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Long term follow up of covered stents in the management of coarctation of the aorta

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Objectives: To evaluate the results of covered Cheatham-Platinum stent implantation in the management of native coarctation of the aorta and report long-term follow-up.

Background: Covered stents are being used increasingly in severe and complex coarctation of the aorta mainly to reduce risk of aortic wall complications. There is, however, limited data on the long-term outcome.

Patients and Methods: Eighty-six patients receive 90 covered Cheatham-Platinum stents (January 2002–December 2013) at a single center—in 84 patients as primary treatment and in 2 as a rescue. Mean age was 21.56 (11–56) years and mean weight 56.5 (30–102) kg. Primary end points were reduction in systolic pressure gradient and an increase in coarctation segment diameter. Changes in antihypertensive medicines and complications were recorded on follow-up.

Results: Mean coarctation segment diameter increased from 4.40 to 16.32 mm ($P < 0.0001$). The systolic gradient decreased from mean of 54.63 to 4.4 mm Hg ($P < 0.0001$). There was one death related to anaesthesia, 3 days post procedure due to cerebral anoxia. There was one dissection diagnosed 24-hr post procedure. At a mean follow-up of 85.9 (56–144) months, all stents were patent and in good position on computed tomography. Six (7%) patients underwent successful re-dilation. Antihypertensive medication was decreased or stopped in 51 (59%) patients.

Conclusions: Covered Cheatham-Platinum stents are an effective form of therapy in selected patients with complex and severe coarctation of the aorta. Aortic wall complications can occur even with covered stents. Covered stents are a safe alternative to conventional stenting in the long-term. They can be re-dilated safely to keep pace with somatic growth.