

Stent Implantation for Aortic Coarctation in Children < 6 years: Initial and 8 - years Results

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Introduction Although stenting has been used as a treatment option for CoA at increasingly younger ages, there is limited information on the long-term follow-up of stent implantation for native CoA in small pediatric patients. This study reports initial and 10-years results following stent implantation for coarctation of the aorta (CoA) in children less than 5-years of age.

Methods Sixty-three patients with native CoA (NaCoA) (median age 3 years, range 1–5.5 years) underwent stent implantation (SI) using PG2910B and ev3 stents. Bench testing of the stents was performed to determine the smallest sheath diameter that is required for their use. Patients with hypoplasia of the proximal aortic isthmus or transverse aortic arch were excluded from the study. **Results** The stents were crimped on a 7-10 mm balloon and implanted through a 6–8 sheath. The stents were further dilated to a larger diameter using 10-14 mm balloons that were introduced through a 7 - 8F sheath. 21 (31%) patients with an arm/leg pressure gradient ≥ 20 mm Hg underwent successful stent re-dilation 4 to 8 years after the initial procedure for a relative to growth stenosis. Immediately after stenting the peak systolic pressure gradient fell from 68 ± 16 mmHg to 8 ± 5 mmHg, while CoA diameter increased from 5 ± 3 mm to 16 ± 3 mm. Peak systolic pressure gradient was reduced from 20 ± 2 mm Hg (range 18 to 23 mm Hg) to 5 ± 2 mmHg (range 0 to 7 mmHg) after re-dilation. There were no major procedural complications. Late aneurysm formation and stent fracture that required a new stent implantation were observed in 2 and 3 patients, respectively. At the end of follow-up no cases of recoarctation were identified on angiography, or MSCT. Fifty – eight (92%) of the patients were normotensive at the end of follow – up period.

Conclusions Stent implantation is an effective and safe alternative to conventional surgical management for the treatment of selected pediatric patients with CoA.