

Using Comparative Effectiveness Research

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**National
Business
Group on
Health**

Renal Artery Stenosis Treatments

This guide provides actions suggested by the National Business Group on Health for employers who want to use comparative effectiveness research (CER) findings about renal artery stenosis (RAS) treatments in their health plan and program design. It is based on research funded by the federal Agency for Healthcare Research and Quality (AHRQ). For more information about RAS treatments, such as additional findings and data, see the “Resources” section at the back of this guide.

Impact on Employers

High blood pressure is a major risk factor for heart disease, stroke, congestive heart failure and kidney disease.¹ About one in three U.S. adults—31.3%—has high blood pressure.² High blood pressure usually has no warning signs or symptoms, and more than one in five (22.4%) people with high blood pressure do not know that they have it.³ About one in four American adults has prehypertension—blood pressure measurements that are higher than normal, but are not yet in the high blood pressure range.² Having prehypertension increases the risk for high blood pressure. High blood pressure is both a cause and a result of RAS. This is a serious condition that employers will want to help employees avoid.

What is Renal Artery Stenosis (RAS)?

Renal artery stenosis (RAS) is a narrowing of one or both of the blood vessels (renal arteries) that carry blood to the kidneys. Narrowed renal arteries make it harder for the kidneys to function. Since the kidneys help to control blood pressure, RAS can interfere with this process. What's more, RAS can get worse over time, and it often leads to high blood pressure and kidney damage.

According to a 2004 study in the *Journal of Environmental and Occupational Medicine*, costs associated with health, absenteeism, presenteeism and short-term disability for hypertension were \$392 per eligible employee per year.⁵ The American Heart Association estimated the total direct and indirect cost of high blood pressure at \$43.5 billion in 2007.³ In 2010, high blood pressure cost the United States an estimated \$76.6 billion in health care services, medications and missed days of work.³

More than two-thirds of Americans who have been diagnosed with high blood pressure use medications to treat the condition.⁶ About 70% of those with high blood pressure who adhered to their medication had their high blood pressure controlled.¹ Among all hypertensive patients, the control rate was 46.6%.

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Agency for Healthcare Research & Quality

Comparative Effectiveness Research Findings

In 2006, the AHRQ Effective Healthcare Program funded a systematic review of research studies on RAS treatments. The following findings are based on the review entitled, *Comparative Effectiveness of Management Strategies for Renal Artery Stenosis*. The findings were the basis for the consumer and clinician guides published in June 2007.

Main research findings:

There is no difference in the long-term kidney function of people who have angioplasty compared with people who use antihypertensive medications (medication therapy) alone. Both medication therapy and angioplasty lower blood pressure. Blood pressure control is more likely after angioplasty than with medication therapy alone.

Treatment Options and Findings

The research examined clinical evidence about the effectiveness and safety of the two main treatments for RAS: medical therapy to treat high blood pressure and angioplasty, which is a form of surgery to open blocked arteries.

The research review did not cover the following:

- Who should be checked for RAS;
- The best test to find out if an individual has RAS; and
- Whether lifestyle changes might improve RAS.

Who is at Risk for RAS?

People who use tobacco or who are overweight are at greater risk of developing RAS. RAS is most common in men between the ages of 50 and 70, but women and younger adults can also have it. High cholesterol, diabetes and a family history of cardiovascular disease are also risk factors for RAS. High blood pressure is both a cause and a result of RAS.

Long-term Kidney Function

Finding:

- There is no difference in the long-term kidney function of people who have angioplasty compared with people who use antihypertensive medications (medication therapy) alone.

Lowering Blood Pressure

Finding:

Both medication therapy and angioplasty lower blood pressure.

- The combination of angioplasty and antihypertensive drugs can lower blood pressure.
- Antihypertensive drugs alone can also lower blood pressure.

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Blood Pressure Control

Finding:

- Blood pressure control is more likely after angioplasty than with medication therapy alone.

Discontinuing Blood Pressure Medication

Finding:

- A small percentage of people who have angioplasty plus stent (4%-18%) can discontinue blood pressure medications.

What Causes RAS?⁴

In most cases, RAS is caused by a hardening of the kidney arteries known as atherosclerosis. Atherosclerosis is caused by plaque buildup on the inner wall of one or both of the renal arteries, which makes the artery wall hard and narrow. Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood. Risk

factors for atherosclerosis include lack of physical activity, smoking, an unhealthy diet, older age and a family history of heart disease. Atherosclerosis reduces or cuts off the blood supply, often damaging the kidney. The damaged kidney is less efficient at removing wastes and extra fluid from the blood.

Treatment Risks

There is not enough data to compare the risk of the adverse events for RAS treatments, and there is insufficient evidence to determine whether rates of death or cardiovascular events differ between treatments. However, there is some information about the risks of each treatment.

Medication Risks

Common side effects of antihypertensive drugs include:

- Dizziness
- Sexual problems
- Headache
- Cough

Angioplasty Risks

- About 1% of people who have angioplasty die within the first 30 days of the procedure.
- Ten to 20% of people who have angioplasty with stent placement have restenosis (recurrence of stenosis, a narrowing of a blood vessel) within 40 months.

What is Angioplasty?⁴

Angioplasty is a procedure used to open the blocked artery. A small balloon is threaded into the renal artery and is then inflated to open the blockage. By quickly inflating the balloon, the cholesterol plaque causing the narrowing

is compressed into the artery wall. An angioplasty can sometimes include putting in a stent. A stent is a small tube that helps keep the artery open.

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Still Unknown

There is insufficient evidence to determine the following:

- Whether individual characteristics (such as baseline health status, diagnostic test results or type of medications used for hypertension) have an effect on RAS treatment outcomes; and
- Whether angioplasty reduces the number of antihypertensive medications required after the procedure.

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National Business Group on Health Strategies for Employers



Employers can help their employees learn about the various treatments for RAS, and they can work with their care providers to consider treatment benefits, risks and side effects.

Employee Education and Supports

Help employees learn about healthy lifestyles to prevent high blood pressure and RAS.

- Promote physical activity. For example, healthy lifestyle incentives such as gym reimbursements and team-based fitness or weight-loss competitions have been demonstrated to be effective in motivating employees to exercise regularly.
- Educate employees about the importance of a low-fat and low-sodium diet.
- Encourage employees to maintain a healthy weight by including healthy food and beverage options in the cafeteria.

Since tobacco use is a risk factor for RAS, implement a tobacco-free workplace and offer comprehensive tobacco cessation benefits.

- People who use tobacco are at greater risk of developing RAS. As a result, a tobacco-free workplace and a tobacco cessation program may prevent some employees from developing RAS.
- A tobacco-free work environment can limit exposure to secondhand smoke and may encourage employees who smoke to quit.
- It is recommended that an employer take six months to one year to plan for and fully establish a tobacco-free workplace.

Help employees learn about the treatment options for RAS.

- Provide employees with the FREE AHRQ consumer and clinician guides on RAS. Disseminate AHRQ guides at on-site clinics and also online. Encourage employees to take the guides with them to doctor appointments.
- Offer employees decision aids and educational materials on RAS through events such as health fairs and/or electronically through the company's intranet or portal.

Pharmacy Plan Management

- Use data to determine whether poorly controlled hypertension is a problem for your population. Your pharmacy benefit manager, health plan or data warehouse will be able to track the following diagnosis codes (ICD-10 Codes) and current procedural terminology codes (CPT Codes) related to hypertension and complications.

ICD-10 Codes:

I15.0 Renovascular hypertension

Q27.1 Congenital renal artery stenosis

CPT Codes:

75722 Angiography, renal, unilateral

75724 Angiography, renal, bilateral

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- Work with your pharmacy benefit manager (PBM) to monitor adherence rates for hypertension medications. Ask your PBM to institute targeted solutions to improve medication adherence if rates are suboptimal.
- Encourage use of generic antihypertensive medications and home delivery.
- Consider a value-based design to encourage adherence with hypertension medications. New plan designs are more targeted than in the past, using condition severity (e.g., members at high risk for adverse health events) and member engagement (e.g., requiring that individuals use a health coach or participate in a disease management program) to determine whether patients are eligible for reduced cost sharing.

Conclusion

There is no difference in the long-term kidney function of people who have angioplasty compared with people who use antihypertensive medications (medication therapy) alone. Both medication therapy and angioplasty lower blood pressure. Blood pressure control is more likely after angioplasty than with medication therapy alone.

Employers can educate employees about the importance of healthy lifestyles. Employers can also work with health plans to ensure that all employees are screened for hypertension and receive the necessary treatment.

Resources

For Employers

Management of Atherosclerotic Renal Artery Stenosis: Clinician's Guide

Agency for Healthcare Research and Quality, June 2007

American Society of Hypertension

<http://www.ash-us.org/>

For Employees

Renal Artery Stenosis Treatments: A Guide for Consumers

Agency for Healthcare Research and Quality, June 2007

Questions are the Answer

Agency for Healthcare Research and Quality
This is an easy-to-use consumer website that helps patients take an active role in their health care by asking questions so that they understand their condition and options.

<http://www.ahrq.gov/questionsaretheanswer/>

National Kidney and Urologic Diseases
Information Clearinghouse

<http://kidney.niddk.nih.gov/kudiseases/pubs/RenalArteryStenosis/>

National Kidney Foundation

<http://www.kidney.org/>

For Free Print Copies of the Consumer and Clinician Guides

AHRQ Publications Clearinghouse – 800.358.9295

Management of Atherosclerotic Renal Artery Stenosis: Clinician's Guide, AHRQ Pub. No. 07-EHC004-3

Renal Artery Stenosis Treatments: A Guide for Consumers, AHRQ Pub. No. 07-EHC004-2A

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About the National Business Group on Health

The Business Group is the only non-profit organization devoted exclusively to representing large employers' perspectives on national health issues and providing solutions to its members' most important health care and health benefits challenges. The Business Group fosters the development of a safe health care delivery system and treatments based on scientific evidence. Members share strategies for controlling costs, improving patient safety and quality of care, increasing productivity and supporting healthy lifestyles.

National Business Group on Health

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