

Stenting for Coarctation of the aorta (CoA) in young patients (< 3 years) - short- and mid-term results

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Introduction: Today, young patients with native CoA are treated surgically. However, surgery for re-CoA is associated with increased morbidity and even mortality. Some children with native CoA present relative contraindications for surgery. CoA-stenting may be an alternative treatment option in these patients. We present the short- to mid-term results after CoA-stenting in small children.

Material and Methods: Between January 1999 and November 2015, 218 patients with CoA were treated with stents. Fifteen of these (female - 9, median age 8 months [3-34]; median weight 5,8 kg [4,6-14,7]) were included into the study (age<3 years; weight <15 kg). Diagnoses: re-CoA post-surgery n=14 (Norwood 8, CoA-end-to-end anastomosis 3, complex arch reconstruction 3), native CoA n=1 with relative contraindications for surgery; ALL on chemotherapy. Seventeen stents were implanted in 15 patients (Osypka baby stent 3, Cook formula 14). Unsuccessful balloon angioplasty preceded stent implantation in 7 patients.

Results: Procedural success was obtained in all patients. The mean systolic gradient declined from 37 ± 34 mmHg to 6 ± 11 mmHg ($p=0.003$). The stenosed aortic diameter increased from a mean value of $3,1\pm 1,5$ mm to $6,5\pm 1,8$ mm ($p=0.001$). In four patients the intervention was performed by venous access. In three patients the left subclavian artery was covered by the stent (re-opening by balloon angioplasty n=1). There were no serious complications. The mean follow-up time was $3,0\pm 4,5$ months, during this time five patients required re-dilatation and one re-stenting. Mean time of re-intervention was 6 ± 4 months.

Conclusion: Percutaneous stent implantation for Re-CoA and in selected patients with native CoA can be performed successfully in very young patients. However, repeated stent angioplasties and further on interventional "opening" of the stent with a larger stent shall be necessary to augment the aorta to adult size.