

**Freedom from Antihypertensive Medication after Balloon Dilatation with Stent Implantation in Patients with Coarctation of the Aorta**

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We assessed determinants of freedom from medication at long term follow up after stent implantation for coarctation.

65 consecutive patients with native CoAo and ReCoAo underwent stent implantation between January 1998 and November 2011. Six patients with other causes for hypertension, complex heart or arch disease were excluded. Resting blood pressure, medication, imaging, Doppler and invasive data pre and post-procedure were studied. The remaining 59 patients were included. Mean age (standard deviation) at stent implantation was 28 (10.5) years, 56% male, 63% had native CoAo. 54 patients (92%) were on antihypertensive therapy before stenting, with 33 (61%) on multiple drugs (2 to 7). Minimal diameter of coarctation was 6 (2,7)mm. Twenty patients (34%) had transverse aorta/aorta diaphragm level (Tao/DiaphAo) <0.8.

A total of 64 stents were implanted, of which 39% were covered. A second procedure was performed in 9 patients (15%) because of multistage procedure (n=4), growth (n=2), stent fracture (n=2) and neointima (n=1). Invasive gradient decreased from 46 (18) mmHg to 5 (5) mmHg. There were no major complications nor mortality.

It was possible to discontinue one or more antihypertensive drugs in 39 patients (66%) and 22 patients (37%) became free of medication. Patients who remained medication free were younger 21,6(7,7) versus 31,4(15,9) years,  $p < 0,009$ ; had a lower Doppler gradient [38,9(19,1) vs 58,3(19,9) mmHg,  $p < 0,001$ ] and a lower invasive gradient before intervention [33,8(14,4) versus 52,8(23,5) mmHg,  $p < 0,001$ ]. Gradients immediately after stenting were also lower in this group [2,3(3,6) versus 6,7(8,5) mmHg,  $p = 0,026$ ]. In medication free patients, final stent diameter correlated with BSA ( $p = 0,035$ ). In patients with Tao/DiaphAo > 0,8, 46% remained medication free, but with Tao/DiaphAo < 0,8 only 23% did not require medication at long term. Results were similar for native CoAo and ReCoAo.

In a mean follow up of 4.8 (2,9) years, one patient died of stroke 4 years after the procedure. Percutaneous stent implantation in patients with coarctation is safe, reducing the need for multiple antihypertensive drugs in most of the patients. Patients who became medication free were younger, with lower initial gradients, larger Tao/DiaphAo and lower immediate residual gradients.