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Renal failure

Also kidney failure or renal insufficiency) is a medical condition in which the kidneys fail to adequately filter waste products from the blood. The two main forms are acute kidney injury, which is often reversible with adequate treatment, and chronic kidney disease, which is often not reversible. In both cases, there is usually an underlying cause.

Diagnosis

Renal failure is mainly determined by a decrease in the glomerular filtration rate, which is the rate at which blood is filtered in the glomeruli of the kidney.

Renal failure can be divided into two categories: acute kidney injury or chronic kidney disease. The type of renal failure is determined by the trend in the serum creatinine. Other factors that may help differentiate acute kidney injury from chronic kidney disease include anemia and the kidney size on ultrasound. Chronic kidney disease generally leads to anemia and small kidney size.

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.

Acute Renal Failure

Acute renal failure refers to a sudden and usually temporary loss of kidney function that may be so severe that RRT is needed until kidney function recovers. Even though acute renal failure can be a reversible condition, it carries a high mortality rate. Acute renal failure is a prominent feature of major earthquakes, where many suffer from crush syndrome accompanied by severe dehydration and rapid release of muscle cell contents, including potassium. Kidney function shuts down unless body fluid and blood pressure are rapidly corrected and frequent hemodialysis is available.

Nephroptosis (Floating Kidney)

Nephroptosis is an abnormal condition in which the kidney drops down into the pelvis when the patient stands up. It is more common in women than in men. It has been one of the most controversial conditions among doctors in both its diagnosis and its treatments.

It is believed to result from deficiency of supporting perirenal fasciae. The renal fascia is a layer of connective tissue encapsulating the kidneys and the suprarenal glands. The deeper layers below the renal fascia are, in order, the adipose capsule of the kidney (or perirenal fat), the renal capsule and finally the parenchyma of the renal cortex. The spaces about the kidney are typically divided into three compartments: the perinephric space and the anterior and posterior paranephric spaces.

Nephroptosis is asymptomatic in most patients. However, nephroptosis can be characterized by violent attacks of colicky flank pain, nausea, chills, hypertension, hematuria, and proteinuria. Patients with symptomatic nephroptosis often complain of sharp pains that radiate into the groin. Many patients also suggest a weighing feeling on the abdomen. Pain is typically relieved by lying down.

Diagnosis

This is contemplated based upon patient symptoms. Diagnosis is confirmed during intravenous urography, by obtaining erect and supine films. Nephropexy was performed in the past to stabilize the kidney, but presently surgery is not recommended in asymptomatic patients. Laparoscopic nephropexy has recently become available for selected symptomatic patients.

Polycystic Kidney Disease

Polycystic kidney disease (PKD) is a cystic genetic disorder of the kidneys. There are two types of PKD: **autosomal dominant and autosomal recessive**. PKD can damage the liver and the pancreas, and, in some rare instances, the heart and brain. It 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.) Studies show that the

incidence of autosomal recessive polycystic kidney disease (ARPKD) is 1:20,000 live births, and is typically identified in the first few weeks after birth.

Autosomal dominant polycystic kidney disease (ADPKD) is the most common of all the hereditary cystic kidney diseases with an incidence of 1:1,000 to 2:1,000 live births, is an inherited systemic disorder that predominantly affects the kidneys, but may affect other organs including the liver, pancreas, brain, and arterial blood vessels.

Autosomal recessive polycystic kidney disease: The recessive form of polycystic kidney, called ARPKD (autosomal recessive polycystic kidney disease), is less common than autosomal dominant polycystic kidney.

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. They fall into two major categories: glomerulonephritis refers to an inflammation of the glomeruli and can be primary or secondary, and glomerulosclerosis refers to scarring of the glomeruli. Even though glomerulonephritis and glomerulosclerosis have different causes, both can lead to ESRD.

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.

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

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. There may also be more likely to get kidney disease if the person:

- have high blood pressure

- have other family members with chronic kidney disease
- is an elderly one
- African, Hispanic, Asian, or American Indian descent