



ROYAL COLLEGE  
RED CROSS SOCIETY



# NON – COMMUNICABLE DISEASES



HealthFirst

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# THE HEALTHFIRST MAGAZINE SERIES

The HealthFirst Magazine series is a set of publications which are published by the Royal College Red Cross Society as a free of charge publication. This Magazine series includes 5 magazines under the topics of First Aid in Emergencies, Importance of Mental Health, Laws related to children in Sri Lanka, Importance of Physical Health and Non Communicable Diseases.

This project is being concluded to provide good knowledge about non-identical health related topics as mentioned above for students, teachers and parents in Sri Lanka as the country is going through a global pandemic. The main intention of this magazine series is to generate a new link for the community to have a healthy life. Healthy living means maintaining a healthy lifestyle and introducing habits that improve your health. It might be difficult for you to change the usual habits at once but you can always take new steps to become more healthier. An important first step is identifying less healthy habits and learning new, positive ones to replace them. The HealthFirst Magazine which consists of 5 different magazines will create a new path to be healthy for not only the students alone but also for each and every individual in the country.

HealthFirst Magazine series consists of Health tips, Health-related articles from doctors, articles from the members of the Royal College Red Cross Society and many more important health-related information and facts which will be useful for all the readers. We cordially invite you to refer to these magazines.

**Nethul Tennakoon,  
Editor,  
HealthFirst Magazine.**

# Non-Communicable Diseases (NCDs)

## What are NCDs?

Non-Communicable Diseases (NCDs) are a form of chronic diseases origins due to long -duration exposure to multiple risk factors. These NCDs do not get transmitted from a person to another person.

## What are the causes of NCDs?

These diseases are caused by the result of a combination of causes. Mainly genetic, environmental, and behavioral factors.

## What are the major risk factors for NCDs?

- Modifiable behavioral risk factors
- Tobacco use
- Harmful use of Alcohol
- Physical inactivity
- Unhealthy diet

## Metabolic risk factors

- Increased blood pressure
- Increased glucose levels
- Increased body weight (obesity)
- Increased blood cholesterol

## What are the main types of NCDs?

Four main diseases are generally considered:

1. Cardiovascular diseases (includes heart disease and stroke)
2. Diabetes
3. Cancer
4. Chronic lung diseases (includes chronic obstructive pulmonary disease and asthma)

## Who are affected by NCDs?

People of all age groups, regions, and countries are at risk of NCDs. These conditions are often associated with older age groups. However, even children and young adults are vulnerable to NCDs if they continued to get exposed to risk factors. Poverty is closely linked with NCDs and a rapid rise in NCDs are reported in low and middle-income countries.

## **What is the burden of the NCDs?**

- Non-communicable diseases (NCDs) are collectively responsible for over 41 million human deaths, which is nearly 71% of all deaths worldwide.
- Over 15 million of all NCD deaths are people between the ages of 30 and 69 years and are referred to “Premature” deaths.
- Nearly 85% of above “Premature” deaths due to NCDs occur in low and middle-income countries
- Cardiovascular diseases account for most of the NCD deaths or 17.9 million people annually, followed by cancers (9.3 million), lung diseases (4.1 million), and diabetes (1.5 million).
- Sri Lanka as a middle-income country or a developing country shows a rising trend of NCDs.
- NCD have become the leading cause deaths in Sri Lanka NCD's are estimated to cause 83% of all deaths in the year 2016.

## **Are young people like us at risk of NCDs?**

Yes. Teenagers are also at risk of getting NCDs.

## **What can we do to prevent NCDs?**

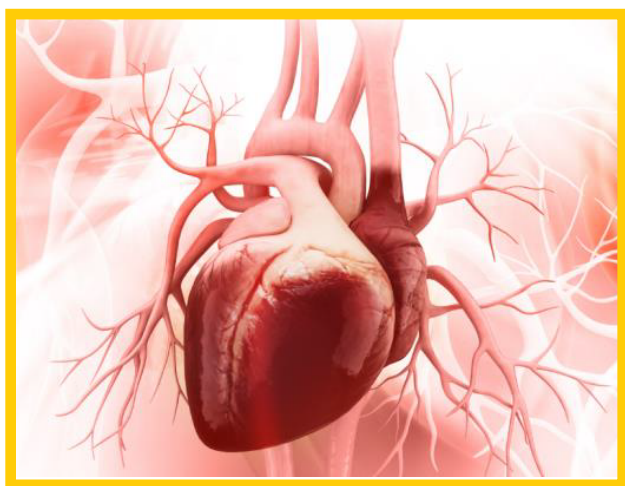
The most important way to prevent and control NCDs is to focus on reducing the risk factors associated with these diseases.

- Do not smoke or use any form of tobacco
- Do not consume alcohol.
- Engage in regular physical exercises and maintain an active lifestyle.
- Have a balanced healthy diet – Avoid high sugar and high-fat diets. Limit the use of salt. Consume plenty of fresh fruits and vegetables.
- Avoid exposure to air pollution especially to indoor air pollution
- Regular checkup of blood sugar, cholesterol, and blood pressure (Recommended after 35 years).

**Dr. Mahesh Kumbukage**  
**Postgraduate trainee in Community Medicine**  
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# Heart Disease

Heart disease refers to any condition affecting the heart. There are many types, some of which are preventable. Unlike cardiovascular disease, which includes problems with the entire circulatory system, heart disease affects only the heart.



## Types

There are several different types of heart disease, and they affect the heart in different ways. The sections below will look at some different types of heart disease in more detail.

### Coronary artery disease

Coronary artery disease, also known as coronary heart disease, is the most common type of heart disease.

It develops when the arteries that supply blood to the heart become clogged with plaque. This causes them to harden and narrow. Plaque contains cholesterol and other substances.

As a result, the blood supply reduces, and the heart receives less oxygen and fewer nutrients. In time, the heart muscle weakens, and there is a risk of heart failure and arrhythmias.

When plaque builds up in the arteries, this is called atherosclerosis.

### Congenital heart defects

A person with a congenital heart defect is born with a heart problem. There are many types of congenital heart defect, including:

- **Abnormal heart valves:** Valves may not open properly or may leak blood.
- **Septal defects:** There is a hole in the wall between either the lower chambers or the upper chambers of the heart.
- **Atresia:** One of the heart valves is missing.

Congenital heart disease can involve major structural issues, such as the absence of a ventricle and problems with the main arteries that leave the heart. Many congenital heart problems do not cause any noticeable symptoms and only become apparent during a routine medical check.

### Arrhythmia

Arrhythmia refers to an irregular heartbeat. It occurs when the electrical impulses that coordinate the heartbeat do not work properly. As a result, the heart may beat too fast, too slowly, or erratically.

There are various types of arrhythmia, including:

- **Tachycardia:** This refers to a rapid heartbeat.
- **Bradycardia:** This refers to a slow heartbeat.



• **Premature contractions:** This refers to an early heartbeat.

• **Atrial fibrillation:** This is a type of irregular heartbeat.

A person may notice a feeling like a fluttering or a racing heart.

Brief changes in heart rhythm are not a cause for concern, but treatment will be necessary if they persist, as this can affect the heart's function.

In some cases, arrhythmias can even be life threatening.

### **Dilated cardiomyopathy**

In dilated cardiomyopathy, the heart chambers become dilated, meaning that the heart muscle stretches and becomes thinner. The most common causes of dilated cardiomyopathy are prior heart attacks, arrhythmias, and toxins.

As a result, the heart becomes weaker and cannot pump blood properly. It can result in arrhythmia, blood clots in the heart, and heart failure.

It usually affects people aged 20–60 years, according to the AHA.

### **Myocardial infarction**

Also known as heart attack, myocardial infarction involves an interruption of the blood flow to the heart. This can damage or destroy part of the heart muscle.

The most common cause of heart attack is plaque, a blood clot, or both in a coronary

artery. It can also occur if an artery suddenly narrows or spasms.

## **Are there different types of heart attack?**

### **Heart failure**

When a person has heart failure, the heart is still working but not as well as it should. Congestive heart failure is a type of heart failure.

Heart failure can result from untreated coronary artery disease, high blood pressure, arrhythmias, and other conditions. These conditions can affect the heart's ability to pump properly.

Heart failure can be life threatening, but seeking early treatment for heart-related conditions can help prevent complications.

### **Hypertrophic cardiomyopathy**

This condition usually develops when a genetic problem affects the heart muscle. It tends to be an inherited condition.

The walls of the muscle thicken and contractions become harder. This affects the heart's ability to take in and pump out blood. In some cases, an obstruction can occur. There may be no symptoms, and many people do not receive a diagnosis. However, hypertrophic cardiomyopathy can worsen over time and lead to various heart problems.

Anyone with a family history of this condition should ask for screening, as receiving treatment can help prevent complications.

Hypertrophic cardiomyopathy is the main cause of cardiac death among athletes and people aged under 35 years.

### **Mitral valve regurgitation**

This event occurs when the mitral valve in the heart does not close tightly enough and allows blood to flow back into the heart. As a result, blood cannot move through the heart or the body efficiently, and it can put pressure on the veins leading from the lungs to the heart. In time, the heart can become enlarged and heart failure may result.

### **Mitral valve prolapse**

This happens when the valve flaps of the mitral valve do not close properly. Instead, they bulge into the left atrium. This can cause a heart murmur.

Mitral valve prolapse is not usually life threatening, but some people may need treatment.

Genetic factors and connective tissue problems can cause this condition, which affects around 2% of the population.

### **Aortic stenosis**

In aortic stenosis, the pulmonary valve is thick or fused and does not open properly. This makes it hard for the heart to pump blood from the right ventricle into the pulmonary artery.

In aortic stenosis, the aortic valve opening is too narrow, restricting blood flow from the left ventricle to the aorta. It can also impact the pressure in the left atrium.

A person may be born with it, or it may develop over time due to calcium deposits or scarring.

### **Symptoms**

The symptoms of heart disease depend on the specific type a person has. Also, some heart conditions cause no symptoms at all. The following symptoms may indicate a heart problem:

- angina, or chest pain
- difficulty breathing
- fatigue and lightheadedness
- swelling due to fluid retention or edema

In children, the symptoms of a congenital heart defect may include cyanosis, or a blue tinge to the skin, and an inability to exercise. Some signs and symptoms that could indicate heart attack include:

- chest pain
- breathlessness
- heart palpitations
- nausea
- stomach pain
- sweating
- arm, jaw, back, or leg pain
- a choking sensation
- swollen ankles
- fatigue
- an irregular heartbeat



Heart attack can lead to cardiac arrest, which is when the heart stops and the body can no longer function. A person needs immediate medical attention if they have any symptoms of heart attack.

If cardiac arrest occurs, the person will need

- immediate medical help
- immediate cardiopulmonary resuscitation
- a shock from an automated external defibrillator, if available

## Causes

Heart disease develops when there is:

- damage to all or part of the heart
- a problem with the blood vessels leading to or from the heart
- a low supply of oxygen and nutrients to the heart

In some cases, there is a genetic cause. However, some lifestyle factors and medical conditions can also increase the risk. These include:

- high blood pressure
- high cholesterol
- smoking
- a high intake of alcohol
- overweight and obesity
- diabetes
- a family history of heart disease
- dietary choices
- age
- a history of preeclampsia during pregnancy
- low activity levels
- high stress and anxiety levels

The World Health Organization (WHO) mention poverty and stress as two key factors contributing to a global increase in heart and cardiovascular disease.

## Treatments

The treatment options will vary depending on the type of heart disease a person has, but some common strategies include making lifestyle changes, taking medications, and undergoing surgery.

The following sections will look at some of these options in more detail.

## Medications

Various medications can help treat heart conditions. The main options include:

- **Anticoagulants:** Also known as blood thinners, these medications can prevent clots. They include warfarin (Coumadin).
- **Antiplatelet therapies:** These include aspirin, and they can also prevent clots.
- **Angiotensin-converting enzyme inhibitors:** These can help treat heart failure and high blood pressure by causing the blood vessels to expand. Benazepril (Lotensin) is one example.
- **Angiotensin II receptor blockers:** These can also control blood pressure. Valsartan (Diovan) is one example.

- **Angiotensin receptor neurolysin inhibitors:** These can help open up narrowed arteries to treat heart failure.
- **Beta-blockers:** Atenolol (Tenormin) and other medications in this class can reduce the heart rate and lower blood pressure. They can also treat arrhythmias and angina.
- **Calcium channel blockers:** These can lower blood pressure and prevent arrhythmias by reducing the pumping strength of the heart and relaxing the blood vessels. One example is diltiazem (Cardizem).
- **Cholesterol lowering medications:** Statins, such as atorvastatin (Lipitor) and other types of drug can help reduce levels of low-density lipoprotein cholesterol in the body.
- **Digitalis:** Preparations such as digoxin (Lanoxin) can increase the strength of the heart's pumping action. They can also help treat heart failure and arrhythmias.
- **Diuretics:** These medications can reduce the heart's workload, lower blood pressure, and remove excess water from the body. Furosemide (Lasix) is one example.
- **Vasodilators:** These are medications to lower blood pressure. They do this by relaxing the blood vessels. Nitroglycerin (Nitro Stat) is one example. They can also help ease chest pain.

A doctor will work with the individual to find a suitable option.

Sometimes, side effects occur. If this is the case, it may be necessary to review the medication regimen.

## Surgery

Undergoing heart surgery can help treat blockages and heart problems when medications are not effective.

Some common types of surgery include Trusted Source:

- **Coronary artery bypass surgery:** This allows blood flow to reach a part of the heart when an artery is blocked. Coronary artery bypass grafting is the most common surgery. A surgeon can use a healthy blood vessel from another part of the body to repair a blocked one.
- **Valve replacement or repair:** A surgeon can replace or repair a valve that is not functioning properly.
- **Repair surgery:** A surgeon can repair congenital heart defects, aneurysms, and other problems.
- **Device implantation:** Pacemakers, balloon catheters, and other devices can help regulate the heartbeat and support blood flow.

- **Laser treatment:** Trans myocardial laser revascularization can help treat angina.
- **Maze surgery:** A surgeon can create new paths for electrical signals to pass through. This can help treat atrial fibrillation.

Heart transplants are another option. However, it can be hard to find a suitable donor at the right time.

### Prevention

Some lifestyle measures can help reduce the risk of heart disease. These include:

- **Eating a balanced diet:** opt for a heart-healthy diet that is rich in fiber and favors whole grains and fresh fruits and vegetables. Also, it may help to limit the intake of processed foods and added fat, salt, and sugar.
- **Exercising regularly:** This can help strengthen the heart and circulatory system, reduce cholesterol, and maintain blood pressure.
- **Maintaining a moderate body weight:** A person can check their body mass index (BMI) [here](#).
- **Quitting or avoiding smoking:** Smoking is a major risk factor for heart and cardiovascular conditions.
- **Limiting alcohol intake:** Females should consume no more than one standard drink per day, and males should consume no more than two standard drinks per day.

- **Managing underlying conditions:** Seek treatment for conditions that affect heart health, such as high blood pressure, obesity and diabetes.

Taking these steps can help boost overall health and reduce the risk of heart disease and its complications.

**By: Kalhara Wanniarachchi–After O/L**

## Cancer

Cancer causes cells to divide uncontrollably. This can result in tumors, damage to the immune system, and other impairment that can be fatal.

### What is cancer?



Cancer is a broad term. It describes the disease that results when cellular changes cause the uncontrolled growth and division of cells.

Some types of cancer cause rapid cell growth, while others cause cells to grow and divide at a slower rate.

Certain forms of cancer result in visible growths called tumors, while others, such as leukemia, don't.

Most of the body's cells have specific functions and fixed lifespans. While it may sound like a bad thing, cell death is part of a natural and beneficial phenomenon called apoptosis.

A cell receives instructions to die so that the body can replace it with a newer cell that functions better. Cancerous cells lack the components that instruct them to stop dividing and to die.

As a result, they build up in the body, using oxygen and nutrients that would usually nourish other cells. Cancerous cells can form tumors, impair the immune system and cause other changes that prevent the body from functioning regularly.

Cancerous cells may appear in one area, then spread via the lymph nodes. These are clusters of immune cells located throughout the body.

## **Causes**

There are many causes of cancer, and some are preventable.

For example, over 480,000 people die in the U.S. each year from smoking cigarettes, according to data reported in 2014. In addition to smoking, risk factors for cancer include:

- heavy alcohol consumption
- excess body weight
- physical inactivity
- poor nutrition

Other causes of cancer are not preventable. Currently, the most significant unpreventable risk factor is age.

## **Is cancer genetic?**

Genetic factors can contribute to the development of cancer.

A person's genetic code tells their cells when to divide and expire. Changes in the genes can lead to faulty instructions, and cancer can result.

Genes also influence the cells' production of proteins, and proteins carry many of the instructions for cellular growth and division. Some genes change proteins that would usually repair damaged cells. This can lead to cancer. If a parent has these genes, they may pass on the altered instructions to their offspring.

Some genetic changes occur after birth, and factors such as smoking and sun exposure can increase the risk.

Other changes that can result in cancer take place in the chemical signals that determine how the body deploys, or "expresses" specific genes.

Finally, a person can inherit a predisposition for a type of cancer. A doctor may refer to this as having a hereditary cancer syndrome. Inherited genetic mutations significantly contribute to the development of 5–10 percent of cancer cases.

## Treatments

Innovative research has fueled the development of new medications and treatment technologies.

Doctors usually prescribe treatments based on the type of cancer, its stage at diagnosis, and the person's overall health.

Below are examples of approaches to cancer treatment:

- Chemotherapy aims to kill cancerous cells with medications that target rapidly dividing cells. The drugs can also help shrink tumors, but the side effects can be severe.
- Hormone therapy involves taking medications that change how certain hormones work or interfere with the body's ability to produce them. When hormones play a significant role, as with prostate and breast cancers, this is a common approach.
- Immunotherapy uses medications and other treatments to boost the immune system and encourage it to fight cancerous cells. Two examples of these treatments are checkpoint inhibitors and adoptive cell transfer.
- Precision medicine, or personalized medicine, is a newer, developing approach. It involves using genetic testing to determine the best treatments for a person's particular presentation of cancer. Researchers have yet to show that it can effectively treat all types of cancer, however.
- Radiation therapy uses high-dose radiation to kill cancerous cells. Also, a doctor may recommend using radiation to shrink a tumor before surgery or reduce tumor-related symptoms.
- Stem cell transplant can be especially beneficial for people with blood related cancers, such as leukemia or lymphoma. It involves removing cells, such as red or white blood cells, that chemotherapy or radiation has destroyed. Lab technicians then strengthen the cells and put them back into the body.
- Surgery is often a part of a treatment plan when a person has a cancerous tumor. Also, a surgeon may remove lymph nodes to reduce or prevent the disease's spread.
- Targeted therapies perform functions within cancerous cells to prevent them from multiplying. They can also boost the immune system. Two examples of these therapies are small-molecule drugs and monoclonal antibodies.

Doctors will often employ more than one type of treatment to maximize effectiveness.

## Types

The most common type of cancer is breast cancer, followed by lung and prostate cancers, according to the National Cancer Institute, which excluded nonmelanoma skin cancers from these findings.

Each year, more than 40,000 people in the country receive a diagnosis of one of the following types of cancer:

- bladder
- colon and rectal
- endometrial
- kidney
- leukemia
- liver
- melanoma
- non-Hodgkin's lymphoma
- pancreatic
- thyroid

Other forms are less common. According to the National Cancer Institute, there are over 100 types of cancer.

#### **Cancer development and cell division**

Doctors classify cancer by:

- its location in the body
- the tissues that it forms in

*For example*, sarcomas develop in bones or soft tissues, while carcinomas form in cells that cover internal or external surfaces in the body. Basal cell carcinomas develop in the skin, while adenocarcinomas can form in the breast.

When cancerous cells spread to other parts of the body, the medical term for this is metastasis.

A person can also have more than one type of cancer at a time

Cancer causes cells to divide uncontrollably. It also prevents them from dying at the natural point in their life cycle.

Genetic factors and lifestyle choices, such as smoking, can contribute to the development of the disease. Several elements affect the ways that DNA communicates with cells and directs their division and death.

After non-melanoma skin cancer, breast cancer is the most common type.

However, lung cancer is the leading cause of cancer related death.

Treatments are constantly improving.

Examples of current methods include chemotherapy, radiation therapy, and surgery. Some people benefit from newer options, such as stem cell transplantation and precision medicine.

The diagnosis and death rates of cancer are dropping yearly.

**By: Thinuja Rajapaksha – 12S1**

## **Kidney Disease**

### **What is kidney disease?**

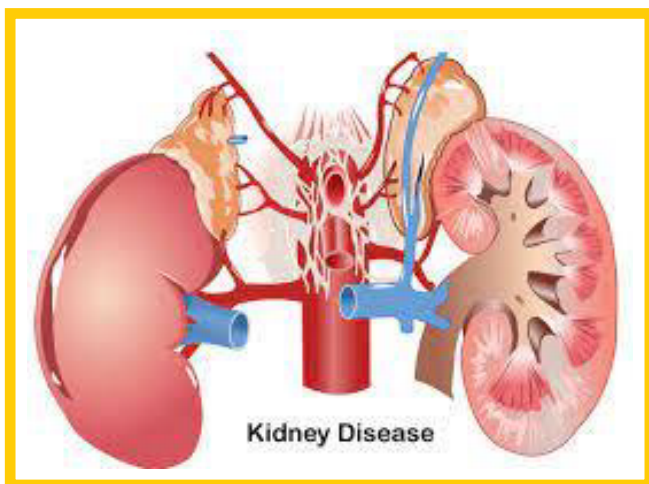
The kidneys are a pair of fist-sized organs located at the bottom of the rib cage. There is one kidney on each side of the spine. Kidneys are essential to having a healthy body. They are mainly responsible for filtering waste products, excess water, and other impurities out of the blood. These toxins are stored in the bladder and then removed during urination. The kidneys also regulate pH, salt, and potassium levels in the body. They produce hormones that regulate



blood pressure and control the production of red blood cells. The kidneys even activate a form of vitamin D that helps the body absorb calcium.

Kidney disease occurs when your kidneys become damaged and can't perform their function. Damage may be caused by diabetes, high blood pressure, and various other chronic (long-term) conditions. Kidney disease can lead to other health problems, including weak bones, nerve damage, and malnutrition.

If the disease gets worse over time, your kidneys may stop working completely. This means that dialysis will be required to perform the function of the kidneys. Dialysis is a treatment that filters and purifies the blood using a machine. It can't cure kidney disease, but it can prolong your life.



## What are the types and causes of kidney disease?

### Chronic kidney disease

The most common form of kidney disease is chronic kidney disease. Chronic kidney disease is a long-term condition that doesn't improve over time. It's commonly caused by high blood pressure.

High blood pressure is dangerous for the kidneys because it can increase the pressure on the glomeruli. Glomeruli are the tiny blood vessels in the kidneys where blood is cleaned. Over time, the increased pressure damages these vessels and kidney function begins to decline.

Kidney function will eventually deteriorate to the point where the kidneys can no longer perform their job properly. In this case, a person would need to go on dialysis. Dialysis filters extra fluid and waste out of the blood. Dialysis can help treat kidney disease but it can't cure it. A kidney transplant may be another treatment option depending on your circumstances.

Diabetes is also a major cause of chronic kidney disease. Diabetes is a group of diseases that causes high blood sugar. The increased level of sugar in the blood damages the blood vessels in the kidneys over time. This means the kidneys can't clean the blood properly. Kidney failure can occur when your body becomes overloaded with toxins.

### Kidney stones

Kidney stones are another common kidney problem. They occur when minerals and other substances in the blood crystallize in the kidneys, forming solid masses (stones). Kidney stones usually come out of the body during urination. Passing kidney stones can be extremely painful, but they rarely cause significant problems.



## **Glomerulonephritis**

Glomerulonephritis is an inflammation of the glomeruli. Glomeruli are extremely small structures inside the kidneys that filter the blood. Glomerulonephritis can be caused by infections, drugs, or congenital abnormalities (disorders that occur during or shortly after birth). It often gets better on its own.

## **Polycystic kidney disease**

Polycystic kidney disease is a genetic disorder that causes numerous cysts (small sacs of fluid) to grow in the kidneys. These cysts can interfere with kidney function and cause kidney failure. (It's important to note that individual kidney cysts are fairly common and almost always harmless. Polycystic kidney disease is a separate, more serious condition.)

## **Urinary tract infections**

Urinary tract infections (UTIs) are bacterial infections of any part of the urinary system. Infections in the bladder and urethra are the most common. They are easily treatable and rarely lead to more health problems. However, if left untreated, these infections can spread to the kidneys and cause kidney failure.

## **What are the symptoms of kidney disease?**

Kidney disease is a condition that can easily go unnoticed until the symptoms become severe.

The following symptoms are early warning signs that you might be developing kidney disease:

- fatigue
- difficulty concentrating
- trouble sleeping
- poor appetite
- muscle cramping
- swollen feet/ankles
- puffiness around the eyes in the morning
- dry, scaly skin
- frequent urination, especially late at night

Severe symptoms that could mean your kidney disease is progressing into kidney failure include:

- nausea
- vomiting
- loss of appetite
- changes in urine output
- fluid retention
- anemia (a decrease in red blood cells)
- decreased sex drive
- sudden rise in potassium levels (hyperkalemia)
- inflammation of the pericardium (fluid-filled sac that covers the heart)

## **What are the risk factors for developing kidney disease?**

People with diabetes have a higher risk of developing kidney disease. Diabetes is the leading cause of kidney disease, accounting for about 44 percent of new cases.

You may also be more likely to get kidney disease if you:

- have high blood pressure
- have other family members with chronic kidney disease
- are elderly
- are of African, Hispanic, Asian, or American Indian descent

### **How is kidney disease diagnosed?**

Your doctor will first determine whether you belong in any of the high-risk groups. They will then run some tests to see if your kidneys are functioning properly. These tests may include:

#### **Glomerular filtration rate (GFR)**

This test will measure how well your kidneys are working and determine the stage of kidney disease.

#### **Ultrasound or computed tomography (CT) Scan**

Ultrasounds and CT scans produce clear images of your kidneys and urinary tract. The pictures allow your doctor to see if your kidneys are too small or large. They can also show any tumors or structural problems that may be present.



### **Kidney biopsy**

During a kidney biopsy, your doctor will remove a small piece of tissue from your kidney while you're sedated. The tissue sample can help your doctor determine the type of kidney disease you have and how much damage has occurred.

### **Urine test**

Your doctor may request a urine sample to test for albumin. Albumin is a protein that can be passed into your urine when your kidneys are damaged.

### **Blood creatinine test**

Creatinine is a waste product. It's released into the blood when creatine (a molecule stored in muscle) is broken down. The levels of creatinine in your blood will increase if your kidneys aren't working properly.

### **How kidney disease is treated?**

Treatment for kidney disease usually focuses on controlling the underlying cause of the disease. This means your doctor will help you better manage your blood pressure, blood sugar, and cholesterol levels. They may use one or more of the following methods to treat kidney disease.

## Drugs and medication

Your doctor will either prescribe angiotensin-converting enzyme (ACE) inhibitors, such as lisinopril and ramipril, or angiotensin receptor blockers (ARBs), such as irbesartan and Olmesartan. These are blood pressure medications that can slow the progression of kidney disease. Your doctor may prescribe these medications to preserve kidney function, even if you don't have high blood pressure.

You may also be treated with cholesterol drugs (such as simvastatin). These medications can reduce blood cholesterol levels and help maintain kidney health. Depending on your symptoms, your doctor may also prescribe drugs to relieve swelling and treat anemia (decrease in the number of red blood cells).

## Dietary and lifestyle changes

Making changes to your diet is just as important as taking medication. Adopting a healthy lifestyle can help prevent many of the underlying causes of kidney disease. Your doctor may recommend that you:

- control diabetes through insulin injections
- cut back on foods high in cholesterol
- cut back on salt
- start a heart-healthy diet that includes fresh fruits, veggies, whole grains, and low-fat dairy products
- limit alcohol consumption
- quit smoking
- increase physical activity
- lose weight

## Dialysis and kidney disease

Dialysis is an artificial method of filtering the blood. It's used when someone's kidneys have failed or are close to failing. Many people with late-stage kidney disease must go on dialysis permanently or until a donor kidney is found.

There are two types of dialysis: hemodialysis and peritoneal dialysis.

### Hemodialysis

In hemodialysis, the blood is pumped through a special machine that filters out waste products and fluid. Hemodialysis is done at your home or in a hospital or dialysis center. Most people have three sessions per week, with each session lasting three to five hours. However, hemodialysis can also be done in shorter, more frequent sessions.

Several weeks before starting hemodialysis, most people will have surgery to create an arteriovenous (AV) fistula. An AV fistula is created by connecting an artery and a vein just below the skin, typically in the forearm.

The larger blood vessel allows an increased amount of blood to flow continuously through the body during hemodialysis treatment. This means more blood can be filtered and purified. An arteriovenous graft (a looped, plastic tube) may be implanted and used for the same purpose if an artery and vein can't be joined together.

The most common side effects of hemodialysis are low blood pressure, muscle cramping, and itching.

## Peritoneal dialysis

In peritoneal dialysis, the peritoneum (membrane that lines the abdominal wall) stands in for the kidneys. A tube is implanted and used to fill the abdomen with a fluid called dialysate. Waste products in the blood flow from the peritoneum into the dialysate. The dialysate is then drained from the abdomen.

There are two forms of peritoneal dialysis: continuous ambulatory peritoneal dialysis, where the abdomen is filled and drained several times during the day, and continuous cycler-assisted peritoneal dialysis, which uses a machine to cycle the fluid in and out of the abdomen at night while the person sleeps.

The most common side effects of peritoneal dialysis are infections in the abdominal cavity or in the area where the tube was implanted. Other side effects may include weight gain and hernias. A hernia is when the intestine pushes through a weak spot or tear in the lower abdominal wall.

## *What is the long-term outlook for someone with kidney disease?*

Kidney disease normally does not go away once it's diagnosed. The best way to maintain kidney health is to adopt a healthy lifestyle and follow your doctor's advice. Kidney disease can get worse over time. It may even lead to kidney failure. Kidney failure can be life-threatening if left untreated.

Kidney failure occurs when your kidneys are barely working or not working at all. This is managed by dialysis. Dialysis involves the use of a machine to filter waste from your blood. In some cases, your doctor may recommend a kidney transplant.

## How can kidney disease be prevented?

Some risk factors for kidney disease — such as age, race, or family history — are impossible to control. However, there are measures you can take to help prevent kidney disease:

- drink plenty of water
- control blood sugar if you have diabetes
- control blood pressure
- reduce salt intake
- quit smoking

## Be careful with over-the-counter drugs

You should always follow the dosage instructions for over-the-counter medications. Taking too much aspirin (Bayer) or ibuprofen (Advil, Motrin) can cause kidney damage. Call your doctor if the normal doses of these medications aren't controlling your pain effectively.

## Get tested

Ask your doctor about getting a blood test for kidney problems. Kidney problems generally don't cause symptoms until they're more advanced. A basic metabolic panel (BMP) is a standard blood test that can be done as part of a routine medical exam. It checks your blood for creatinine or urea.

These are chemicals that leak into the blood when the kidneys aren't working properly. A BMP can detect kidney problems early, when they're easier to treat. You should be tested annually if you have diabetes, heart disease, or high blood pressure.

### **Limit certain foods**

Different chemicals in your food can contribute to certain types of kidney stones.

These include:

- excessive sodium
- animal protein, such as beef and chicken
- citric acid, found in citrus fruits such as oranges, lemons, and grapefruits
- oxalate, a chemical found in beets, spinach, sweet potatoes, and chocolate

### **Ask about calcium**

Talk to your doctor before taking a calcium supplement. Some calcium supplements have been linked to an increased risk of kidney stones.

**By: Savindu Wickramasinghe–After O/L**

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