Published in final edited form as:

N Engl J Med. 2014 May 8; 370(19): 1854–1855. doi:10.1056/NEJMc1402687.

The Authors Reply

Timothy P. Murphy, M.D.,

Rhode Island Hospital, Providence, RI

Lance D. Dworkin, M.D., and

Rhode Island Hospital, Providence, RI

Christopher J. Cooper, M.D.

University of Toledo, Toledo, OH

Christopher J. Cooper: christopher.cooper@utoledo.edu

Nikolaidou et al. suggest that patients with moderate-to-severe hypertension who receive 3 or more antihypertensive medications may benefit from renal-artery stenting. Patients in the CORAL study received 3.3 to 3.5 antihypertensive medications, yet the clinical outcomes were not improved by stenting. As we reported, there was also not a significant interaction effect for systolic blood pressure of 160 mm Hg or higher on the rate of clinical events according to treatment group.

Tomoda suggests that specific subgroups of patients, including those with severe stenosis or heart failure, may benefit from stenting. In our study, we found no benefit in patients with severe stenoses (80% according to investigator evaluation) or with global ischemia, and we found no benefit in preventing hospital admissions for heart failure. Approximately 12 to 15% of the patients had heart failure at study entry. Some people, such as those with severe kidney disease or rapidly progressive renal failure, may not have been well represented in the study. Renal-artery stenting may benefit some of the patients described by Tomoda; however, data are lacking from randomized, controlled clinical trials to support that hypothesis. The results of our study suggest that most patients in stable condition should receive medical therapy regardless of the initial level of kidney function.

In reply to Leesar and colleagues: a type II error is possible, but the CORAL study was designed to achieve and did achieve adequate power to exclude a meaningful benefit with respect to the prevention of clinical events. Leesar et al. ask whether patients with a pressure gradient across the renal-artery stenosis might benefit from renal-artery stenting, as is suggested in several studies that used a surrogate end point, systolic blood pressure, as the outcome. In our study, we found a small but significant reduction in systolic blood pressure of 2 mm Hg favoring stent treatment; this reduction did not translate into a benefit with respect to event-free survival. In our study, we did obtain data on trans-lesional renal-artery pressure gradients, and analyses of these data should be informative about the value of determinations of pressure gradients.

Since publication of their article, the authors report no further potential conflict of interest.

With regard to the letter by Mahé and Jaquinandi: we considered the renal resistance index as a variable that might be predictive of treatment outcomes, and we prospectively included that measure in an analysis involving the ultrasonographic findings in a subgroup population. However, the renal resistance index has not been proved conclusively to be useful in selecting patients for renal-artery revascularization.¹⁻³

Zanoli and colleagues report that smaller renal arteries (<5.2 mm) and smaller renal-artery lumen diameters (<2.9 mm) are associated with lower glomerular filtration, resistant hypertension, and a higher risk of cardiovascular events among people undergoing coronary angiography. Data are lacking from observational studies to replicate this relationship. If we assume that this relationship will be replicated in future observational studies, the conclusion of our study remains that medical therapy appears to work as well as stenting with medical therapy in patients with renal-artery stenosis.

References

1. Bruno RM, Daghini E, Versari D, et al. Predictive role of renal resistive index for clinical outcome after revascularization in hypertensive patients with atherosclerotic renal artery stenosis: a monocentric observational study. *Cardiovasc Ultrasound*. 2014; 12:9. [PubMed: 24555729]
2. Garcia-Criado A, Gilabert R, Nicolau C, et al. Value of Doppler sonography for predicting clinical outcome after renal artery revascularization in atherosclerotic renal artery stenosis. *J Ultrasound Med*. 2005; 24:1641–7. [PubMed: 16301720]
3. Eklöf H, Bergqvist D, Hägg A, Nyman R. Outcome after endo-vascular revascularization of atherosclerotic renal artery stenosis. *Acta Radiol*. 2009; 50:256–64. [PubMed: 19172426]