

Stent coarctation repair in older children and adults. Single group experience and long term follow up.

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Introduction: Transcatheter approach is emerging as the elective treatment for aortic coarctation in older children and adults. We describe our experience emphasizing on the initial results, technical details and long term follow-up.

Methods: Retrospective study in older children and adults with aortic coarctation treated by a single group for a period of 13 years. Results: From 1997 to 2010, 53 patients [age: 19 (min. 8.7) years, weigh 59.5 ± 16.1 Kg] were treated for native aortic coarctation (18) and recoarctation (35). Elective indications included hypertension, associated aortic regurgitation, peak systolic gradient > 20 mmHg and/or severe stenosis on CT / MRI. In 2 cases patients were in extreme low cardiac output.

Technique: 54 stents were implanted in 53 patients. Balloon diameter was selected similar to diaphragmatic aorta without oversizing the arch or isthmus. BIB balloon´s used in 38. Stent types: Palmaz iliac: 9, CP: 31 (covered 7), Palmaz Genesis XD: 6, EV3 MAX: 6, Atrium stent: 2. Rapid pacing during deployment was used in the last 22 cases. Immediate results: Lesion diameter significantly increased from 6.9 ± 2.4 mm to 13.5 ± 3.3 mm and systolic gradient decreased from 35.7 ± 18.3 to 6.4 ± 6.1 mmHg. We had no mortality or mayor complications. Stent displacement happened in 2 initial cases. Follow up: mean 4.4 ± 3.1 years in 44 patients: Two unrelated late deaths, one awaiting heart transplant. The only major complication: 1 severe aneurysm successfully dealt with percutaneous endoprosthesis, years after. Arterial access point injury was surgically solved in 3 patients. 6/16 patients went off hypertensive treatment. Peak echo gradient dropped from 47.2 ± 13.0 to 21.8 ± 12.6 mmHg. 8 fractures were detected: 3 after redilation. Eight patients required stent redilation for hypertension and/or residual gradient without significant complications: Gradient decreased from 24.6 ± 10.1 to 10.1 ± 7 mmHg and diameter increased from 9.8 ± 2.7 to 12.5 ± 2.7 mm. Conclusions: Stenting aortic coarctation is a safe and effective technique in short and long term follow up. BIB balloons, rapid pacing and covered stents have improved the initial outcome, lessening complication rate. Restenosis can be redilated with good results. Stent implantation should be the elective treatment for aortic coarctation in the referred age group.