

Renal failure or Chronic kidney disease(CKD)

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Kidney failure

Kidney failure, also known as end-stage kidney disease, is a medical condition in which the kidneys no longer work .

It is divided into acute kidney failure (cases that develop rapidly) and chronic kidney failure (those that are long term)

Signs and symptoms of kidney disease may include

Signs and symptoms of kidney disease may include:

- Nausea.
- Vomiting.
- Loss of appetite.
- Fatigue and weakness.
- Sleep problems.
- Changes in how much you urinate.
- Decreased mental sharpness.
- Muscle twitches and cramps.

Sign and symptoms of kidney disease

Symptoms may include :

- leg swelling,
- feeling tired,
- vomiting,
- loss of appetite, or confusion.

Complication of kidney disease

Complications of acute disease may include:

- uremia,
- high blood potassium, or volume overload.

Complications of chronic disease may include

- heart disease,
- high blood pressure, or anemia.

Chronic kidney disease, also called chronic kidney failure, describes the gradual loss of kidney function. Your kidneys filter wastes and excess fluids from your blood, which are then excreted in your urine.

Signs and symptoms of chronic kidney disease

Signs and symptoms of kidney disease may include:

- Nausea
- Vomiting
- Loss of appetite
- Fatigue and weakness
- Sleep problems
- Changes in how much you urinate
- Decreased mental sharpness
- Muscle twitches and cramps
- Swelling of feet and ankles
- Persistent itching
- Chest pain, if fluid builds up around the lining of the heart
- Shortness of breath, if fluid builds up in the lungs
- High blood pressure (hypertension) that's difficult to control

Cause chronic kidney disease

Cause chronic kidney disease include:

- Type 1 or type 2 diabetes
- High blood pressure
- Glomerulonephritis (gloe-mer-u-low-nuh-FRY-tis), an inflammation of the kidney's filtering units (glomeruli)
- Interstitial nephritis (in-tur-STISH-ul nuh-FRY-tis), an inflammation of the kidney's tubules and surrounding structures
- Polycystic kidney disease
- Prolonged obstruction of the urinary tract, from conditions such as enlarged prostate, kidney stones and some cancers
- Vesicoureteral (ves-ih-koe-yoo-REE-tur-ul) reflux, a condition that causes urine to back up into your kidneys

Risk factors

Factors that may increase the risk of chronic kidney disease include:

- Diabetes
- High blood pressure
- Heart and blood vessel (cardiovascular) disease
- Smoking
- Obesity
- Being African-American, Native American or Asian-American
- Family history of kidney disease
- Abnormal kidney structure
- Older age

Complications

Chronic kidney disease can affect almost every part of the body. Potential complications may include:

- Fluid retention, which could lead to swelling in your arms and legs, high blood pressure, or fluid in your lungs (pulmonary edema)
- A sudden rise in potassium levels in your blood (hyperkalemia), which could impair your heart's ability to function and may be life-threatening
- Heart and blood vessel (cardiovascular) disease
- Weak bones and an increased risk of bone fractures

- Anemia
- Decreased sex drive, erectile dysfunction or reduced fertility
- Damage central nervous system, which can cause difficulty concentrating, personality changes or seizures
- Decreased immune response, which makes more vulnerable to infection
- Pericarditis, an inflammation of the saclike membrane that envelops the heart (pericardium)
- Pregnancy complications that carry risks for the mother and the developing fetus
- Irreversible damage to kidneys (end-stage kidney disease), eventually requiring either dialysis or a kidney transplant for survival

Prevention

- Follow instructions on over-the-counter medications. When using nonprescription pain relievers
- Maintain a healthy weight.
- Don't smoke
- Manage medical conditions with doctor's help

Acute kidney failure

Acute kidney failure happens when your kidneys suddenly lose the ability to eliminate excess salts, fluids, and waste materials from the blood. Acute kidney failure is also called acute kidney injury or acute renal failure

causes of acute kidney failure

Acute kidney failure can occur for many reasons. Among the most common reasons are:

- acute tubular necrosis (ATN)
- severe or sudden dehydration
- toxic kidney injury from poisons or certain medications
- autoimmune kidney diseases, such as acute nephritic syndrome and interstitial nephritis
- urinary tract obstruction

Reduced blood flow can damage your kidneys. The following conditions can lead to decreased blood flow to your kidneys:

- low blood pressure
- burns
- dehydration
- hemorrhage
- injury
- septic shock
- serious illness
- surgery

Certain disorders can cause clotting within your kidney's blood vessels, and this can lead to acute kidney failure. These conditions include:

- hemolytic uremic syndrome
- idiopathic thrombocytopenic thrombotic purpura (ITTP)
- malignant hypertension
- transfusion reaction
- Scleroderma
- Some infections, such as septicemia and acute pyelonephritis, can directly injure your kidneys.
- Pregnancy can also cause complications that harm the kidneys, including placenta previa and placenta abruption.

- Causes of acute kidney failure include:
 - low blood pressure,
 - blockage of the urinary tract,
 - certain medications,
 - muscle breakdown, and hemolytic uremic syndrome.
- Causes of chronic kidney failure include :
 - diabetes,
 - high blood pressure,
 - nephrotic syndrome, and
 - polycystic kidney disease. Diagnosis of acute disease is often based on a combination of factors such as decrease urine production or increased serum creatinine.

- risk factors for acute kidney failure kidney disease
- liver disease
- diabetes, especially if it's not well controlled
- high blood pressure
- heart failure
- morbid obesity

symptoms of acute kidney failure

- bloody stools
- breath odor
- slow, sluggish movements
- generalized swelling or fluid retention
- fatigue
- pain between ribs and hips
- hand tremor
- bruising easily

- changes in mental status or mood, especially in older adults
- decreased appetite
- decreased sensation, especially in your hands or feet
- prolonged bleeding
- seizures
- nausea
- vomiting
- high blood pressure
- a metallic taste in your mouth

acute kidney failure diagnosed

- blood urea nitrogen (BUN)
- serum potassium
- serum sodium
- estimated glomerular filtration rate (eGFR)
- urinalysis
- creatinine clearance
- serum creatinine

An ultrasound is the preferred method for diagnosing acute kidney failure. However, abdominal X-ray, abdominal CT scan, and abdominal MRI can help your doctor determine if there's a blockage in your urinary tract.

treatment for acute kidney failure

- Diet: restrict the diet and the amount of liquids eat and drink. This will reduce the buildup of toxins that the kidneys would normally eliminate. A diet high in carbohydrates and low in protein, salt, and potassium is usually recommended.
- Medications: antibiotics to treat or prevent any infections that occur at the same time. Diuretics may help kidneys eliminate fluid. Calcium and insulin can help avoid dangerous increases in blood potassium levels.

- Dialysis: need dialysis, but it's not always necessary, and it will likely only be temporary. Dialysis involves diverting blood out of the body into a machine that filters out waste. The clean blood then returns to the body. If potassium levels are dangerously high, dialysis can save the life.

complications of acute kidney failure

Some of the complications of acute kidney failure include:

- chronic kidney failure
- heart damage
- nervous system damage
- end-stage renal failure
- high blood pressure

prevent acute kidney failure

- healthy lifestyle that includes regular physical activity and a sensible diet can help to prevent kidney failure

Assignment: Nursing care of a client with chronic kidney disease.

Diagnosis of kidney disease

- Diagnosis of acute disease is often based on a combination of factors such as decrease urine production or increased serum creatinine.
 - Diagnosis of chronic disease is typically based on a glomerular filtration rate (GFR) of less than 15 or the need for renal replacement therapy.
- It is also equivalent to stage 5 chronic kidney disease

Management of CKD

- Treatment of acute disease typically depends on the underlying cause.
 - Treatment of chronic disease may include:
 - hemodialysis,
 - peritoneal dialysis, or a kidney transplant.
- Hemodialysis uses a machine to filter the blood outside the body. In peritoneal dialysis specific fluid is placed into the abdominal cavity and then drained, with this process being repeated multiple times per day. Kidney transplantation involves surgically placing a kidney from someone else and then taking immunosuppressant medication to prevent rejection. Other recommended measures from chronic disease include staying active and specific dietary changes

Acute kidney injury (AKI)

- Acute kidney injury (AKI), previously called acute renal failure (ARF), is a rapidly progressive loss of renal function, generally characterized by oliguria (decreased urine production, quantified as less than 400 mL per day in adults; and fluid and electrolyte imbalance.

Causes of Acute kidney Disease(AKD)

- AKI can result from a variety of causes, generally classified as prerenal, intrinsic, and postrenal. Many paraquat intoxication patients experience AKI, sometimes requiring hemodialysis. The underlying cause must be identified and treated to arrest the progress, and dialysis may be necessary to bridge the time gap required for treating these fundamental causes

Chronic Kidney Disease

- Chronic kidney disease
- Main article: Chronic kidney disease
- Chronic kidney disease (CKD) can also develop slowly and, initially, show few symptoms.[15] CKD can be the long term consequence of irreversible acute disease or part of a disease progression.

Chronic kidney disease:

Chronic kidney disease (CKD) can also develop slowly and, initially, show few symptoms . CKD can be the long term consequence of irreversible acute disease or part of a disease progression.

Symptoms of kidney failure include the following:[16][17][18][19]

- High levels of urea in the blood, which can result in:
- Vomiting or diarrhea (or both) which may lead to dehydration
- Nausea
- Weight loss
- Nocturnal urination
- More frequent urination, or in greater amounts than usual, with pale urine
- Less frequent urination, or in smaller amounts than usual, with dark coloured urine
- Blood in the urine
- Pressure, or difficulty urinating
- Unusual amounts of urination, usually in large quantities

Stages of kidney failure

Stages of kidney failure

Chronic kidney failure is measured in five stages, which are calculated using a patient's GFR, or glomerular filtration rate.

- Stage 1 CKD is mildly diminished renal function, with few overt symptoms.
- Stages 2 and 3 need increasing levels of supportive care from their medical providers to slow and treat their renal dysfunction.
- Patients in stages 4 and 5 usually require preparation of the patient towards active treatment in order to survive.
- Stage 5 CKD is considered a severe illness and requires some form of renal replacement therapy (dialysis) or kidney transplant whenever feasible.

Management

Diet

- In non-diabetics and people with type 1 diabetes, a low protein diet is found to have a preventative effect on progression of chronic kidney disease. However, this effect does not apply to people with type 2 diabetes . A whole food, plant-based diet may help some people with kidney disease. A high protein diet from either animal or plant sources appears to have negative effects on kidney function at least in the short term.

People who received earlier referrals to a nephrology specialist, meaning a longer time before they had to start dialysis, had a shorter initial hospitalization and reduced risk of death after the start of dialysis.[36] The authors highlighted the resulting importance of early referral in slowing progression of chronic kidney disease. Other methods of reducing disease progression include minimizing exposure to nephrotoxins such as NSAIDs and intravenous contrast

A buildup of phosphates in the blood that diseased kidneys cannot filter out may cause:

- Itching
- Bone damage
- Nonunion in broken bones
- Muscle cramps (caused by low levels of calcium which can be associated with hyperphosphatemia)

Failure of kidneys to remove excess fluid may cause:

- Swelling of the legs, ankles, feet, face, or hands
- Shortness of breath due to extra fluid on the lungs

Other symptoms include:

- Appetite loss, a bad taste in the mouth
- Difficulty sleeping
- Darkening of the skin
- Excess protein in the blood
- With high doses of penicillin, people with kidney failure may experience seizures