



How to keep your Kidneys Safe

Who is this leaflet for?

This information has been developed to help people who have been told that they may be **at risk of Acute Kidney Injury**, and to help answer any questions they may have.

What is Acute Kidney Injury?

Acute is a term used to describe something that has occurred over hours or days (as opposed to chronic which means months or years).

Kidney Injury describes evidence of damage to the kidneys usually with a change in kidney function tests and passing only small amounts of urine.

What are the symptoms?

In the early stages, there may not be any, but symptoms may be related to the illness which causes the AKI, such as diarrhoea and vomiting, low blood pressure with light headedness and passing only small volumes of urine.

It's very important that AKI is detected early and treated promptly as in some cases it can be very serious. In the large majority of cases early detection and treatment will result in resolution of the AKI.

How can you assess kidney function?

The kidneys perform 5 important tasks for the body:

1. They remove waste products and toxins from the body, including drugs, by making urine
2. They help control fluid balance, making sure that we are not overloaded with water or too dry
3. They help control blood pressure, keeping it at the right level for body functions
4. They make active vitamin D, keeping our bones strong
5. They make a hormone called erythropoietin (EPO), which stimulates the production of red blood cells in the bone marrow.

Kidney function is usually assessed by testing the blood for waste products This includes creatinine which comes from our muscles and can build up if the kidneys are not functioning well. The hospital laboratory is then able to provide an estimate of the efficiency of the kidneys. It is also important to test the urine to look for evidence of kidney damage or inflammation.

Who is at risk of Acute Kidney Injury?

We are all at risk of Acute Kidney Injury. It is very common when people become seriously unwell, and affects 1 in 5 people admitted as an emergency to hospital.

The kidneys require an adequate blood pressure to function. If blood pressure drops a lot then cells in the kidneys are damaged and they may not function properly again, even when blood pressure returns to normal.

Some people are more at risk than others, for example those people who already have abnormal kidney structure or function. This may be related to other long term conditions such as diabetes or high blood pressure.

If there is evidence of abnormal kidney function which lasts for more than 3 months then this is called **Chronic Kidney Disease**.

What are the usual causes of Chronic Kidney Disease?

Chronic Kidney Disease is very common particularly in older people.

It is most commonly associated with high blood pressure (hypertension) and diabetes - both type 1 and type 2. It is also more common in people from black and ethnic minority groups.

There are some inherited conditions such as Polycystic Kidney Disease, which cause chronic kidney disease to be more common in families.

Some people develop inflammation in the kidney such as glomerulonephritis or systemic lupus erythematosus, which can cause long term damage.

How is Chronic Kidney Disease diagnosed?

Chronic kidney disease is usually diagnosed with a blood test which measures the level of a waste-product, creatinine, in the blood. It helps us to estimate the efficiency of kidney function, which when it falls below 60% for more than three months is known as Chronic Kidney Disease.

Abnormalities of kidney structure can also be detected by urine tests and scans of the kidneys. These tests can be arranged by your GP who can then add you to a register in the practice to help monitor your kidney function.

It is important to have your blood pressure and blood and urine checked every year if you have chronic kidney disease.

What are the usual causes of Acute Kidney Injury?

Acute kidney injury is most commonly associated with illnesses when you are not able to eat and drink properly and/or lose extra fluid from diarrhoea or vomiting. This may cause your blood pressure to be low and your urine output to fall. Acute kidney injury is detected by a blood test which shows a rise in the level of creatinine from levels which are normal for you.

The good news is that if the situation is corrected quickly then your kidneys will probably recover, however if you have the more severe forms of kidney injury known as Stage 3 then your kidneys may suffer long term damage.

Can anything make this worse?

Taking some tablets or medicines can make the situation 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 blood supply to the kidneys, which can make acute kidney injury worse and therefore these drugs should be discontinued for a short time if AKI is detected.

All medicines which lower blood pressure, including diuretics (also known as water tablets and include furosemide, bumetanide and spironolactone), can also make things worse and will often be discontinued for a short time when you are unwell. You might be recommended to discontinue these medications for a short time.

Some tablets and medicines can also cause damage to the kidneys, or more side effects if your kidneys are not able to remove them from your blood, and these may also need to be discontinued for a short time (see diabetes below).

It is important that you understand which of your regular medicines may have an impact on your kidney function and you can discuss this with your pharmacist, GP or specialist nurse.

If you have diabetes

Some people have poor control of their diabetes when they are unwell and may need to start treatment with insulin. Many medications used to treat diabetes are removed from the body by the kidneys and so the levels can build up in the blood if the kidneys are not functioning properly, with the risk of side effects.

This particularly applies to metformin and a family of medications called sulphonylureas which include glibenclamide, glipizide and gliclazide. These may need to be reduced or discontinued for a short time if you are unwell. You should discuss this with your pharmacist or diabetes team.

What should I do to reduce my risk of kidney damage?

Our kidneys are very hard working organs and it is only when they fall below 10% efficiency that the body may need help such as dialysis.

There are important things which you can do to help keep your kidneys healthy. This involves healthy living keeping your weight controlled, minimising salt or low salt alternatives in your diet and not smoking.

If you have diabetes or high blood pressure good control of these illnesses can help stabilise kidney function. Your doctor or nurse can advise you about this.

If you have been taking regular Anti Inflammatory Medication this may be reviewed and you may be offered alternative treatment.

What should I do if I am unwell?

If you are unwell and unable to drink properly, particularly if you are losing excess fluid through vomiting or diarrhoea, or you have a high temperature and sweats, then it is important that you discuss your condition with a medical professional. This may be your GP or a specialist nurse, e.g. a heart failure or kidney nurse if you have one. You may be advised to discontinue taking medications which lower your blood pressure for a short time and a blood test will be arranged to check your kidney function. If you are admitted to hospital for a specialist x-ray or operation, you should make your health care team aware if you have chronic kidney disease.

If you are only passing small amounts of urine you may need admission to hospital and you should alert your GP to this.

Please do not delay calling your GP or the out of hours service if your urine output decreases to only small volumes

Where can I find out more?

NHS England has developed a very helpful website called Think Kidneys. You will be able to read the stories of other people who have had this problem and see what medical professionals are doing to learn more and help reduce the risks of this condition
www.thinkkidneys.nhs.uk

The British Kidney Patient Association has lots of information and support for kidney patients. It has a counselling service and offers advocacy and direct grants, as well as funding patient-centred research, healthcare professionals and projects
www.britishkidney-pa.co.uk

This leaflet has been written by Dr Kathryn Griffith who is the Kidney Care Champion of the Royal College of General Practitioners and its production is supported by the British Kidney Patient Association