

# Renovascular disease

## Introduction

Renovascular disease (RVD) is the narrowing of the artery to one or both kidneys. RVD can cause high blood pressure and reduced kidney function, in some patients causing acute (short-term) kidney injury (AKI) or chronic (long-term) kidney disease (CKD). Both can require dialysis. RVD is often overlooked as a cause of high blood pressure.

You are at greater risk of developing RVD if you smoke or are overweight. RVD is most common in 50–70 year old men, but it can also occur in women and younger adults. High cholesterol, diabetes and a family history of heart disease are also risk factors. High blood pressure (hypertension) is both a cause and a result of RVD.

## Causes

In the majority of cases, RVD is caused by atherosclerosis (hardening and narrowing), of the kidney arteries.

A material called plaque builds up on the inner wall of one or both of the renal arteries making the wall hard and narrow. This reduces the blood supply, damaging the kidney.

## How do you know you have RVD?

RVD can be 'silent'. The first sign may be high blood pressure that stays high even when you take tablets, although this alone is insufficient to give a diagnosis of RVD. When starting treatment for high blood pressure, doctors often measure kidney function before and after starting tablets. If kidney function worsens after taking tablets, this can be a sign of RVD and tablets should be stopped until this is investigated.

## How is it diagnosed?

Your doctor may use a stethoscope on the front or side of your abdomen (and the groins) to listen to the blood flow. You will also need urine and blood tests to ensure your kidneys are working properly.

To diagnose RVD specifically, imaging tests are needed. Initially an ultrasound is often done, and then sometimes an MR angiogram (MRA). Following this, a kidney angiogram may be used to get a better picture of the artery and a more accurate diagnosis of RVD; the disadvantage is that this procedure has more risk.

## How is it treated?

Approaches to RVD are threefold

### Preventing RVD from getting worse

**Lifestyle changes:** Exercising, controlling your weight, giving up smoking and eating healthy foods will help keep your arteries clean and flexible.

### Treating high BP

**BP tablets:** By combining two or more BP tablets you may be able to control your blood pressure and stop the progression of kidney failure. In addition, your doctor may prescribe cholesterol lowering drugs to prevent plaque formation and a 'blood-thinning' tablet like aspirin.

### Relieving the blockage of the renal arteries

**Angioplasty or surgery:** If RVD advances until the artery is nearly or completely blocked, you may need a procedure or surgery to restore the blood flow to the kidney.

- **Angioplasty and stenting:** During angioplasty, a long thin tube called a catheter is put into the renal artery, usually through the groin. Then a tiny balloon at the end of the catheter is inflated to flatten the plaque against the artery wall. A small mesh tube, called a stent, may be positioned to keep the plaque flattened and the artery open.
- **Endarterectomy:** Here, a surgeon cleans out the plaque, leaving the internal lining of the artery smooth and clear.
- **Bypass surgery:** A vein or synthetic tube is used to connect the kidney to the aorta. This new path provides an alternative route for blood to flow around the blocked artery into the kidney.

## Prognosis (outlook)

In mild cases, the outlook can be OK. If you end up on permanent dialysis, however, it is poor, with most patients surviving 2–3 years due to the heart and other organs having been damaged by atheroma (fatty, fibrous deposits on the artery lining).



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