Patient Information

University Hospitals Coventry and Warwickshire NHS Trust

Renal

Chronic Kidney Disease (CKD): everything you need to know

What is CKD?

“Kidney disease” is a term used by doctors to describe when your kidneys do not work as well as they should. “Chronic” means a long-term condition that does not get completely better.

Some people think that “chronic” means severe. This is not always true. Some patients with CKD have more severe disease, but most patients with CKD have only a very slight kidney problem.

In the past, doctors have used the term “chronic kidney failure” (CRF) for the same condition.

How common is CKD?

Mild to moderate CKD is very common. Recent research suggests that 1 in 10 people may have CKD. However, CKD is less common in young adults, being present in 1 in 50 people.

In people aged over 75 years old, CKD is present in 1 in 2 people. However, many of these people with CKD may not have diseased kidneys. CKD may be due to normal ageing of their kidneys.

Severe kidney failure will not happen with normal ageing of your kidneys. Kidney failure is when your kidneys stop working well enough to keep you healthy. There is an increased risk of kidney failure if you have CKD and high blood pressure, heart disease or a stroke. Regular medical checks can monitor you for these issues.

What causes CKD?

There are many causes of CKD. The most common causes are ageing of your kidneys and diabetes. Very few of the causes of CKD are curable but they may be controlled.

Regular blood tests will be taken to check whether your kidney function is stable. You will have a kidney scan, if we find reduced kidney function, high blood pressure, protein leak in your urine or problems such as kidney pain.

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).

More information about causes of CKD

We have leaflets available for some of these conditions. Please ask our team for more information.

- **Diabetes mellitus:** this directly damages the structure and function of your kidneys and is the most common cause.
- **Renovascular disease:** or **“**renal artery stenosis” (narrowing of the blood vessels of the kidney).
- **Hypertension:** or “high blood pressure” is both a cause and consequence of kidney failure
- **Glomerulonephritis:** a chronic inflammation of the glomeruli (filters) of the kidneys.
- **Genetic disorders:** these are usually inherited. An example is adult Polycystic Kidney Disease (PKD)
- **Urological disorders**: urinary problems such as enlargement of the prostate gland (in men), reflux nephropathy and urinary tract infections

How do you know if you have CKD?

Usually, CKD does not cause any symptoms. It is only detected through tests. These may be urine tests for blood or protein, an ultrasound scan of your kidneys, or a blood test to measure kidney function.

Symptoms develop slowly and do not appear until most of your kidney tissue has been damaged. The rate at which kidney failure worsens can vary from person to person. Do not think that not having symptoms means that CKD has not gotten worse. This is why regular tests by your doctor are very important.

What are the symptoms of advanced CKD?

- fatigue and general weakness
- lack of concentration
- restless legs and muscle cramps
- itchy skin
- poor sleep
- nausea (feeling sick), vomiting
- unpleasant taste in the mouth
- loss of appetite and weight loss
- shortness of breath
- swollen ankles

How is advanced CKD diagnosed and monitored?

CKD is diagnosed and monitored by either your GP or nephrologist (kidney specialist). This is informed by your medical history and the following tests.

In the early stages of CKD, people may be unaware that they have it and a blood or urine test may be the only way it is found.

Urine tests

Your urine will be tested for certain substances, such as albumin (a type of protein) and blood. Extra albumin in the urine is due to chronic damage to your kidneys. It is measured using a 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 measuring the level of a substance called creatinine in your blood.

A normal eGFR is about 90 to120 ml/min in adults. The eGFR is sometimes referred to as the percentage of normal kidney function as the number is about the same.

If a 40 year old adult with normal kidneys has a GFR of 100 ml/min, and this falls by about 1 ml/min per year from that age (as it is thought to), many healthy people aged 75 will have an eGFR of 50 to 60 ml/min.

Other blood tests

Other substances in the blood like urea, potassium and phosphate are also measured; high levels and can cause illness. Other blood tests, such as haemoglobin and PTH, are carried out to detect anaemia and renal (kidney) bone disease which may happen in advanced CKD.

Cardiovascular risk

People with CKD are at an increased risk of heart disease, stroke, and poor circulation (peripheral vascular disease). Cardiovascular risk factors like smoking, cholesterol and blood pressure will be monitored closely and you will be given medicine where needed.

Patients who are having antihypertensive or lipid lowering therapy should have their renal function assessed annually.

Ultrasound scan

You may have an ultrasound scan to check the size of your kidneys and check for signs of any problems. This may provide information to help with your diagnosis and can help us understand the likelihood of further kidney function decline.

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 to 89 with some sign of kidney damage. If all the other kidney tests are normal, there is no CKD.
- **CKD stage 3:** a mild-moderate degree of impairment in kidney function occurs in this stage. This is subdivided in to 3a (eGFR 45 to 59) and 3b (eGFR 30 to 44) because we now know that patients in 3b have increased rate of cardiovascular diseases (heart attacks, strokes, narrowing of other arteries). Despite the mild impairment, only a minority of patients progress to end stage kidney failure. Most patients with stage 3a CKD can be treated in a GP, but 3b patients need to be reviewed by a GP and then referred to the hospital kidney specialist (nephrologist). This depends on risk factors.

  Some patients need further investigation where there are signs that progression to end stage renal failure (stage 5) is likely.
- **CKD stage 4:** this is where eGFR is between15 to 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 kidneys get worse?

It depends on individual patients and their CKD causes. Remember that people without kidney disease lose 1ml/min a year due to natural ageing.

The kidneys of many CKD patients over 75 years old will get worse 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 an estimate if they can access your blood and urine tests from past years.

What is the treatment for CKD?

Although there is no cure for CKD, treatment is important to try and stop what has caused CKD and to reduce the rate of decline in kidney function. It will help to review your diet and lifestyle to reduce the risk of stroke and heart attack.

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

- Lose weight (if overweight) and take regular exercise.
- Stop smoking
- Reduce the amount of salt in your diet to help control your blood pressure
- Eat a healthy balanced diet
- Drink about 2 litres of fluid a day. 2 litres are 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 other special cases.
- You should not binge drink and be cautious in replacing extra fluid losses in hot weather and during times of diarrhoea or vomiting.
- Buy an automatic blood pressure monitor to check your 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 some types of painkillers: non-steroidal inflammatory medications (NSAIDS) such as ibuprofen should be avoided. Ask your doctor if you are unsure.
- Patients in whom initial urine dipstick reveals non-visible, or “microscopic”, haematuria (blood in the urine) should have a urine culture performed to exclude a urinary tract infection.
- Seek early treatment with antibiotics if you are prone to urine infection. Symptoms of urine infections can include 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

Blood pressure should be treated carefully. If it is above 140/85, tablets are usually needed. The aim is to get your blood pressure down to 130/80 or lower.

Your 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. You should have a 6 month (then 12 monthly if stable) monitoring check of blood creatinine, potassium, and haemoglobin (Hb), urinary albumin (protein), blood pressure and assessment of cardiovascular risk.

If your urine tests show a lot of protein in the urine, or your kidney function is declining fast over time, this should be discussed with a kidney specialist (nephrologist), 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, those drugs can affect the kidneys and may need to be stopped. Your doctor should check your blood creatinine and eGFR within 2 weeks of starting you on these drugs.

If someone with CKD also has diabetes, extra care to control blood pressure, blood sugar levels and cholesterol levels is required. This will need intensive monitoring, 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 should be as for CKD stages 1-3. All medicines should be reviewed as their doses may need to be altered. Some medicines may need to be avoided as they can damage the kidneys further. This review should include prescribed medicines, any medicines bought at the chemist and complementary therapies.

In CKD stages 4 and 5, advice from a kidney specialist is usually necessary, especially in stage 5. This is because kidney failure may become life threatening. There are increasing symptoms (described earlier) and complications such as anaemia and bone disease due to the weakening kidneys. Diet changes and starting new medicines will often be advised.

What if the kidney function continues getting worse?

In the few people with declining kidney function that are progressing to CKD stage 5, a treatment plan should be made with the kidney specialist team. This should happen 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 help prepare for any dialysis and transplantation. Elderly or very frail patients may choose not to have dialysis. This is a reasonable decision and is called supportive care.

Resources that can help with your decisions

Kidney Care UK www.kidneycareuk.org Phone: 01420 541 424

Chronic Kidney Disease Explained https://ckdexplained.co.uk/information-for-patients-with-ckd/

National Kidney Federation www.kidney.org.uk Phone: 0800 169 0936

Who cares for patients with CKD?

Most patients in CKD stage 1, 2 and 3 will be checked yearly and sometimes twice a year by their GP. On each visit, you should expect blood pressure measurement, urine and blood tests and a review of your medicines. Any point of concern may lead to a referral to a kidney specialist (nephrologist) for a review.

Some patients with CKD stage 4 or 5 may still be reviewed by the GP twice a year if they are well and their results are 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 is not usually hereditary (inherited from family members) and routine family screening is not necessary if one person is affected. However, some specific types of kidney disease are hereditary, and people should check with their GP or hospital specialists to check family member testing is needed.

Contact information

For more information, or if you have questions, please phone:

024 7696 7777 - Renal Unit, Monday to Saturday, 8am to 8pm)

024 7696 8256 / **024 7696 8258** - Ward 50 at night and on Sundays

024 7696 7786 - Clinical Nurse Specialists, voicemail call back service

024 7696 8315 - Renal Secretaries, Monday to Friday 8am to 5pm

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