

Acute kidney injury

Information for the public

Published: 1 August 2013

nice.org.uk

About this information

NICE clinical guidelines advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive. The information applies to people using the NHS in England and Wales.

This information explains the advice about acute kidney injury that is set out in NICE clinical guideline 169.

All of the treatment and care that NICE recommends is in line with the NHS Constitution (www.gov.uk/government/publications/the-nhs-constitution-for-england). NICE has also produced advice on improving the experience of care for adults using the NHS. For more information see 'About care in the NHS' on our website (www.nice.org.uk/nhscares).

Does this information apply to me?

Yes, if:

- you are an adult (18 years or older), child (11 years or younger) or young person (12 to 17 years) who has or is at risk of acute kidney injury
- you are a parent or carer of a person who has or is at risk of acute kidney injury.

It does not cover:

- babies under 1 month
- managing acute kidney injury in people with a kidney transplant
- pregnant women.

Acute kidney injury

The kidneys clean the blood by removing waste products. Many different conditions can lead to the kidneys not working well within hours or days. This is called acute kidney injury (known as acute renal failure in the past). Causes include: dehydration; low blood pressure; some drugs; severe infections; blockage of the waterworks (urinary tract); and the dye (called contrast medium) used for some types of scan. Acute kidney injury can happen at any age but is more common in older people, particularly those admitted to hospital. It is also common in people of all ages treated in intensive care units. Symptoms or signs of acute kidney injury can vary and include passing less urine than normal, nausea and sickness, poor appetite, swelling of the legs or other parts of the body and breathlessness.

Your healthcare team

The various tests and treatments described may be provided by different healthcare professionals. These could include your GP, hospital doctors and nurses.

A healthcare professional should discuss acute kidney injury with you if you are at risk and explain the tests and treatments for it in detail. You should have the opportunity to ask any questions you have – there is a [list of questions](#) you might like to ask to help you with this.

Some treatments described may not be suitable for you, depending on your exact circumstances. If you think that your treatment or care does not match this advice, talk to your healthcare team.

Checking for acute kidney injury

People with an acute or sudden illness

Sometimes, people who have been unwell for only a short time (that is, they have an acute illness) develop acute kidney injury.

If you have an acute or sudden illness that is worse than a cold or flu, your healthcare professional should check for acute kidney injury if:

- you have long-term kidney problems (chronic kidney disease), heart failure, liver disease, or diabetes, or
- you are passing only a small amount of urine, or
- you rely on a carer for fluids, or
- you have taken prescription or over-the-counter drugs that may affect the kidneys within the past week (examples include some drugs for high blood pressure and heart conditions, some antibiotics and ibuprofen), or
- you have had acute kidney injury before (known as acute renal failure in the past), or
- you have symptoms of blocked waterworks (urinary tract), or have had blocked waterworks before, or
- you have a severe infection, or
- you are 65 or over.

If you're an adult, your healthcare professional may also check for acute kidney injury if you have had any scan using an injection of dye (contrast medium) containing iodine within the past week. You can find out more information about this in the section called [Risk in adults having a scan](#).

Healthcare professionals should also check for acute kidney injury in children and young people if they have any of the following:

- diarrhoea containing blood
- signs of inflammation in the kidneys (for example, blood in the urine)
- low blood pressure
- cancer affecting the blood cells
- reliance on a parent or carer for fluids because of young age.

The check should involve measuring the level of a substance called creatinine in your blood. A raised creatinine level is a sign of kidney injury.

Healthcare professionals may suggest that people with an infection or diarrhoea or vomiting (sickness) stop taking ACE inhibitors and ARBs (certain drugs used to treat high blood pressure and heart conditions) until they are clearly on the mend. This might reduce the chance of developing

acute kidney injury. Healthcare professionals should explain all the possible risks and benefits of stopping these drugs.

People with no obvious acute illness

Sometimes people without an acute illness may develop acute kidney injury. Healthcare professionals should think about the possibility of acute kidney injury if you have:

- chronic kidney disease
- new or worsening problems with your waterworks
- symptoms that might be complications of acute kidney injury (for example, not passing much urine, nausea and sickness, swelling of the legs or other parts of the body)
- symptoms that might be due to an illness affecting the kidneys and other organs (called a multi-system illness) – for example, a new purple rash on the legs.

Healthcare professionals should not assume that a rise in blood creatinine level is due to chronic kidney disease. It may be a sign of acute kidney injury.

If you have chronic kidney disease or you have a disability and rely on a carer for fluids, you should be told about the risk of acute kidney injury:

- after a bout of sickness and diarrhoea
- after taking prescription or over-the-counter drugs that may affect the kidneys (for example, ibuprofen).

Parents and carers should be involved in the discussion if appropriate.

Risk in adults having a scan

Some scans involve injecting a dye (called contrast medium) before the scan to show up the body tissues more clearly. Some dyes containing iodine can occasionally cause acute kidney injury in some people, especially if they have other medical problems. If you are having a scan with a dye containing iodine, your healthcare professional should perform a blood test to check if you might have chronic kidney disease. Acute kidney injury after an injection of iodine is more likely if:

- you have chronic kidney disease

- you have diabetes and chronic kidney disease
- you have heart failure
- you have a kidney transplant
- you are dehydrated
- you are 75 or over.

It's also more likely if the dye is injected into an artery rather than a vein (for example, a coronary angiogram).

Discussing risk and preventing injury

Before you have a scan, your healthcare professional should talk to you about the risks and benefits, including the risks of having a dye containing iodine (iodinated contrast medium). If you're at risk of acute kidney injury or you have an acute illness, you should be offered fluids by a drip (either sodium bicarbonate or sodium chloride) before the scan. If you have chronic kidney disease, your healthcare professional may suggest you stop taking drugs for high blood pressure and heart conditions (ACE inhibitors and ARBs) before the scan.

Risk in adults having surgery

Some people are at increased risk of developing acute kidney injury after an operation. Healthcare professionals should be aware of this possibility in:

- adults with chronic kidney disease, diabetes, liver disease or heart failure
- adults having emergency surgery, especially if they have a severe infection or are dehydrated
- adults having surgery to their abdomen
- adults who have recently taken prescription or over-the-counter drugs that can damage the kidneys
- adults who are 65 or over.

They should take account of these factors when planning care.

If you're having an operation, healthcare professionals should talk to you about the benefits and risks, including the risk of developing acute kidney injury.

Prevention while in hospital

Acute kidney injury is more common in people who are very unwell and in hospital. If you're in hospital and healthcare professionals are worried that you may be at risk of acute kidney injury, they should regularly check your condition to look for changes in heart rate, temperature, blood pressure and rate of breathing. They should also be aware of any changes in the amount of urine you pass. See the section called [Other NICE guidance](#) for details of our guidance on monitoring adults in hospital.

Children and young people

Children and young people in hospital who are at risk of developing acute kidney injury may have regular blood tests as well as regular checks of heart rate, temperature, blood pressure and rate of breathing.

Detecting acute kidney injury and finding the cause

If you are at risk of acute kidney injury, your healthcare professional should regularly check your blood to look for a rise in creatinine (a marker of how well your kidneys are working). They should also check how much urine you are passing because passing low amounts can be a sign of kidney injury. Your urine will also be tested with a 'dipstick'. Dipstick testing will allow healthcare professionals to quickly check for some signs of acute kidney injury. Depending on the results of these tests, they may decide to refer you to a team specialising in kidney problems (the nephrology team).

Ultrasound scans

If healthcare professionals detect acute kidney injury, they may send you for an ultrasound scan to find out more about your condition. An ultrasound scan uses sound waves to make a picture or image of your kidneys. If healthcare professionals suspect a severe infection of the kidney with blocked drainage to the bladder, you should have the scan within 6 hours. You should have the scan within 24 hours if healthcare professionals are not sure of the cause of the kidney injury or you're at risk of your waterworks (urinary tract) becoming blocked.

Treatment

Treatment for acute kidney injury involves treating the cause and managing the symptoms until the kidneys recover from the injury. Healthcare professionals should discuss all possible treatments with you and/or your parents or carers before any decisions are made.

Treating a blockage

The ureters are tubes that carry fluid from the kidneys to the bladder. If these are blocked, you should be referred to a specialist who will offer you treatment for the blockage. This might involve draining the kidney with a small tube (called a nephrostomy) or placing a small tube inside the kidney to ease the blockage (called stenting). You should have these treatments as soon as possible, and within 12 hours of the blockage being detected.

Dialysis

There are a number of signs that suggest your kidneys are struggling to cope. These include breathlessness, chest pain, very high creatinine or potassium levels. If you have these, healthcare professionals may offer you some form of dialysis while your kidneys are recovering from injury. One form of dialysis involves passing your blood into a tube and through a dialysis machine to remove the waste products normally removed by your kidneys. You should be given information about dialysis, including what it will involve, how often you will have it and the length of the sessions.

Loop diuretics (for example, furosemide, bumetanide)

Loop diuretics are drugs that increase the amount of urine made by the kidneys. You may be offered a loop diuretic while you're waiting to have dialysis. If you don't need dialysis, you may be offered loop diuretics while your kidneys are recovering from injury.

Information and support

If you have acute kidney injury, your healthcare professional should talk to you about possible treatments, how your condition will be monitored and what might happen in the future. Your preferences should be taken into account and you should be able to be involved in decisions about your care. Discussions should include your parents or carers if appropriate. People who have had acute kidney injury should be given information about how they can manage their condition, sources of support and any ongoing treatment (including dialysis). You can find out more from the

organisations listed in the section called [Sources of advice and support](#). Parents and carers should also be given information.

Questions to ask about acute kidney injury

Finding out what's wrong

- Can you tell me more about the tests/investigations for acute kidney injury? Can you tell me why you are doing these tests? What do these tests involve?
- How long will it take to get the results of the tests?
- What is creatinine and how does it change in acute kidney injury?

Preventing acute kidney injury

- Can you tell me more about acute kidney injury?
- I've had acute kidney injury before, what can I do to reduce my chances of having it again? What should I tell my doctors if I have surgery in the future?
- I've heard that some prescribed and over-the-counter drugs are linked to acute kidney injury? Which drugs are they and what should I do if I'm taking any of these drugs? Who should I speak to about this?
- Are there any drugs I should avoid taking? If so, when should I avoid them? What should I ask my pharmacist when buying over-the-counter drugs?
- I had acute kidney injury while I was in hospital, should I see my GP to talk about improving my general health and reducing my chances of acute kidney injury in the future?
- I've had acute kidney injury before, are there any special precautions I should take while travelling abroad? Should I be careful about what I eat and drink while I'm away? Should I have travel insurance? Should I see a local doctor if I have sickness and diarrhoea?
- I have a disability and need help from my carers to drink. Do I have a higher chance of acute kidney injury? Do you have any information about this for my family/carers?

Treatments

- Can you tell me why you have decided to offer me this treatment?

- What are the pros and cons of this treatment?
- What will this treatment involve? How will this treatment help me?
- How long will I need this treatment?
- Are there any risks associated with this treatment?
- What are my options for having other treatments?
- Is there some other information (like a leaflet, DVD or a website I can go to) about the treatment that I can have?

For family members, friends or carers

- What can I/we do to help and support the person I/we care for?
- I care for a person with a disability. Should I offer them more to drink when they are ill?
- Is there any additional support that I/we as carer(s) might benefit from or be entitled to?

Sources of advice and support

- The British Kidney Patient Association (BKPA), 01420 541424 www.britishkidney-pa.co.uk
- Kidney Research UK, 0845 300 1499 www.kidneyresearchuk.org
- National Kidney Federation (NKF), 0845 601 0209 www.kidney.org.uk
- Welsh Kidney Patients' Association www.wkpa.org.uk

You can also go to NHS Choices (www.nhs.uk) for more information.

NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

Other NICE guidance

- Patient experience in adult NHS services. NICE clinical guidance 138 (2012). See <http://guidance.nice.org.uk/CG138>
- Acutely ill patients in hospital. NICE clinical guideline 50 (2007). See <http://guidance.nice.org.uk/CG50>

Accreditation

