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To Stent or Not to Stent? This is the Renal Artery Stenosis Question

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A few days ago (Nov 18, 2013) the results of the large prospective Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL) trial were presented and published. CORAL enrolled 947 participants who had atherosclerotic renal artery stenosis (ARAS), $\geq 60\%$ and either uncontrolled systolic hypertension despite treatment with ≥ 2 anti-hypertensive drugs or stage 3 chronic kidney disease (CKD) [1]. CORAL randomly assigned patients to medical therapy plus renal-artery stenting or medical therapy alone. The median follow-up period was 43 months and the primary endpoint was a composite of death from cardiovascular disease (CVD) or renal causes, myocardial infarction (MI), stroke, congestive heart failure, progression of renal insufficiency, or need for renal replacement therapy. Results showed that the addition of renal-artery stenting to thorough multifactorial medical therapy did not contribute a significant clinical benefit with respect to the prevention of CVD events or renal function deterioration. Adverse CVD or renal events occurred in 35.1% of patients who received stenting and 35.8% of those on medical therapy alone ($p=0.58$) [1]. Thus, the authors concluded that renal artery stenting was not superior to optimal medical therapy alone for moderately severe ARAS [1].

The results of CORAL have a direct impact on clinical practice questioning the need for renal artery stenting in patients managed with optimal medical therapy. The message seems to be very simple. If patients have ARAS and high blood pressure, they need a very aggressive comprehensive medical therapy before considering any interventional procedure.

A recent meta-analysis investigated CVD outcome in patients with ARAS treated either with renal angioplasty or antihypertensive drug therapy [2]. Pooled data from 5 studies ($n=1,159$ patients) showed that during the 2-year follow-up there were no significant clinical outcome differences between angioplasty and medical therapy [2], both in patients

with or without CKD. In another study [3] it was shown that patients with ARAS and normal or near normal renal function (creatinine ≤ 2.0 mg/dl) can be safely treated with effective drug treatment, with a small decrease in GFR. For patients who have atherosclerotic MI, stroke or renal impairment, renal artery stenting may further reduce blood pressure and delay the deterioration or even improve renal function [3].

The Angioplasty and Stenting for Renal Artery Lesions (ASTRAL) trial ($n=867$) [4], although criticised by some for methodological issues [5], results showed that there were no meaningful clinical benefit from revascularization in patients with ARAS; however considerable risks were present [4].

On the other hand, in patients with renovascular hypertension due to fibromuscular dysplasia (RAFMD) and/or the combination of RAFMD with ARAS, angioplasty is the method of choice and has favourable short- and long-term CVD and renal clinical outcomes [6].

The take away message from all the above is that prior trials showed similar results in mild ARAS; this study established the futility of stenting for a higher severity (moderate severity) of the disease. Substantially severe forms of ARAS will probably have to undergo renal angioplasty with stenting, especially when flash pulmonary oedema occurs [7-9].

CONFLICT OF INTEREST

The author(s) confirm that this article content has no conflicts of interest.

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Declared none.

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