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ANSWER

RENAL SYSTEM DISEASES

Diseases of the kidneys or bladder can compromise urinary system functions. Below are some common diseases of the urinary system.

1. Renal Disease and Failure

Renal failure uremia is a syndrome of renal failure characterized by elevated levels of urea and Creatinine in the blood. 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. 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.

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, less than 0.5 mL/kg/h in children or less than 1 mL/kg/h in infants); and fluid and electrolyte imbalance. AKI can result from a variety of causes, generally classified as prerenal, intrinsic, and post renal. An 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 (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.

Acute kidney injuries can be present on top of chronic kidney disease, a condition called acute-on-chronic renal failure (AoCRF). The acute part of AoCRF may be reversible, and the goal of treatment, as with AKI, is to return the patient to baseline renal function, typically measured by serum creatinine. Like AKI, AoCRF can be difficult to distinguish from chronic kidney disease if the patient has not been monitored by a physician and no baseline (i.e., past) blood work is available for comparison.

Symptoms can vary from person to person. Someone in early stage kidney disease may not feel sick or notice symptoms as they occur. When kidneys fail to filter properly, waste accumulates in the blood and the body, a condition called azotaemia. Very low levels of azotaemia may produce few, if any, symptoms. Renal failure accompanied by noticeable symptoms is termed uraemia.

2. Renal Failure Uremia

Renal failure uremia is a syndrome of renal failure that includes elevated blood urea and creatinine levels. Acute renal failure can be reversed if diagnosed early. Acute renal failure can be caused by severe hypotension or severe glomerular disease. Diagnostic tests include BUN and plasma creatinine level tests. It is considered to be chronic renal failure if the decline of renal function is to less than 25%.

3. Nephroptosis (Floating Kidney)

Nephroptosis, also called floating kidney or renal ptosis, 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 pararenal spaces.

4. Polycystic Kidney Disease

Polycystic kidney disease (PKD or PCKD, also known as polycystic kidney syndrome) is a cystic genetic disorder of the kidneys. There are two types of PKD: autosomal dominant polycystic kidney disease (ADPKD), and the less-common autosomal recessive polycystic kidney disease (ARPKD). PKD is characterized by the presence of multiple cysts (hence, “polycystic”), typically in both kidneys. The cysts are numerous and are fluid-filled, resulting in massive enlargement of the kidneys. The disease can also damage the liver, pancreas, and, in some rare cases, the heart and brain. The two major forms of polycystic kidney disease are distinguished by their patterns of inheritance. Polycystic kidney disease is one of the most common life-threatening genetic diseases, affecting an estimated 12.5 million people worldwide. The major extra renal complications of ADPKD include cerebral aneurysms, hepatic cysts, pancreatic cysts, cardiac valve disease (especially mitral valve prolapse), colonic diverticula, and aortic root dilatation.

5. Kidney Stones

The kidneys produce urine to eliminate waste. Kidney stones can form when mineral and acid salts in the urine crystallize and stick together. If the stone is small, it can pass easily through the urinary system and out of the body. A larger stone can get stuck in the urinary tract, however. A stuck kidney stone causes pain and can block the flow of urine.