

Acute Kidney Injury

What do the kidneys do?

- Most people have two kidneys that sit in the back part of their abdomen. They are 'bean-shaped' and are usually about 10 to 12cm (4 to 5 inches) long.
- The kidneys remove fluid and waste products from the body by making urine. Urine passes down a tube from each kidney to the bladder where it is stored until you go to the toilet. As well as making urine, the kidneys control blood pressure and salt levels in the body, produce hormones to keep bones healthy and help the body produce red blood cells.

Acute Kidney Injury (AKI)

- Acute kidney injury (AKI) occurs when the kidneys suddenly stop working properly. This can result in minor loss of kidney function to complete kidney failure, the effects of which can be fatal. It's essential that AKI is detected early, for a better chance of the kidneys fully recovering.
- Causes of AKI include dehydration, infections, certain medications and blockage of one or both of the tubes leading from the kidneys to the bladder.
- AKI is different to chronic kidney disease (CKD) when there is a reduction in the function of the kidneys that does not get better.

When to seek medical help

- You should contact your GP urgently if you have severe (or ongoing) vomiting and/or diarrhoea, especially if you are on blood pressure medications, or are unable to keep fluids down; or if you notice a reduction in the amount of urine you are passing.
- In some situations your GP may tell you to stop certain medications, for example blood pressure tablets, water tablets or certain anti-inflammatory drugs or painkillers while you are unwell. Your GP may also ask for a blood test to make sure your kidneys are working properly.
- Occasionally it may be necessary to be admitted to hospital for treatment of AKI if it is not getting better.

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NHS

**Brighton and Sussex
University Hospitals**
NHS Trust

**Acute Kidney
Injury (AKI)
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seen in the Emergency
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Symptoms of Acute Kidney Injury

- The most common symptoms are:
 - passing less urine than usual
 - unexplained loss of appetite
 - feeling sick or vomiting
 - feeling short of breath
 - swelling of the legs or other body parts
- Sometimes AKI can occur without any symptoms and can only be picked up by a blood test.

Causes

- There are many causes of AKI. The most common are dehydration (due to vomiting and diarrhoea), infections, certain medications (for example certain antibiotics) and blockage of one or both of the tubes leading from the kidneys to the bladder. Some people are more at risk of developing AKI than others, especially if they are older and have other medical conditions; for example underlying kidney disease, heart failure or diabetes. Sometimes drugs that are being taken for other reasons can affect the kidneys, leading to AKI. These include:
 - Non-steroidal anti-inflammatory drugs (NSAIDs). For example, ibuprofen or diclofenac
 - Blood pressure tablets. For example, ramipril, enalapril, losartan or candesartan

- Diuretics (sometimes known as water tablets). For example, furosemide or bumetanide

Diagnosis

- AKI is usually diagnosed from a blood test that looks at the level of a substance called creatinine in the blood. High levels of creatinine mean that the kidneys are not getting rid of waste products as well as they should.
- Sometimes a sample of urine will be checked for blood and protein (dipstick test) and an ultrasound scan of the kidneys will be done to pick up any blockages.
- Very occasionally a kidney biopsy may be needed to work out what is causing AKI. This involves taking a very small sample of tissue from one kidney using a fine needle. The area will be numbed using local anaesthetic.

Treatment

- Treatment for AKI will depend on the underlying cause. You may need fluids via a drip if you are dehydrated. If there is an infection then antibiotics may be used. If there is a blockage of the bladder, then a catheter may be needed (this involves a thin, flexible tube being inserted into the bladder to drain it).
- Rarely, drugs such as steroids may be needed to help prevent further damage to the kidneys.

Does AKI always get better?

- In most patients with AKI, kidney function will return to normal. Regular blood tests will help your doctor to know whether this is the case. Very occasionally, AKI can get worse despite treatment. When this occurs, dialysis is sometimes needed. Dialysis is a treatment that involves being connected to a special dialysis machine that cleans the blood. This is usually a temporary treatment while the kidneys recover. Very rarely (in about 3 in 100 patients), the kidneys fail to recover meaning that treatment with dialysis will need to continue permanently.

Can AKI happen again?

- Patients who have had AKI are more at risk of developing it again in the future. They are also more at risk of developing a long-term kidney problem known as chronic kidney disease (CKD) so will need long-term monitoring by their GP.

Discharge from hospital

- If you have been seen in hospital and diagnosed with an AKI, we will discharge you if it has improved with treatment or if it is only a mild AKI. We will ask you to follow up with your GP for blood tests in a week to ensure your kidney function is improving.
- It is important to drink well to ensure your urine is light (unless you have a restriction to your fluid intake for example due to heart failure).