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, male – 6, 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 was found in 14 patients (in 8 patients after Norwood procedure, in 3 patients who underwent CoA-end-to-end anastomosis and in 3 patients after complex arch reconstruction). In one patient with relative contraindications for surgery (ALL on chemotherapy) native CoA was stented.

Results

Procedural success was obtained in all patients. The mean systolic gradient declined form 37±34 mmHg to 6±11 mmHg (p=0.003). The stenosed aortic diameter increased from a mean value of 3.1±1.5 mm to 6.5±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-opened by balloon angioplasty in one patient).

Complications

After the procedure in one patient right femoral artery and in another patient right femoral vein were occluded. There were no other complications.

Follow-up

The mean follow-up time is 4.8±6.4 months, during this time 7 patients required re-dilatation, two of them underwent re-stenting. The mean time of re-intervention was 5.1±4.0 months. All patients are alive.

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.