What's the best approach to renal artery stenosis?

Medical management? Angioplasty? The evidence indicates that neither is superior to the other for renal outcomes

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- What treatment strategy is most effective at reducing mortality?
- What patient characteristics are associated with increased mortality?
- What are the indications for stent placement?

The answers to these questions are summarized below and in the *Comparative Effectiveness Review: Comparative Effectiveness of Management Strategies for Renal Artery Stenosis*, funded and published by Agency for Healthcare Research and Quality (AHRQ). The review summarizes the current evidence concerning the effectiveness and safety of angioplasty with stent placement compared with medical therapy in the treatment of atherosclerotic renal artery stenosis.

CONTINUED

Practice recommendations

GRADE A RECOMMENDATIONS

- Blood pressure measurements improve after angioplasty—particularly in patients with bilateral disease.
- There is no difference in kidney function outcomes when medical and angioplasty treatments are compared.
- Worse baseline kidney function is associated with increased mortality and worse blood pressure measurements after angioplasty.

GRADE B RECOMMENDATIONS

- Patients with bilateral stenosis have larger decreases in blood pressure readings after angioplasty than with medical treatment. No such difference was found between treatment groups in patients with unilateral disease.
- There is no difference in mortality and cardiovascular event rates when medical and angioplasty treatments are compared.
- There is no difference in blood pressure and kidney outcomes between angioplasty patients with or without stent placement.

GRADE C RECOMMENDATIONS

- The evidence doesn't support one treatment approach over the other (angioplasty with stent vs aggressive medical therapy) for the general population with atherosclerotic renal artery stenosis.
- The evidence is inconclusive about relative adverse events or complications from angioplasty compared with medical treatment.

Strength of recommendation (SOR)

A Good-quality patient-oriented evidence
B Inconsistent or limited-quality patient-oriented evidence
C Consensus, usual practice, opinion, disease-oriented evidence, case series

FAST TRACK

The government is sponsoring a more definitive trial to further explore the question of angioplasty vs medical management

The review team accepted the patient population of original authors, without clearly defining the level of renal artery stenosis. "The population of interest for this report is adults with atherosclerotic renal artery stenosis that is of sufficient severity to warrant aggressive management, either due to resistant hypertension, evidence of kidney damage, or the high likelihood of poor outcomes." The team considered the following outcomes: blood pressure control, preservation of kidney function, incidence of flash pulmonary edema, and survival rates. Adverse events associated with therapies were also considered.

Review is commissioned to tackle controversy

The *Comparative Effectiveness Review* notes that 12% to 14% of new dialysis patients in the United States have atherosclerotic renal artery stenosis. It also points out that the utilization of renal artery angioplasty has increased considerably over the last few years, from 7660 cases in 1996 to 18,520 in 2000. The review was commissioned because of the controversy regarding optimal strategies for the evaluation and management of patients with atherosclerotic renal artery stenosis. The *Comparative Effectiveness Review* is strengthened by excellent summary tables, a review of treatment-associated harm, and an extensive discussion of methods.

In addition to this review of the literature, the government is sponsoring a more definitive trial to determine which patients with atherosclerotic renal artery stenosis would most benefit from angioplasty with stent placement, as opposed to continued aggressive medical treatment. The results of the Cardiovascular Outcomes in Renal Atherosclerotic Lesion (CORAL) Trial, a large, multicenter trial sponsored by the National Institutes of Health, will not be available until 2010.

A review of nearly 40 years of research

The Tufts–New England Medical Center Evidence-Based Practice Center was commissioned by AHRQ to conduct the review. A comprehensive search of the literature included Medline from 1966 to September 6, 2005. A technical expert panel held teleconferences to refine key questions and define parameters for review of the evidence. Researchers gave priority to meta-analyses and systemic reviews. Abstracts of research presented at conferences and symposiums were not considered adequate to be considered. There were 76 references.

Quality assessment of the literature was designated by a 3-category grading system (A—good, B—fair/moderate, and C—poor). For our purposes, the evidence rating is updated to comply with the SORT taxonomy.[1]

A search of the literature did not identify any other guidelines for comparison. ■

Source for this guideline

Balk E, Raman G, Chung M, et al. *Comparative Effectiveness Review: Comparative Effectiveness of Management Strategies for Renal Artery Stenosis.* (Prepared by Tufts-New England Medical Center Evidence-based Practice Center under Contract No. 290-02-0022). Rockville, Md: Agency for Healthcare Research and Quality; October 2006. Available at: effectivehealthcare.ahrq.gov/repFiles/RAS_Final.pdf. Accessed on April 11, 2007.

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Reference

1. Ebell M, Siwek J, Weiss BD, et al. Strength of recommendation taxonomy (SORT): A patient-centered approach to grading evidence in the medical literature. *J Fam Pract* 2004; 53:111–120.