NHS
Lancashire Teaching Hospitals
NHS Foundation Trust

Information for patients and carers

Acute Kidney Injury (AKI)

You have been given this leaflet because you have been diagnosed as having an AKI.

Excellent care with compassion

Acute Kidney Injury Team, Critical Care Outreach

What is acute kidney injury (AKI)?

Acute Kidney Injury or AKI is a sudden and recent reduction in a person's kidney function. Kidney function is measured by blood tests and AKI is identified in the same way. It does not mean that the kidneys have been physically injured.

AKI used to be called 'acute renal failure' or 'acute kidney failure'. Up to one in five people admitted to hospital in UK have AKI. AKI can get better in a few days or weeks, but sometimes it causes ongoing problems.

AKI is not to be confused with Chronic Kidney Disease (CKD) which is used to describe long-term kidney problems that occur either when the kidneys do not work as well as normal or when the kidneys are damaged.

What causes AKI?

AKI can be caused by a number of factors. Sometimes it is caused by a combination of factors. AKI can be a consequence of dehydration, illnesses or infections, major surgery and trauma or by side effect of drugs that pass through the kidney. AKI may also be caused when the drainage system of the kidneys (the ureters or bladder) is blocked.

People who are elderly, along with patients with chronic kidney disease are particularly at risk of AKI, due to their reduced kidney function. Patients with heart or liver failure are also at higher risk.

What do kidneys do?

Most people have two kidneys that lie on either side of the back bone just below the ribs. The kidneys receive a rich supply of blood from the circulation and use this to make urine. The production and excretion of urine allows our bodies to stay in overall balance by removing waste products that may be harmful to the body.

The kidneys have a key role in determining our water balance, by adjusting the amount of water we pass in the urine according to our levels of hydration.

What are the symptoms of AKI?

You may not feel unwell until kidney function has deteriorated significantly, sometimes to less than 10%. AKI can have the following symptoms:

- Changes in urine output, particularly a reduction in amount passed
- Nausea and vomiting
- Abdominal pains and feeling generally unwell
- Dehydration with thirst
- Later symptoms can include confusion and drowsiness

How is AKI diagnosed?

Clinicians measure the blood level of a substance called creatinine. This is produced by body muscles and is removed by the kidneys. If there is a reduction in kidney function the creatinine levels will rise.

What makes an AKI episode a risk to your health?

Although AKI can be mild, in more serious forms the loss of kidney function may cause:

- an increase in potassium, a salt in the blood that can affect your heart
- blood to become acidic, causing damage to other organs
- salt and water build up, that may cause swelling to legs, hands or face
- in some cases, fluid to build up in the lungs

What is the treatment for AKI?

Once the cause of the AKI is identified, treatment is directed at the underlying cause. Hydration is assessed and intravenous fluids are given if appropriate. Some medications may be stopped while others require a dose adjustment, as many drugs are excreted through the kidneys.

Doctors and nurses monitor kidney function by measuring volume of urine produced and this can require placing a small tube called a catheter into the bladder in order to do this. Blood tests, chest x-rays and ECGs will be used to detect complications of AKI. An ultrasound scan of the kidneys may be performed in certain situations.

If your medications are reduced or stopped whilst your kidneys are recovering, these should be reviewed before discharge with a plan of when to restart them if appropriate.

What are the long term effects?

AKI is usually treated successfully. You may need to be followed up by the hospital medical team or your GP to ensure your kidney function returns to normal. It is essential that you keep an eye on your health, should you become unwell you should follow “sick day rules” as outlined overleaf.

In some patients, kidney function does not fully recover after AKI. In a very small minority of AKI patients there is significant damage to the

kidneys and they need ongoing dialysis or, longer term, kidney transplantation.

Whilst in hospital your doctor will keep you informed of your progress. Once discharged your GP should receive information regarding your hospital stay including diagnosis of AKI.
At home you need to monitor your diet and fluids to prevent the build-up of waste products, control blood pressure and keep salts in balance. A dietician may see you if your doctor feels you need specific advice.

What is kidney dialysis?

Kidney dialysis removes substances that accumulate in the blood due to kidney failure. Dialysis may initially be performed daily but may reduce in frequency to 3 times per week. Blood is removed from the body via a catheter in a large vein (inserted under local anaesthetic) and passes through a machine which cleans your blood and returns it to your body.

How can I avoid AKI in the future?

You must follow the “sick day rules” when you are unwell with any of the following:

- Vomiting where you are unable to keep fluids down
- Diarrhoea where you lose more water in stools than you manage to drink
- Fevers or a feverish illness

If you are unwell in the future, try to protect your kidneys by following these “Sick Day Rules”

1. Keep your water/fluid intake up to make sure you have enough fluids in your body. As a general rule, drink plenty (especially if you are still thirsty), until your acute/sudden illness passes.
   This is likely to be at least 7 cups a day (one cup = 200ml) unless you have other instructions from your doctor.

If you are vomiting, medical advice is to take small sips of water/fluid frequently, until your symptoms have settled.

2. Avoid drinking alcoholic drinks.

3. Speak to your GP or specialist team if you have passed much less urine than you normally pass **OR** if you are unable to keep fluids down and/or have continuing diarrhoea or vomiting. **You may need a blood test to check for AKI**.

4. When buying "over the counter" medications, let the pharmacist know that you have had AKI in the past.

5. **IF YOU ARE UNDER THE CARE OF A SPECIALIST FOR HEART FAILURE OR YOU ARE A KIDNEY / RENAL UNIT PATIENT and on any of the drugs listed below, contact the relevant team or 'Out of Hours GP service' and take advice as to which medications you may need to stop taking until you are better.**

6. If you are not under the care of a specialist team as above, you should temporarily stop taking any of the medications listed below until your symptoms settle. If you are not better within 48 hours, consult your GP or the 'Out of Hours GP service' for advice.

Medications that should be STOPPED during "sick days":

ACE inhibitors: given for blood pressure and heart or kidney problems. **Examples:** Ramipril, Lisinopril, Perindopril & others ending with "pril".

ARBs: given for blood pressure and heart or kidney problems. **Examples:** Losartan, Candesartan, Irbesartan & others ending with "sartan".

NSAIDs: anti-inflammatory pain killer. **Examples:** Ibuprofen, Naproxen, Diclofenac, Celecoxib, Etoricoxib, Meloxicam and others

Diuretics: sometimes called water pills. **Examples:** Furosemide, Bumetanide, Spironolactone, Eplerenone, Bendroflumethiazide, Indapamide.
Metformin or Metformin combinations: medicine for diabetes.

N.B. Ask your doctor if you are on any of the medications listed above.

Contact details

Should you require further advice or information please contact the Acute Kidney Injury Team through main switchboard **01772 716565.**

Sources of further information

www.lancsteachinghospitals.nhs.uk
www.nhs.uk
www.patient.co.uk
www.accessable.co.uk
www.kidneycareuk.org/about-kidney-health/conditions/acute-kidney-injury-aki

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If you want to stop smoking you can also contact the Quit Squad Freephone 0800 328 6297.

Please ask if you would like help in understanding this information. This information can be made available in large print and in other languages.

Cantonese:
如果你希望以另外一種格式接收該資訊，請和我們聯絡，不必猶豫。

Gujarati:
જો તમને આ માહિતી બીજી રચના કે ફોર્મેટમાં મેળવવાની ઈચ્છા હોય, તો કૃપા કરી અમારો સંપર્ક કરતા અચકાશો નહિ.

Hungarian:
Kérjük, vegye fel velünk a kapcsolatot, ha más formában kéri ezt az információt.

Polish:
Jeżeli chciał(a)by Pan/Pani otrzymać niniejsze informacje w innym formacie, prosimy o kontakt.

Punjabi:
ਜੇ ਤੁਸੀਂ ਕਿਸੇ ਹੋਰ ਫਾਰਮੈਟ ਵਿਚ ਇਹ ਜਾਣਕਾਰੀ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ ਤਾਂ ਸਾਡੇ ਨਾਲ ਸੰਪਰਕ ਕਰਨ ਤੋਂ ਨਾ ਝਿਜਕੋ।

Urdu:
اگر آپ اس معلومات کو کسی اور صورت میں حاصل کرنا چاہتے ہیں تو برائے مہربانی ہم سے رابطہ کرنے میں ہچکچاہٹ محسوس نہ کریں۔

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Division: Critical Care Outreach
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