

**DISORDERS OF THE EXCRETORY SYSTEM**

Dysfunction of the kidneys can result in the accumulation of urea in the blood, a condition known as uremia, which poses significant risks and may ultimately lead to kidney failure. In cases of kidney malfunction, a therapeutic procedure called hemodialysis can be employed to alleviate the accumulation of urea. This process involves drawing blood from a convenient artery, which is then directed into a dialyzing unit after incorporating an anticoagulant such as heparin. The dialyzing unit consists of a coiled cellophane tube surrounded by a fluid known as dialyzing fluid, sharing a similar composition with plasma except for nitrogenous wastes. The porous cellophane membrane of the tube facilitates the movement of molecules based on concentration gradients. Since the dialyzing fluid lacks nitrogenous wastes, these substances freely exit the blood, effectively purifying it. The purified blood, now devoid of excess urea, is then returned to the body through a vein, with anti-heparin added to prevent coagulation. This hemodialysis method serves as a vital therapeutic intervention for numerous uremic patients worldwide, offering substantial relief.

Kidney transplantation stands as the definitive approach for rectifying acute renal failures or kidney failures. This intricate procedure involves the transplantation of a functional kidney from a donor, ideally a close relative, to mitigate the risk of rejection by the recipient's immune system. Advances in modern clinical techniques have significantly elevated the success rates associated with this complex transplantation method.

Renal calculi, commonly known as kidney stones, refer to solid or insoluble masses composed of crystallized salts such as oxalates, formed within the kidney. On the other hand, glomerulonephritis denotes the inflammation of the glomeruli within the kidney. These medical conditions pose distinct challenges and necessitate tailored interventions for effective management and treatment.