

Incidence of arterial hypertension long-term after stenting for native and recurrent coarctation of the aorta

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Objectives: Today, stent implantation is the first line treatment for coarctation of the aorta (CoA) in children, adolescents and adults in many cardiac Centers. However, there is limited information about the fate of hypertension & cardiovascular changes following stenting on the long term. This retrospective, single-centre study reported the long term results in children, adolescents, and adult patients who underwent endovascular stent placement for both native CoA and recurrent (Re-CoA).

Methods: Between February 1999 and October 2017, a total of 220 patients (145 males) underwent aortic stent implantation in our hospital. From these patients 101 patients were diagnosed as native CoA and 119 patients with Re-CoA. Median age at intervention was 17 years old (range 6 - 62 years); median weight was 63 kg (16 -130 kg). Only dilatable stents to adult size were implanted. Covered stents were used in 77 patients (35%), bare metal stents in 143 patients (65%).

Results: The median minimal diameter of the stenosed aortic segment increased from 8 mm (0 - 19) to 14 mm (6.2 - 24) ($p < 0.001$). The median invasive peak-to-peak systolic pressure gradient declined from 23 mmHg (5 - 109) to 0 mmHg (0 - 50) ($p < 0.001$). Two adults experienced an aortic rupture: one patient died and one was rescued by covered stent implantation. Median follow-up was 50 months (1 - 216 months). Re-catheterization was performed in 135 patients (62%). In 82 patients (38%) redilatation and in 18 patients (8%) second stent implantation were necessary. Data on arterial hypertension are shown in the table.

	Hypertension and antihypertensive medication	Hypertension without antihypertensive medication	Normotensive and antihypertensive medication	Normotensive without antihypertensive medication
Before CoA Stenting (n=220)	75 (33%)	104 (48%)	9 (3%)	32 (16%)
After CoA Stenting (n=176)	26 (15%)	11 (6%)	84 (48%)	55 (31%)

Conclusion: CoA stenting is an effective means for treatment of native CoA and Re-CoA. However, up to 46% of these patients need repeated catheterization with balloon angioplasty or a second stent implantation. Although CoA stenting did not reduce the need for antihypertensive medications, it improved the response of patients to these medications, with better control of hypertension.