Editorial

Atherosclerotic Renal Artery Stenosis, the Oculostenotic Reflex, and Therapeutic Nihilism

Ryan D. Madder, MD; Robert D. Safian, MD

Fifteen years ago, Topol and Nissen1 described the oculostenotic reflex as an “irresistible temptation … to perform angioplasty on any significant residual stenosis,” highlighting a widely held misconception that an angiographically severe stenosis must cause ischemia and that revascularization results in clinical benefit. Although quantitative angiography improves the accuracy of stenosis severity, it does not improve the accuracy of diagnosing ischemia. In fact, more than one third of angiographically severe coronary stenoses are hemodynamically insignificant by fractional flow reserve (FFR), and FFR results are highly correlated with findings of ischemia by myocardial perfusion imaging.2 Similarly, angiographic renal artery stenosis (RAS) severity correlates poorly with hemodynamic significance.3

The most important observation from this study is the unreliability of invasive angiography to identify hemodynamically significant RAS because stenosis severity correlated poorly with baseline and dopamine-induced mean pressure gradients. Other methods are readily available to assess the physiological impact of RAS. Nuclear scintigraphy and direct glomerular filtration rate measurements are reliable for measuring single-kidney blood flow and total renal blood flow and may obviate the need for invasive assessment.19–21 Invasively, renal ischemia can be evaluated with FFR or translesional pressure gradients.2,3,22

Although the study of Mangiacapra et al11 is an incremental step in evaluating renal ischemia, clinical criteria for selecting patients with RAS for revascularization remain ambiguous. It is incredulous that contemporary clinical trials, including the Cardiovascular Outcomes Renal Atherosclerotic Lesions trial,23 continue to rely on the oculostenotic reflex, exclude patients who are not likely to benefit, include patients who are least likely to benefit, receive major funding, and are published in prestigious journals without assessment of renal ischemia. On the basis of their design, it is not...
surprising that these studies recommend a nihilistic approach to renal revascularization. We must insist on the performance of contemporary studies that rely on objective assessment of renal ischemia, confirmation of the absence of irreversible renal injury, and presence of clinical indications for revascularization. In the meantime, the oculostenotic reflex will lead to therapeutic nihilism, and many patients who might benefit from renal intervention may be denied revascularization.

Disclosures

None.

References


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