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RENAL DISEASE

any of the disease or disorders affect the human urinary system.they include benign and malignant tumours, infections and inflammations, and obstructution by calculi.

Diseases can have an impact on the elimination of wastes and on the conservation of an appropriate amount and quality of body fluid. Many of the manifestations of renal disease can be accounted for in terms of disturbance of these two functions, and the alleviation of

symptoms in those renal diseases that cannot be cured depends on knowledge of how these two functions are affected.

The eliminatory process does not, of course, end with the formation of urine; the urine has to pass down the ureters to the bladder, be stored there, and voided, usually under voluntary control. The whole mechanism can be deranged by structural changes in the lower urinary tract, by infection, or by neurological disorders that lead to abnormal emptying of the bladder. Disturbance of the lower urinary tract is an important cause of pain and distress, notably during pregnancy and in the elderly; and it can lead to serious and progressive damage to the kidneys, either by interfering with the drainage of urine or by allowing bacterial infection to have access to the kidney.

Renal disease in its diverse forms can lead to bodily deficits or excesses of water, sodium, potassium, and magnesium, and also to protein deficits occasioned by great losses of protein in the urine. Inability of the kidney to function normally may lead to retention in the blood of the waste products of protein metabolism, such as urea and uric acid, and of other nitrogenous compounds such as creatinine. There may be abnormally high levels of phosphates in the blood, which in turn can lead (for reasons about which there is still some disagreement) to low blood levels of calcium. The calcium deficiency can cause tetany, a condition marked by muscular spasms and pain, and calcium may be lost from the bones in the process of restoring normal calcium levels in the blood and tissue fluid. For descriptive purposes, changes in volume, changes in composition, and protein depletion of renal origin will be discussed separately, but these disturbances can and often do coexist.

They are:

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.

2. 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. Even though glomerulonephritis and glomerulosclerosis have different causes, both can lead to ESRD.

3. 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 (La Vecchia, Levi, and Lucchini 1995). 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 (Oishi and others 1998).

4. 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. Recent earthquake rescues in the Islamic Republic of Iran and Turkey have demonstrated the benefits of rapid hydration and dialysis (Sever and others 2001).

5. Diabetes

Diabetes is one of the most common noncommunicable diseases (see chapter 30). With the serious complication of nephropathy, diabetes has become the single most important cause of ESRD in the United States and Europe, according to Stengel and others (2003) and the United States Renal Data System. Diabetes may account for one-third of all ESRD cases