



# Acute Kidney Injury

## Information for patients

### What are the Kidneys?

The kidneys are small, fist sized organs, shaped like kidney beans that are situated in the middle of your back, usually one on each side. However, a small number of people are born with only one.

### What do your kidneys do?

The kidneys perform a number of functions including;

- Cleaning your blood
- Controlling your blood pressure
- Controlling the amount of fluid in your body
- Aid the production of red blood cells which carry oxygen around your body
- Controlling the levels of minerals in your body such as potassium and phosphate

### What is Acute Kidney Injury (AKI)?

AKI is a rapid decline of kidney function over hours or a few days. AKI has three distinct stages (one, two and three) in order of severity, with three being the most advanced stage. It is usually temporary and can be reversed once the cause is found. Only a small amount of cases will develop long-term chronic kidney disease.

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## What causes AKI?

- **Poor blood flow to the kidneys:** this could be due to low blood pressure, dehydration, trauma, liver failure, cardiac failure, major surgery or severe infections.
- **Toxic damage:** this can occur as a result of some medications.
- **Obstruction:** this is a result of a blockage in the drainage system of the kidney (the bladder or ureters) from a kidney stone for example.
- **Disease:** such as glomerulonephritis (an inflammatory, immunological disease).

## How is AKI diagnosed?

AKI is diagnosed according to the level of creatinine in the blood plus or minus the amount of urine passed within certain time frames. Creatinine is produced by the muscles in the body and is cleared by the kidneys. So, if the kidneys are failing the creatinine levels will rise.

## What happens during an episode of AKI?

Many cases of AKI are relatively silent in their presentation producing few symptoms other than possible fatigue. However, more severe cases may be associated with raised levels of urea, potassium and phosphate, and the blood may become acidotic. Fluid may collect in the legs and lungs with the latter having the potential to cause shortness of breath.

## Can anything make my AKI worse?

Some medicines may make your AKI worse. The family of medicines which are most associated with this are called 'non-steroidal anti-inflammatory drugs (NSAIDs)'. The one most commonly used is ibuprofen, others include naproxen and diclofenac. These drugs reduce the supply of blood to the kidneys which can make an Acute Kidney Injury worse. All

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medicines that lower blood pressure, including diuretics (known as water tablets, such as furosemide, Bumetanide and Spironolactone), can also make things worse and may be stopped when you are unwell. Some medicines also have a direct toxic effect on the kidneys if your kidneys are not able to remove them from the blood, these also may need to be stopped for a while. **It is important that you understand which of your regular medicines may have an impact on your kidney function.**

### How is AKI investigated and treated?

The doctors and nurses will try to find the cause of your AKI using a number of investigations. They will establish a clear understanding of your medical and medication history and of your recent symptoms leading to the AKI. They will give you a full examination. Blood tests and urine dipstick will also be undertaken and an ultrasound of your kidneys may be required. If the cause of your AKI is harder to find it may be necessary for a renal specialist to perform a kidney biopsy.

Treatment will be aimed at the cause of the AKI. Treatment will vary depending on the cause but will include hydration assessment and administration of fluids, medications will be reviewed and nephrotoxic (**harmful to the kidneys**) medications potentially stopped or reduced. Pulse, blood pressure, respiratory rate, temperature, urine output and blood tests will be regularly monitored.

A minority of AKI cases will develop complications such as raised potassium levels, shortness of breath and acidosis of the blood. If these do not respond adequately to fluids and medications, time on the intensive care unit is required so that the blood can be filtered by haemofiltration (a temporary form of kidney dialysis) until the kidneys start to recover.

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## Follow up care

### **Are there any long-term effects of AKI?**

All patients who have had an AKI will need to have follow-up by the medical team or GP to ensure their kidney function has returned to normal. Some patients will develop a degree of kidney scarring as a result of their AKI and therefore will require long-term monitoring.

A very small percentage of patients will suffer permanent, severe damage to their kidneys requiring ongoing dialysis or kidney transplant.

### **Can I avoid this happening again?**

#### **What to do if you are at risk of AKI and are unwell at home**

Some people are more at risk of developing an AKI than others. These include those that have the following:

- Age over 65 years
- Diabetes mellitus
- Chronic kidney disease (CKD)
- Vascular disease
- Cardiac failure
- Liver disease
- Sepsis (severe infection)
- Nephrotoxic medications, for example, NSAIDS i.e. ibuprofen, diclofenac sodium (e.g. Voltarol), ACE inhibitors, aminoglycosides.
- Abnormal hypotension (low blood pressure below the individuals normal) as a result of hypovolaemia (reduced blood volume), cardiac failure or medication.

If you have any of the above risk factors and become acutely unwell and unable to drink properly, in particular if you are losing extra fluid through diarrhoea and vomiting, or you have a high temperature and sweats please contact your GP for advice on stopping or reducing any nephrotoxic medication and try to

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increase your fluid intake. **Please do not stop taking your normal medications unless your GP advises you to do so.**

If you are only passing small amounts of urine you may need admission to hospital. **Please do not delay calling your GP if this occurs.**

**Further information and support can be gained from;**

- **Kidney Care UK**  
[www.kidneycareuk.org](http://www.kidneycareuk.org)
- **National Kidney Federation**  
[www.kidney.org.uk](http://www.kidney.org.uk)
- **Think Kidneys**  
[www.thinkkidneys.nhs.net](http://www.thinkkidneys.nhs.net)

**NHS 111**  
**NHS Choices online**

 **111**  
[www.nhs.uk](http://www.nhs.uk)

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**Telephone:** ☎ 01622 224960 or ☎ 01892 632953

**Email:** [mtw-tr.palsoffice@nhs.net](mailto:mtw-tr.palsoffice@nhs.net)

**or visit their office** at either Maidstone or Tunbridge Wells Hospital between 9.00am and 5.00pm, Monday to Friday.

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