

# Long-term stenting of aortic coarctation yields 77 percent success rate

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Researchers from the Congenital Cardiovascular Interventional Study Consortium (CCISC) who evaluated the intermediate and long-term results of stent implantation for aortic coarctation found that cumulative intermediate success was 86%, and cumulative long-term success was 77%. Results of this study appear in the October issue of *Catheterization and Cardiovascular Interventions*, a journal published by Wiley-Blackwell on behalf of The Society for Cardiovascular Angiography and Interventions.

Coarctation, or narrowing, of the aorta, restricts [blood flow](#) to the lower extremities and causes [hypertension](#) and possibly [heart failure](#). Coarctation accounts for 5-10% of all cases of congenital heart disease and has a high associated morbidity and mortality if left untreated. Treatment options for aortic coarctation include surgical approaches, transcatheter balloon angioplasty, or stent placement. Intermediate and long-term follow-up after aortic stent implantation is poorly documented, with little prospective data available on the incidence of recurrent obstruction, aortic wall complications, or blood pressure recording.

In this study, the authors report on the procedural success of stent implantation for aortic coarctation, including recurrent obstruction/repeat interventions and aortic wall complications, with a particular focus on intermediate and long-term outcomes. "This study is the largest series reported to date on stent implantation for aortic coarctation," says the lead author Ralf Holzer, MD, MSc, FSCAI. "It is

the only prospective series that includes intermediate as well as long-term follow-up with integrated imaging provided by catheterization, CT, or MRI."

The study evaluated 302 patients from 34 centers from the CCISC, a prospective interventional registry that captures all types of treatment for coarctation. Patients underwent stent placement for aortic coarctation over a 9-year period between December 2000 and November 2009. Collected data included procedural, demographic, morphological, imaging and clinical data.

Clinical data was collected at baseline, before discharge, and at follow-up and included upper and lower extremity systolic/diastolic blood pressure, as well as the need for antihypertensive medication. Valid follow-up data included integrated imaging data provided by CT and/or MRI and/ or cardiac catheterization. All baseline and follow-up imaging data was evaluated for the presence of aortic wall injury (dissection and aneurysm), stent-related pathology (intimal proliferation and stent fracture), and recurrent/residual obstruction.

Forty-four percent of patients completed intermediate follow-up (3-18 months) with integrated imaging, and 21% completed long-term follow-up (>18 months). Acute procedural success was 96%. Acute, intermediate, and long-term procedural success was unrelated to patient weight, presence of transverse arch hypoplasia, use of compliance testing, stent type, and balloon type. Unplanned repeat interventions were required in 4% of patients, and aortic wall complications were seen in 1% of patients. Other adverse events occurred mainly acutely and included technical complications such as stent malposition. At long-term follow-up, 23% of patients continued to have systolic blood pressure above the 95th percentile, 9% had an upper-to-lower limb blood pressure gradient in excess of 20 mm Hg, and 32% were taking antihypertensive medication.

Dr. Holzer concludes, "With a long-term procedural success of 77%, an incidence of aortic wall complications of 1.3%, and a need for unplanned reintervention of 4%, the results of stent implantation compare well with other surgical and interventional series. However, even with successful initial stent therapy, patients continue to require long-term follow-up."

**More information:** "Stenting of Aortic Coarctation: Acute, Intermediate, and Long-Term Results of a Prospective Multi-Institutional Registry—Congenital Cardiovascular Interventional Study Consortium (CCISC)." Ralf Holzer, Shakeel Qureshi, Abdolrahim Ghasemi, Julie Vincent, Horst Sievert, Daniel Gruenstein, Howard Weber, Luis Alday, Alejandro Peirone, Thomas Zellers, John Cheatham, Michael Slack, and Jonathan Rome. *Catheterization and Cardiovascular Interventions*; Published Online: April 15, 2010. [DOI: 10.1002/ccd.22587](https://doi.org/10.1002/ccd.22587)

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