

## Editorial Note on Acute Kidney Failure

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### Editorial

Kidney failure, also known as end-stage kidney disease, is a medical condition in which the kidneys are functioning at less than 15% of normal levels [1]. Kidney failure is classified as both acute kidney failure, which develops rapidly and may resolve; and chronic kidney failure, which develops slowly and can often be irreversible [2]. Symptoms may include leg swelling, feeling tired, vomiting, loss of appetite, and confusion [1]. Complications of acute and chronic failure include uremia, high blood potassium, and volume overload [3]. Complications of chronic failure also include heart disease, high blood pressure, and anemia [4, 5].

Causes of acute kidney failure include low blood pressure, blockage of the urinary tract, certain medications, muscle breakdown, and hemolytic uremic syndrome [6]. Causes of chronic kidney failure include diabetes, high blood pressure, nephrotic syndrome, and polycystic kidney disease [6]. Diagnosis of acute failure is often based on a combination of factors such as decreased urine production or increased serum creatinine [3]. Diagnosis of chronic failure is based on a glomerular filtration rate (GFR) of less than 15 or the need for renal replacement therapy [7]. It is also equivalent to stage 5 chronic kidney disease [7].

Treatment of acute failure depends on the underlying cause [8]. Treatment of chronic failure may include hemodialysis, peritoneal dialysis, or a kidney transplant [1]. Haemodialysis uses a machine to filter the blood outside the body [1]. In peritoneal dialysis specific fluid is placed into the abdominal cavity and then drained, with this process being repeated multiple times per day [1]. Kidney transplantation involves surgically placing a kidney from someone else and then taking immunosuppressant medication to prevent rejection [1]. Other recommended measures from chronic disease include staying active and specific dietary changes [1]. Depression is also common among patients with kidney failure, and is associated with poor outcomes including higher risk of kidney function decline, hospitalization, and death. A recent PCORI-funded study of patients with kidney failure receiving outpatient hemodialysis found similar effectiveness between nonpharmacological and pharmacological treatments for depression [9].

When your kidneys are suddenly unable to filter waste items from your blood, you have acute renal failure. When your kidneys lose their filtering abilities, harmful levels of wastes may collect, and your blood's chemical makeup may fall out of balance.

Acute kidney failure, also known as acute renal failure or acute kidney damage, occurs suddenly, usually within a few days. Acute kidney failure is more common in persons who have already been admitted to the hospital, especially those who are seriously ill and require intensive care.

Acute renal failure can be fatal and necessitates immediate medical attention. Acute renal failure, on the other hand, may be reversible. If your health is otherwise sound, you may be able to regain normal or almost normal kidney function.

### Symptoms

The following are signs and symptoms of acute kidney failure:

- Decreased urine production; however urine output can sometimes be normal;
- Fluid retention, producing swelling in your legs, ankles, or feet
- Shortness of breath
- Fatigue
- Confusion
- Nausea
- Weakness
- Irregular heartbeat
- Chest pain or pressure
- In severe situations, seizures or coma

Acute renal failure can sometimes go unnoticed and only be identified through lab testing performed for another reason.

### Causes

Acute renal failure can develop when one or more of the following conditions exist:

- Your kidneys' urine drainage tubes (ureters) become blocked, and wastes can't leave your body through urine
- You have a disorder that decreases blood flow to your kidneys
- You have direct injury to your kidneys

### Kidney blood flow is obstructed

The following diseases and disorders can cause kidney damage by slowing blood flow to the kidneys:

- Loss of blood or fluids
- Medications for high blood pressure
- Severe allergic reaction (anaphylaxis)
- Severe burns

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- Severe dehydration
- Use of aspirin, ibuprofen (Advil, Motrin IB, others), naproxen sodium (Aleve, others), or similar medicines

### Kidney damage is common

Acute renal failure can be caused by the following diseases, conditions, and agents:

- Blood clots in and around the kidneys' veins and arteries
- Cholesterol deposits in the kidneys that obstruct blood flow
- Glomerulonephritis (gloe-mer-u-loe-nuh-FRY-tis) is an inflammation of the kidney's small filters (glomeruli)
- Hemolytic uremic syndrome (HUS), which is caused by the premature destruction of red blood cells.
- Infections, such as those caused by the coronavirus virus in 2019 (COVID-19)
- Lupus, a glomerulonephritis-causing immune system illness
- Medications used during imaging examinations, such as some chemotherapeutic medications, antibiotics, and dyes
- Scleroderma is a group of rare skin and connective tissue diseases.
- Thrombotic thrombocytopenic purpura (thrombotic thrombocytopenic purpura), a rare blood condition
- Toxins found in alcoholic beverages, heavy metals, and cocaine
- Rhabdomyolysis (muscle tissue breakdown) causes kidney injury due to toxins released by the breakdown of muscle tissue.
- Tumor cell death (tumour lysis syndrome), which results in the production of chemicals that might harm the kidneys [10].

### Blockage of urine in the kidneys

Urinary blockages are diseases and disorders that prevent urine from leaving the body and can cause acute kidney damage.

- Cancer of the Bladder
- Urinary tract blood clots
- Cervical cancer
- Cancer of the colon
- Prostate enlargement
- Kidney stones

- Nerve injury affecting the bladder nerves
- Prostate cancer

### Factors that are at risk

Acute renal failure is nearly always the result of another medical disease or event. • Being hospitalised, especially for a serious ailment that requires intense care, can raise your risk of acute renal failure.

- Advanced age
- Blood vessel blockages in your arms or legs (peripheral artery disease)
- Diabetes, hypertension, and heart failure are all conditions that can lead to death.
- Kidney problems
- Liver problems
- Cancers and their therapies

### Conflict of Interest

None

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