CP Stent Implantation in the Children with Coarctation of the Aorta: Short-Intermediate-Long Term Results From Turkey in a Single Centre

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Introduction
Coarctation of the aorta is present in 5-8% of all patients with congenital heart disease and is seen in 0.04% of all live births. Since last two decade, transcatheter interventions have increased and have been adopted as the popular therapeutic approach of choice for many patients. Our aim was to evaluate patients with coarctation of aorta, who were treated by percutaneous stent implantation.

Material-method
Patients with aortic coarctation (n=35, 26 male) who had been treated with 38 stents (12 bare, 26 covered) were evaluated. The demographics, procedural and follow-up data were recorded from hospital registers and compared among the patient specifications (e.g. weight, coarctation nature).

Results
Mean follow-up time was 34 ± 16 months. Five patients (14.3%) were <20 kg, seven patients (20%) were <25 kg and 16 patients (45.7%) were <30 kg (11-70). There was a statistically significant difference between the patients with native coarctation (n=17) and recurrent coarctation (n=18) in terms of pre-procedural blood pressures, systolic gradients, coarctation diameters and the ratio of coarctation site diameter to descending aorta (CoA/DAo). While all patients received antihypertensive drugs before the procedure, the drug was discontinued in 26 patients during follow-up (p< 0.001). The procedure was successful in all patients (Figure 1-2). Stent migration was observed in four patients (11.4%) (all of them with recurrent coarctation) and peripheral arterial injury was seen in three patients (8.5%). On average 21 (6-42) months after the procedure, six patients underwent cardiac catheterization. Only one patient had an invasive gradient >20 mmHg. Four of these patients underwent balloon dilatation because of their hypertension. At least two years following the procedure, multislice CT was performed in 20 patients (57.2%). The patients who were evaluated by MSCT revealed no pathology such as restenosis, intimal proliferation in the lumen of the stent, aneurysm formation, stent fracture and migration (Figure 3-4). There was no statistically significant difference between the five patients weighed <20 kg and the other 30 patients in terms of demographic-procedural characteristics, procedure success and complication rates and follow-up data (table1-2).

Conclusion: Stent implantation for coarctation of the aorta is a method with satisfactory results in the reduction of both invasive and non-invasive gradients and in the efficient enlargement of the lesion area. CP stents may also be applied to the selected patients whose anthropometric measures are below the age and weights recommended by the manufacturer. Although MSCT results alone do not seem to be a marker in the determination of patients who need a re-intervention, multidisciplinary evaluation using the available imaging methods seems to be the best follow-up model in the patients at risk.

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**Figure 1:** Eight years old male patient with aneurysmatic tortuous coarctation of the aorta on the distal arch and proximal isthmus. Left anterior oblique aortogram (a), aortogram image in the same position after bare stent implantation (b).

**Figure 2:** Three years old 11 kg weighed girl with complex coarctation of the proximal aortic arch. Left anterior oblique aortogram views before procedure (a) after stenting (28 mm bare stent) procedure (b).

**Figure 3:** Thoracic MDCT images of thirteen years old male patient with (re)coarctation after stent implantation coronal view (a) and sagittal view (b). Restenosis, migration, fracture and aneurysm are not seen.

**Figure 4:** Thoracic MDCT images of seventeen years old male patient with native coarctation of the aorta after stenting coronal view (a) and sagittal view (b). Restenosis, migration, fracture and aneurysm are not seen.

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