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Matric No; 18/MHS07/027

Course code;PHS 212

Assignment; Discuss the diseases of the renal system

Renal system disease refers to any of the diseases or disorders that affect the human urinary system. They include benign and malignant tumors, infections and inflammations, and obstruction by calculi. These diseases include;

Kidney failure

Kidney failure, also called end-stage renal disease (ESRD), is the last stage of chronic kidney disease. When the kidneys fail, it means they have stopped working well enough for one to survive without dialysis or a kidney transplant. In most cases, kidney failure is caused by other health problems that have done permanent damage) to the kidneys little by little, over time.

When the kidneys are damaged, they may not work as well as they should. If the damage to the kidneys continues to get worse and are less and less able to do their job, it will result in chronic kidney disease. Kidney failure is the last and most severe stage of chronic kidney disease. This is why kidney failure is also called end-stage renal disease, or ESRD for short.

Kidney stone

It is also called nephrolithiasis. It is a situation whereby a small, hard deposit forms in the kidneys and is often painful when passed.

Kidney stones are hard deposits of minerals and acid salts that stick together in concentrated urine. They can be painful when passing through the urinary tract, but usually don't cause permanent damage. It is treatable by a medical professional, requires a medical diagnosis and can be resolved within days to weeks

Urinary tract infections (UTIs)

It is also called UTI, bladder infection. It is an infection in any part of the urinary system, the kidneys, bladder or urethra.

Urinary tract infections are more common in women. They usually occur in the bladder or urethra, but more serious infections involve the kidney.

Interstitial cystitis

It is also called IC. It is a chronic, painful bladder condition. It's often mistaken for a urinary tract infection (UTI), but there is no infection. With this disease, treatment can help, but this condition can't be cured. The disease is chronic and can last for years or be lifelong

Cancer of the urinary tract

Cancer is when cells in the body grow out of control, often forming a mass or tumor. In upper urinary tract cancer, abnormal cells are found in the:

- Renal pelvis (where urine collects in the kidneys before it travels to the ureters and bladder)
- Renal calyces (spaces deep in the kidneys)
- Ureters (thin tubes, made of muscle, which move urine from the kidney to the bladder)

Cancers of the upper urinary tract are relatively rare. The most common of all upper urinary tract cancers are those found in the renal pelvis and renal calyces. Cancer in the ureters makes up about a quarter of all upper urinary tract cancers.

Tumors of the renal calyces, renal pelvis and ureters start in the layer of tissue that lines the bladder and the upper urinary tract, called the urothelium. Cancer that starts in the urothelium is called urothelial (or transitional cell) cancer. This is the most common type of cancer found in the bladder, as well. Because many of the organs in the urinary system share common cells, cancers found in these organs often look and act alike.

Urinary incontinence

This refers to loss of bladder control, varying from a slight loss of urine after sneezing, coughing or laughing, to complete inability to control urination. Urinary incontinence can have causes that aren't due to underlying disease. Examples include intoxication, unavailability of bathrooms, coughing, sneezing, extreme anxiety or intense laughter.

Genetic Diseases

Knowledge of inherited kidney disease has changed radically with advances in molecular biology and gene-sequencing technology. The characterization of inherited kidney diseases has improved, and novel mutations leading to selective renal defects have been described. Inherited kidney diseases are rare, with the exception of autosomal dominant polycystic kidney disease, the fourth most common cause of ESRD in developed countries. This disease has a prevalence of 1 in 1,000 people and affects approximately 10 million people worldwide. Autosomal recessive polycystic

kidney disease is less frequent, with an incidence of 1 in 40,000, but is an important hereditary disease of childhood.

Glomerulonephritis

Glomerulonephritides are a group of kidney diseases that affect the glomeruli. 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.

Infections, Stones, and Obstructive Uropathy

Infections of the urinary tract are a common health problem worldwide and can be categorized as either uncomplicated or complicated. Uncomplicated infections include bladder infections such as cystitis, seen almost exclusively in young women. Among sexually active women, the incidence of cystitis is 0.5 episodes per person annually, and recurrence develops in 27 to 44 percent of cases. Acute, uncomplicated pyelonephritis, involving the kidney, is less frequent in women than is cystitis. Males are less susceptible to acute, uncomplicated infections of the bladder or the kidney, with an incidence of five to eight episodes per 10,000 men annually.

Benign Prostatic Hypertrophy

Benign prostatic hypertrophy is a major cause of lower urinary tract symptoms and leads to obstructive renal failure and ESRD. By age 80, 80 percent of men have benign prostatic hypertrophy. The World Health Organization quotes a mortality rate of 0.5 to 1.5 per 100,000). The actual incidence of benign prostatic hypertrophy is difficult to assess because of the lack of epidemiological data. In the developed world, the incidence varies between 0.24 and 10.90 per 1,000 annually from age 50 to 80, and the probability of prostate surgery for benign prostatic hypertrophy ranges from 1.4 to 6.0 percent.

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.

Diabetes

Family-based studies and segregation analyses suggest that inherited factors play a major role in people's susceptibility to diabetic renal complications. Diabetes is one of the most common noncommunicable diseases

The earliest sign of diabetic nephropathy is the appearance of small amounts of protein in the urine (proteinuria). As proteinuria increases and blood pressure rises, kidney function declines. The complete loss of kidney function occurs at different rates among type 2 diabetes patients, but it eventually occurs in 30 percent of proteinuria cases. The latter have a 10-fold increased risk of dying from associated coronary artery disease, which may obviate the progression of diabetic nephropathy to ESRD. As therapies and interventions for coronary artery disease improve, patients with type 2 diabetes may survive long enough to develop kidney failure.

Hypertension

Hypertension and kidney disease are closely related. Most primary renal diseases eventually produce hypertension. Recent studies have firmly established the importance of continuous blood pressure reduction to slow the progression of many forms of renal injury, particularly glomerular disease. Over the long term, damage to the heart and cardiovascular system resulting from hypertension represents the major cause of morbidity and mortality among ESRD patients. Over the long term, damage to the heart and cardiovascular system resulting from hypertension represents the major cause of morbidity and mortality among ESRD(End Stage Renal Disease) patients.

Before the development of effective antihypertensive agents, 40 percent of hypertensive patients developed kidney damage and 18 percent developed renal insufficiency over time. Despite the relatively low rate of progression, hypertension remains the most common cause of ESRD after diabetes.