BMJ Best Practice

Patient information from BMJ

Last published: Jan 16, 2020

Chronic kidney disease: what treatments work?

If you have chronic kidney disease your kidneys are becoming less able to filter waste material and excess fluid from your blood. It is a serious condition, but there are good treatments that can help slow the disease.

You can use our information to talk to your doctor about which treatments are best for you.

Chronic kidney disease means your kidneys are losing their ability to filter waste products out of your blood.

You may also hear it called **chronic renal failure**, **chronic kidney failure**, or **chronic renal insufficiency**. Chronic means it's a long-term condition, and renal means it involves your kidneys.

There is no cure for chronic kidney disease. But treatments can slow the disease, reduce your symptoms, and reduce the chance of complications. The outlook is especially good if you catch the kidney damage early.

Treating the cause

Treating the underlying cause of your kidney damage is essential.

For many people this will mean closely controlling their diabetes or high blood pressure, by taking medicines and following their doctor's advice on things like diet, exercise, weight loss, and smoking. This can help slow further damage.

Treating high blood pressure

High blood pressure can be both a cause and a result of chronic kidney disease. It happens because of the fluid that builds up in your blood and tissues when your kidneys aren't filtering properly.

If not treated, high blood pressure can cause further damage to your kidneys and can also lead to heart disease.

Most people with chronic kidney disease take blood pressure drugs. Your doctor will probably prescribe blood pressure medicines called **angiotensin-converting enzyme (ACE) inhibitors** or **angiotensin II receptor blockers (ARBs)**.

These medicines should reduce your blood pressure and help your kidneys work better. If these medicines don't help enough or if you can't take them for some reason, there are other blood pressure drugs you can try.

To protect your kidneys as much as possible, your doctor may aim to lower your blood pressure below what would be normal if you didn't have kidney disease.

Managing your cholesterol

Having chronic kidney disease puts you at higher risk of developing heart disease. Your doctor may prescribe medicines called **statins** to help lower this risk.

These drugs reduce your level of 'bad' cholesterol, so there's less of it to build up inside your blood vessels and cause heart and circulation problems.

Treating problems caused by kidney failure

Chronic kidney disease can cause problems throughout your body. You will have regular blood and urine tests to spot many of these problems before they become serious.

Below are some of the most common problems, and their treatments.

- **Fluid retention:** Fluid can build up in your body if your kidneys aren't working well. This can cause swelling in your limbs (called oedema), as well as high blood pressure.

  If your kidneys are working well enough, drugs called diuretics can help flush excess fluid from your body as urine. Your doctor may also recommend restricting how much fluid and salt you consume each day.
- **Anaemia:** Anaemia is when you have too few red blood cells. This can make you feel very tired and become breathless easily.

  Anaemia often happens to people with kidney disease because the kidneys aren't making enough of a chemical called erythropoietin (EPO).

  EPO helps regulate how many red blood cells your body makes. Treatment involves getting injections with a medicine that works like EPO (called an erythropoiesis-stimulating agent).

  Iron is also important for making red blood cells. So if you are low on iron you will need to take iron tablets or have iron injections.
- **Weakened bones:** Vitamin D, phosphate, and calcium are all essential for strong bones. If your kidneys are damaged your supply of these nutrients can get out of balance and cause problems.

  In particular, your calcium level may get too low, triggering the release of a chemical called parathyroid hormone (PTH). PTH causes reduced calcium in your bones. Over time this can lead to weakened and deformed bones, and swollen joints.

To prevent these problems, many people with kidney failure take calcium and vitamin D supplements. Some people also limit the amount of phosphate in their diet, as this helps to increase the amount of calcium available for their bones.

You might also take drugs called phosphate binders, which lower the amount of phosphate in your blood.

- **Too much acid:** If the kidneys aren't removing enough acid from the body, you can get a condition called metabolic acidosis.

  Often there are no clear symptoms. But if your blood becomes too acidic, this can cause serious problems such as abnormal heart rhythms, seizures, and coma.

  If tests show your blood is becoming overly acidic you'll be treated with an antacid called sodium bicarbonate (baking soda).

- **Too much potassium:** If the kidneys aren't working properly, potassium can build up in the blood, causing a condition called hyperkalaemia.

  If not treated, this can lead to problems such as abnormal heart rhythms, cardiac arrest, and problems with nerve and muscle control.

  Your doctor will keep an eye on your potassium level and may recommend that you limit the amount of potassium in your diet.

  You might also take a diuretic or another type of medicine to help your body get rid of both extra fluid and potassium.

  If hyperkalaemia becomes severe it is a medical emergency that requires hospital treatment.

- **Too little protein:** As kidney disease worsens, more and more protein leaks into your urine from your kidneys. This means there's less protein to nourish your body and you may lose weight.

  Your doctor might suggest changes in your diet to help with this.

Treating end-stage kidney disease

If your kidney damage worsens to the point where you have less than 15 percent of your normal kidney function, you have end-stage kidney disease.

This means that your kidneys can no longer clear your body of wastes and extra fluid, and you need either dialysis or a kidney transplant.

Doctors typically discuss these treatments with patients before they reach this stage. That way, they'll have a treatment plan in place once their kidneys are no longer working.

For more background information on chronic kidney disease see our leaflet *Chronic kidney disease: what is it?*

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