



## NEPHROLOGY SERVICES

Nephrology is a branch of internal medicine that focuses on the overall health and function of the kidneys, including diagnosis and treatment of kidney conditions. The kidneys are bean-shaped organs located on either side of the spine, right below the ribcage behind the abdomen, and play a vital role within the human body. This role includes:

Filtering the blood, which happens several times in a day

Removing toxic substances from the body

Reabsorption and distribution of nutrients from the blood

Maintenance of overall balance of body fluids

Maintaining the right quantities of electrolytes

Hormones creation to regulate blood pressure and promote bone health among others.

Kidney Diseases

The kidneys can be affected by a number of diseases, which can either be medical or environmental. These conditions may lead to functional and structural issues. Some of the symptoms associated with kidney conditions include:

Swollen ankles as a result of fluid retention

Shortness of breath

Nausea

Chest pain

Fatigue and drowsiness

Loss of appetite

High blood pressure

Change in urination

Itchy skin

Common Causes of Kidney Conditions

When the function of the kidney is compromised, then that is considered as a kidney disease. This damage to the kidney can worsen over time, even sometimes years. The impaired function to the kidneys can be caused by:

Lack of blood flow to the kidneys which may be caused by severe infections, severe burns, allergies, dehydration, and heart disease.

Infections in the kidney

Overuse of drugs and alcohol

Autoimmune diseases like lupus

Toxins overload

Blood clots in the kidneys

Inflamed blood vessels

Diabetes

High blood pressure

Viral illnesses

Defects at birth

## Common Kidney Conditions

There are many different types of kidney conditions, which are categorized into two:

### Acute Kidney Disease

### Chronic Kidney Disease

### Acute Kidney Disease

Acute kidney disease occurs when the kidneys suddenly stop functioning for a short period of time. This can range from one day to a few weeks. The lack of blood filtration leads to the accumulation of toxins and electrolytes in the body which can be severe.

Also known as acute kidney injury or acute kidney failure, the condition can be reversible, although it may require immediate treatment. Diagnosis of the condition is done through blood and urine tests. Some of the causes of acute kidney disease include:

Obstruction in the urinary tract

Blood loss

Sudden and severe infection

Dehydration

Liver failure

Toxicity from certain medications

Autoimmune kidney disorders

Blood clots

Treatment of Acute Kidney Disease

After a definite diagnosis of acute kidney failure, the treatment options are recommended depending on the underlying cause. The treatment options for acute kidney failure include:

Medication that can control minerals in the blood

Adopting a diet which has less potassium and salt

Hemodialysis

Chronic Kidney Disease

Also known as chronic kidney failure, chronic kidney disease is the loss of function of the kidneys over a long period of time. If the problem is not addressed earlier, then the patient may suffer permanent kidney failure, which is not reversible.

Chronic kidney disease can go undiagnosed for a long period of time due to the minimal symptoms it presents. It only becomes apparent when the symptoms become quite severe due to the impairment of the kidney functions.

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Some of the common causes of chronic kidney disease include:

High blood pressure

Polycystic kidney disease. This is a genetic condition that occurs as a result of cysts in both kidneys.

Diabetes: Type 1 or type 2

Obstruction of the urinary tract due to kidney stones, tumors, or enlarged prostate

Kidney stones. This is a very common kidney condition that occurs when substances in the blood form stones in the kidneys. These stones are usually passed out during urination.

Cardiovascular disease

Genetics. History of kidney disease in the family

Aging

The common symptoms of chronic kidney disease include:

Low urine output

Blood in the urine

Persistently itchy skin

Tiredness

Swollen feet and ankles

Nausea

Loss of appetite

High blood pressure

Breathlessness

Trouble sleeping

Muscle cramps

Chronic kidney disease is usually diagnosed through blood and urine tests, imaging, and through a biopsy.

Treatment of Chronic Kidney Disease

At the moment, there is no one particular cure of chronic kidney disease, but there are treatment options for the symptoms. These include:

Taking an array of medications including antihistamines for itchy skin, iron supplements and blood transfusion for anemia, blood pressure medications, anti-nausea medications, and home remedies including a diet low in proteins and phosphates.

If the kidneys have reached the end-stage, which means they are functioning at less than 15% capacity, the patient would need to undergo routine dialysis (hemodialysis or peritoneal dialysis), or a kidney transplant in order to live.

Kidney Clinic at King's

Nephrology (kidney disease) specialists at QuickCare Hospital are kidney physicians who provide a complete range of consultation, diagnosis, and treatment for patients with kidney diseases. The scope of care encompasses all stages of kidney disease, from the earliest detectable c

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KIDNEY FAILURE



Kidney failure also known as renal failure occurs when both of the kidneys are unable to filter and clean blood. This can result in dangerous levels of waste products piling up and if left untreated it can be life-threatening.

Kidneys are the two organs which take up the shape of a bean but are the size of a fist. They are located at the back of the stomach on either side of the spine. The work of kidneys is to clean waste products from blood by making urine. They also work by balancing the amount of various elements in the blood such as potassium, sodium and calcium and make hormones which control red blood cells and blood pressure.

Kidney or renal failure is when the kidneys do not work as they should. However, the term 'kidney failure' covers a lot of conditions and it can result when:

The kidneys fail to get enough blood to filter

The kidney is hurt by a disease such as:

Diabetes (high blood sugar)

High blood pressure

Glomerulonephritis which is damage to the kidney's filters

Polycystic kidney disease

The kidney is blocked by scar tissue or kidney stones

Symptoms of Kidney Failure

The symptoms of renal failure usually differ depending on how worse the problem is, how it is escalating and the cause of it.

There are 2 main types of renal failure:

Acute (sudden)

Chronic (over time)

Acute Renal Failure (ARF)

This happens when the kidneys suddenly stop the filtering of waste products from the blood.

The symptoms of acute renal failure (ARF) include:

Internal bleeding

Oedema, which is swelling of the face, hands and feet

Seizures

Confusion

High blood pressure

Abnormal urine and blood tests

Coma

Chronic Renal Failure (CRF)

Chronic renal failure has very few symptoms in its early stages and tends to build slowly.

Usually a CRF patient may not have any signs of the condition until the kidney function declines to about 20% or sometimes less. That is when symptoms such as these appear:

High blood pressure

Abnormal urine and blood tests

Unexplainable weight loss

Anaemia (low red blood cell count)

Nausea

Vomiting

Loss of appetite

Metal taste in the mouth

Chest pains

Shortness of breath

Tingling and numbness sensation

Oedema (swelling of the face, hands and feet)

Easy bruising

Muscle cramps and twitching

Weak bones which easily break

Change of skin colour

Confusion

Seizures

Headaches

Fatigue

Itching

Trouble sleeping

Coma

Causes of Kidney Failure

Acute renal failure can be caused by:

Swelling of the kidney due to a reaction to an infection or drug

Low blood flow caused by an accident or after a complicated surgery

Sudden blockage which can be caused by a kidney stone

Very high blood pressure

With acute renal failure, once the cause is treated, the kidney can return to its normal or near normal function.

Chronic renal failure is the total loss of kidney function and some of the causes include:

Kidney damage (chronic glomerulonephritis)

High blood pressure

Diabetes (high blood sugar)

Kidney infection

Polycystic kidney disease

Blocked urinary tract

Diagnosis of Kidney Failure

Kidney failure can be detected through a blood test known as creatinine level. Creatinine is a molecule that is made by the muscles. Kidneys normally remove extra creatinine from the blood and gets rid of it in urine. However, if the creatinine levels in the blood are higher than usual, it shows that the kidneys

are not cleaning the blood as they should. This test is good at spotting if something is wrong with the kidneys before a patient who has kidney failure feels sick.

Other ways of diagnosing kidney failure include:

**URINE VOLUME MEASUREMENTS:** This is one of the simplest tests that is used to diagnose kidney failure. If a patient is experiencing low urinary output, it can suggest that kidney disease may be due to a urinary blockage which can be caused by injuries or multiple illnesses.

**URINALYSIS:** This involves taking a urine sample and testing it for any abnormalities such as abnormal sugar or protein that spills into the urine.

**IMAGING:** Images of the kidneys and the urinary tract can be seen via imaging tests such as CT scans, MRIs and ultrasounds thus allowing your physician to look for abnormalities and blockages in your kidneys.

### Treatment for Kidney Failure

Treating acute renal failure involves treating the cause which can be high blood sugar, kidney stone or high/low blood pressure.

With chronic renal failure, treating the cause which can be high blood sugar and/or high blood pressure can slow down the disease. CRF may lead to end stage kidney disease.

Dialysis or a kidney transplant is often needed if the kidney function falls below 10% of normal. This is more so if you are having symptoms of uraemia which is the build-up of waste in the blood such as itching and nausea.

### Dialysis

Dialysis involves pumping the blood through a machine to filter out the waste and then return the blood to your body. There are two types of dialysis: Haemodialysis and Peritoneal dialysis.

**HAEMODIALYSIS:** This involves a catheter or tube being stuck in one of the neck veins or an arm or leg. Haemodialysis can be done 3 times a week with each session lasting 3 to 4 hours at a time.

**PERITONEAL DIALYSIS:** This type of dialysis is done through a tube that is permanently set in the belly.

Most adult patients undergo dialysis in an outpatient haemodialysis centre while children can have peritoneal dialysis done at home.

### Kidney Transplant

A kidney transplant involves a surgeon putting a healthy kidney from a donor (another person) into your body. This is usually the best way to treat end stage kidney failure in many patients.

Kidneys for transplant are donated by healthy individuals who are called living donors or from individuals who agree to donate their kidneys when they die (deceased donors). Living donors are most likely family members of the patient. The waiting time for a kidney transplant from a living donor is usually shorter than that from a deceased donor. This due to the fact that there is usually a waiting list for kidneys from deceased donors and the patients are usually more than the donors.

#### Kidney Clinic at QUICKCARE

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