NHS
University Hospitals
Coventry and Warwickshire
NHS Trust

## Renal Services

# Everything I need to know about Chronic Kidney Disease (CKD)

### What is CKD?

Kidney disease is a term used by doctors to include any abnormality of the kidneys, even if there is only very slight damage. 'Chronic' means a condition that does not get completely better. Some people think that 'chronic' means severe. This is not always the case. Although some patients with CKD have more severe disease, most patients with CKD have only a very slight abnormality in the kidneys. Note that in the past doctors have used the term chronic kidney failure for the same condition.

### How common is CKD?

Mild to moderate CKD is very common in unselected populations. Some surveys suggested that as many as 16% of the adult population have some markers of kidney disease. Recent research suggests that 1 in 10 of the population may have CKD, but it is less common in young adults, being present in 1 in 50 people. In those aged over 75 years, CKD is present in 1 out of 2 people. However, many of the elderly people with CKD may not have diseased kidneys, but have normal ageing of their kidneys.

Although severe kidney failure will not occur with normal ageing of the kidneys, there is an increased risk if it is combined with high blood pressure and heart disease or stroke. Medical checks can monitor this. About 11% of UK population have CKD according to Kidney disease outcome quality Initiative (K/DOQI**)**

### What causes CKD?

There are many causes of CKD, and the most common causes are ageing of the kidneys, high blood pressure and diabetes. Very few of the causes of CKD are completely curable, but may be controlled. Regular blood tests will be taken to indicate whether the kidney function is stable. If someone has markedly reduced kidney function, high blood pressure, and protein leak in the urine or associated problems such as kidney pain, a scan of the kidneys will be performed. Some people will also have tests such as a cystoscopy (flexible tube to look inside the bladder), or a kidney biopsy (a small piece of kidney is removed with a needle and looked at under the microscope).

**Further information about possible causes of CKD**
Further leaflets are available for some of the following conditions:

- **Diabetes Mellitus:** This directly damages the structure and function of the kidneys and is increasingly the most common cause
- **Renovascular disease:** renal artery stenosis (narrowing of the blood vessels of the kidney
- **Hypertension:** High blood pressure is both a cause and a consequence of kidney failure
- **Glomerulonephritis:** A chronic inflammation of the glomeruli (filters) of the kidneys
- **Genetic disorders** These are usually inherited e.g. Adult Polycystic Kidneys Disease
- **Urological disorders**: Urinary problems such as reflux nephropathy and urinary tract infections

## How do I know if I have CKD?

In most cases CKD does not cause any symptoms, and is only detected when tests results are abnormal. These may be urine tests for blood or protein; an X-ray or scan of the kidneys; or a blood test to measure kidney function.

Symptoms develop slowly and do not appear until most of the kidney tissue has been damaged. The rate at which kidney failure worsens varies from patient to patient. One should not think that the absence of symptoms means that there is no further worsening of the kidneys. Regular monitoring tests by your doctor, is therefore vital.

## What are the symptoms of advanced CKD?

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| Fatigue and general weakness | Nausea, vomiting |
| Lack of concentration | Unpleasant taste in the mouth |
| Restless legs and muscle cramps | Loss of appetite and weight loss |
| Itchy skin | Shortness of breath |
| Poor sleep | Swollen ankles |

## How is it diagnosed and monitored?

CKD is diagnosed and monitored by either your GP or Nephrologist (kidney specialist) on the basis of your medical history and the following tests. In the early stages of CKD people may be unaware that they have any illness and a blood or urine test may be the only way it is discovered.

### Urine tests

Urine will be tested to detect abnormalities especially albumin and blood in the urine. Albumin is due to chronic damage to kidneys and is measured by urine dipstick or albumin creatinine ratio (ACR). Blood picked up by the dipstick can be due to a urinary tract infection (UTI), early inflammation (glomerulonephritis) and any urological problems.

### Blood tests to measure kidney function eGFR

A test called the eGFR (estimated glomerular filtration rate) is used to measure kidney function. The eGFR is calculated by the laboratory from the level of a chemical called creatinine in the blood.

A normal eGFR is about 100 ml/min in young adults, so the eGFR is sometimes referred to as the percentage of normal kidney function, as the number is the same. Some young adults with normal kidneys will have an eGFR as low as 75 ml/min, and this falls by about 1 ml/min per year as people get older, so many healthy people aged 75 will have an eGFR of 50-60 ml/min.

**Other blood tests**
Other chemicals in the blood like urea, potassium, calcium and phosphate are also measured as high levels and can cause ill-health. Other blood tests (haemoglobin and PTH) are carried out to detect anaemia and bone disease which may occur in advanced CKD.

**Assessment of cardio vascular risk**
People with CKD are at an increased risk of heart disease, stroke, poor circulation (peripheral vascular disease).Cardiovascular risk factors like smoking, cholesterol and blood pressure will be monitored closely and appropriate medications will be started. . Patients who are on antihypertensive or lipid lowering therapy should have renal function assessed at least annually.

**Scans and X-rays**
An ultrasound scan will be performed to check the kidney sizes and any abnormalities. This may offer further information on diagnosis and probable further decline of kidney function.

## What are the stages of CKD?

CKD is divided into 5 stages:-

- **CKD stage 1:** this is where eGFR is greater than 90 mls/min, with some sign of kidney damage on other tests. If all the other kidney tests are normal, there is no CKD.
- **CKD stage 2:** this is where eGFR is between 60-89 with some sign of kidney damage. If all the other kidney tests are normal, there is no CKD.
- **CKD stage 3:** a moderate degree of impairment in kidney functions occurs in this stage. This is subdivided in to 3a (eGFR 45-59) and 3b (eGFR 30-44) because we now know that patients in 3b have increased rate of cardio vascular diseases. (Heart attacks, strokes, narrowing of other arteries) despite the mild impairment only a minority of patients progress to end stage kidney failure. Most stage 3a CKD can be appropriately managed in primary care and 3b patients need to be cautiously reviewed by the GP and then referred to the specialist Nephrologist depending on the risk factor.

**Some patients need further investigation** where there are indications that progression to end stage renal failure (Stage 5) may be likely.

- **CKD stage 4:** this is where eGFR is between15-29 ml/min; a severe reduction in kidney function.
- **CKD stage 5:** this is where eGFR is less than 15 ml/min: when dialysis or a kidney transplant may be needed.

## How fast will the kidneys get worse?

It depends on individual patients and the causes of their CKD. It is worth noting that normal people without kidney disease lose 1ml/min a year through natural ageing. The kidneys of many CKD patients above 75 years will worsen just a little faster than normal

ageing kidneys. They are unlikely to suffer severe kidney failure. For other patients, it is difficult to say. Your Nephrologist may be able to give a rough estimate if he has access to the blood and urine tests over previous years.

## What is the treatment for CKD?

Although there is no cure for CKD, treatment is important to try to eliminate the cause of CKD and to reduce the rate of progression of decline in renal function. It is beneficial to review the diet and lifestyle to reduce the risk of stroke and heart attack.

There are some things that **everyone** with CKD should try to do. These are:

- Lose weight (if overweight), and take regular exercise;
- Stop smoking;
- Reduce the amount of salt in the diet in order to help control the blood pressure;
- Eat a healthy balanced diet;
- Drink about 2 litres of fluid a day (2 litres is about 10 cups or 6 mugs). There is no benefit in drinking large amounts of fluid, except in people who get lots of urine infections, or in a few other special cases;
- Patients should avoid binge drinking and be vigilant in replacing extra fluid losses in hot weather and during episodes of diarrhoea or vomiting;
- Consider buying an automatic blood pressure monitor to check the blood pressure at home;
- Have an annual 'flu jab (influenza vaccination), and have the pneumonia; (pneumococcal) vaccine once. Talk to your GP about this;
- Avoid certain painkillers: non-steroidal inflammatory drugs NSAIDS such as ibuprofen. Discuss with your doctor if this is difficult;
- Patients in whom initial urinalysis reveals non-visible/microscopic haematuria should have a urine culture performed to exclude a urinary tract infection;
- Seek early treatment with antibiotics if you are prone to urine infection (frequent need to urinate, burning sensation on urinating, aches in the bladder or loin, smelly urine).

## Treatment for early CKD stages 1, 2 and 3

The blood pressure should be treated carefully. If it is above 140/85, tablets are usually needed, and the aim is to get the blood pressure down to 130/80 or lower. The cholesterol should be checked, and some people will be advised to take a daily aspirin tablet. A blood test to check eGFR should be performed once a year. CKD stage 3 requires more careful monitoring for declining kidney function with 6 then 12 monthly monitoring of creatinine, potassium, Hb, urinary protein and assessment of cardiovascular risk.

If the urine tests **(ACR above 70)** show a lot of protein in the urine, or the kidney function is declining fast over time, the case will be discussed with a kidney specialist, or a referral may be made to a kidney specialist. It may then be appropriate to use specific blood pressure tablets like Angiotensin-Converting Enzyme (ACE) inhibitors or Angiotensin Receptor Blockers (ARB) and aim for a lower blood pressure target. In a few cases, they can affect the kidneys and they may be stopped. Your doctor will check your eGFR within 2 weeks of starting you on these drugs.

If someone with CKD also has diabetes, extra care to control the blood pressure, blood sugar levels and cholesterol levels is required. More intensive monitoring will be performed, including extra urine tests to look for albumin in the urine. This is because CKD can be a complication of diabetes. However, CKD does not cause diabetes.

## Treatment for advanced CKD stages 4 and 5

Treatment as for CKD stages 1-3. Additionally, any medications should be reviewed, as the dose may need to be altered and some drugs may need to be avoided as they could damage the kidneys further. This should include prescribed drugs and any drugs bought at the chemist and complementary therapies. In CKD stages 4 and 5 it is usually necessary to get advice from a kidney specialist, especially in stage 5 because kidney failure may become life threatening. This is because there are increasing symptoms (described earlier) and complications due to the weakening kidneys such as anaemia and bone disease. Changes to the diet and starting new drugs will often be advised.

## What if the kidney function becomes increasingly worse?

In the few people with declining kidney function that are progressing to CKD stage 5, a treatment plan should be made with a kidney specialist team well before CKD stage 5 is reached. Patients need information, time and counselling to help them decide on the most appropriate option for them and to be ready for any dialysis and transplantation. Very elderly patients may choose not to go for dialysis.

There are also several books and other aids that give information and help make a decision about the best treatment, some of which are available from the National Kidney Federation (for a FREE copy of 'Help I've got Kidney Failure' by Dr Rob Higgins, phone the NKF Helpline on 0800 169 0936 (Local charge within the UK).

## Who looks after patients with CKD?

Most patients in CKD stage 1, 2 and 3 will be monitored yearly and sometimes twice yearly by their GP. On each visit, expect blood pressure measurement, urine and blood tests and a review of your medications. Any point of concern may lead to a referral to the Nephrologist for a review. Patients with stage 4 and 5 may still be reviewed by the GP twice yearly if they are well and the results stable. Otherwise, they are referred to the nephrology team of consultants, specialist nurses and dieticians for regular follow-up.

## Leading a normal life with CKD

Most people with CKD should be able to lead normal lives. CKD does not normally run in families and routine family screening is not necessary if one person is affected. However, some specific types of kidney disease do run in families, and people should check with their health care team to see if testing of family members is needed.

## Further Information

For more information or clarification please contact:

**024 7696 7777** (Renal unit Mon-Sat, 8.00am-8.00pm)
**024 7696 8256; 024 7696 8258** (Ward 50 at night and on Sundays)
**024 7696 7786** (Renal Clinical Nurse Specialists, answer phone call back service)
**024 7696 8315** (Renal Secretaries Mon- Friday 8.00am – 17:00pm)

**National Kidney Federation** 0800 169 0936
www.kidney.org.uk

# Patient Information

The Trust has access to interpreting and translation services. If you need this information in another language or format, please contact 024 7696 7777 and we will do our best to meet your needs.

The Trust operates a smoke free policy

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