0.2-14, med.4) 55% of pts did not need antihypertensive treatment and all the others have better control of arterial hypertension on lower doses of medications. About 55% (103/189) of the procedures were followed up by CT/MRI/angiography and confirmed good post-procedural anatomy in the first year after stent implantation. Stents fracture (5) and neointimal hyperplasia (8) were confirmed in CT during later follow-up. Additional procedures were performed in 46/189 pts (24,33%) – stent redilation due to planned staged procedure, intimal hyperplasia and/or patients growth -34, covered stent implantation due to small aneurysms –5, aortic arch narrowing –2, stent fracture – 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 and need for additional interventions.