What is one example of a case in which you would most likely place a renal stent if the patient presented today?

Although the ASTRAL and CORAL trials failed to show clear benefit to renal artery stenting in an overall population with atherosclerotic renal artery stenosis (RAS), it is important to note that these studies did not study specific cohorts of individuals in whom renal artery stenting has more established benefit. The evidence supports renal artery stenting in patients with RAS and recurrent heart failure due to diastolic dysfunction, with resulting lower rates of subsequent hospitalization, less severe episodes of congestive heart failure, and improved quality of life. Less than 20% of the CORAL patients had congestive heart failure, and the CORAL results are therefore not generalizable to this group of patients. In addition, patients with RAS—unilateral or bilateral—and sudden, precipitous drops in glomerular filtration rate are most likely to stabilize or recover renal function with stenting, thereby avoiding or delaying dialysis. In these patients, renal stenting should be considered the standard of care.

What is an example in which you might have placed a renal stent at a previous time in your career but now would not?

The existing clinical trial data have changed my practice of renal artery stenting. In the past, I would stent patients with RAS and two- or three-medication hypertension, or chronic renal insufficiency. However, I have now become the limiting factor in performing renal artery interventions at my hospital. While I still read the CT angiographic and renal duplex studies and identify quite a bit of RAS, I tell the primary care physicians that intervention is not needed in the absence of recurrent heart failure, unstable angina, superimposed acute renal injury, or severe (grade 4) hypertension refractory to multiple classes of medications, generally including at least an alpha-adrenergic agonist or direct-acting vasodilator. These latter medications may be associated with a better blood pressure response to renal intervention and represent a scenario in which renal stenting may be drug sparing.

What is one example of a case in which you would most likely place a renal stent if the patient presented today?

Today, we would place a renal stent in these situations:

• to maintain patency in an aortic dissection with secondary closure of one or both renal arteries;
• for sealing the renal artery origin in a fenestrated graft (for this, I prefer a PTFE-covered stent).

In the 1980s, we used angioplasty alone to treat RAS. When a visiting Dr. Grimm reviewed our results, he showed us that the stenosis recurred quickly and that our “cure” rate of hypertension was a few anecdotal cases. Then Julio Palmaz provided his stent, and we thought we had the solution, even though we found ourselves becoming very slick at repeat angioplasty of a stent with excessive intimal hyperplasia.

Before the results of the CORAL trial, we stented every atheromatous RAS within 2 cm of the renal origin because we could, but now we have effectively stopped
doing renal angioplasty except in patients with fibro-muscular hyperplasia.

In the past year, we have done one renal angioplasty as a last resort for uncontrollable hypertension with critical stenosis that prevented renal denervation access. The patient still has uncontrollable hypertension, but his renal artery is just fine, I think. Because his hypertension control didn’t improve, his nephrologist has lost interest in the state of his artery.

Our problem, in my view, was that because we had an angioplasty/stent hammer, we thought every atheromatous stenosis was the same nail. Now it is becoming apparent that response to angioplasty and/or stent treatment is different in different arterial compartments. CORAL has showed us that we were not doing the good we thought we were doing.

Perhaps a combination of renal denervation, drug-eluting balloons, and drug-eluting stents might improve outcomes, but it would be a complex trial with numerous arms, and after SYMPLECTICITY HTN-3, such a trial would have to have a sham arm. No single manufacturer would want to pay for that, but you can bet that health authorities and regulators won’t provide reimbursement without such proof. That leaves us all in a hard place. A simple registry is no longer the high ground. KOEN DELOOSE, MD

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What are examples of cases in which you would most likely place a renal stent if the patient presented today and in which you might have placed a renal stent at a previous time in your career but now would not?

Although uncontrolled studies performed in the 1990s suggested that renal angioplasty and stenting resulted in significant reduction in blood pressure and stabilization of chronic kidney disease, four randomized trials (including ASTRAL and CORAL) are now available showing no benefit of angioplasty and stenting over best medical treatment in terms of blood pressure decrease, kidney function, and/or clinical outcome improvement.

Because of a number of methodological flaws in the prospective, randomized, multicenter ASTRAL study such as high numbers of unclear indications, high percentages of asymptomatic patient inclusions with low-grade RAS, lack of experience in some of the included centers, and finally, absence of core lab control, this study did not create a strong basis in my daily clinical decision-making process concerning the best treatment of the “real-world” renal artery stenosis patient.

The CORAL trial, the most recently published, prospective, randomized, unblinded multicenter trial, was unable to show, now with a median follow-up of 43 months, any significant difference in terms of adverse cardiovascular and renal events between the renal artery stent-treated and medical-treated patient groups. Although this well-designed and well-funded trial has, in my opinion, stronger and more durable fundamentals to make its conclusions for a “real-world” population, I can only note that some endpoints changed during the trial, some patients with stenosis < 60% were included, a huge number of screened patients were not enrolled, and few patients reached the 5-year (clinical endpoint!) follow-up.

Nevertheless—as we experience in our endovascular practice, similar to many other interventionists worldwide—stenting can provide clinical benefit in a multidisciplinary-based, carefully selected group of patients. Together with our nephrologists and cardiologists, we select our stenting indications nowadays mainly based on the ACC/AHA guidelines.

Based on this rationale, I can answer your two questions. Here are two examples of cases in which I would most likely place a renal stent if the patient presented today:

• A patient with three hypertensive medications without correct blood pressure control (after exclusion of other hypertension causes) and a uni- or bilateral high-grade (> 80%) atherosclerotic renal artery stenosis, if the renal stenting can be performed in experienced hands.

• A patient with bilateral high grade (> 80%) atherosclerotic renal artery stenosis or a unilateral high-grade (> 80%) atherosclerotic renal artery stenosis to a solitary functioning kidney presenting with progressive renal insufficiency or heart failure with flash pulmonary edema, if the renal stenting can be performed in experienced hands.

Here is an example in which I might have placed a renal stent at a previous time in my career but now would not:

• A patient in whom there is an incidentally discovered unilateral, high-grade (90%) atherosclerotic renal artery stenosis with a normal kidney function, well-controlled blood pressure with two medications, and no history of heart failure with flash pulmonary edema.