

Kidney Pathology

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There are so many systems to the human body that are essential in maintaining homeostasis of the entire body. The cardiovascular system is responsible for getting oxygenated blood out to the entire body; it is also responsible for ensuring that deoxygenated blood is received by the lungs to be re-oxygenated and redistributed back to feed the cells of the body. The reproductive system is responsible for providing our bodies with the hormones that are needed to continue the stages of development that supposed to happen to every human being; it is also responsible for the creation of future generations or the procreation of new life. The digestive system is responsible for ensuring that the body intakes all of the needed nutrients to maintain homeostasis. The digestive system is also responsible for getting rid of solid waste that the body cannot make use of. The urinary system maintains homeostasis in the body by reabsorbing and excreting important compounds, electrolytes, and water. Waste is also expelled from the body in the form of urine by the urinary system. Other system disturbances can affect the functioning of the urinary system. Disorders with the urinary system range from mild infections to very serious conditions such as cancer of the bladder or kidneys (Neighbors, Tannehill-Jones, 2010). Let's take a look as renal failure and pyelonephritis.

The failure of the kidneys to cleanse the blood of waste products is known as kidney failure. The primary method of riding the body of waste involves the formation of urea in the liver, which the kidneys filter out of the blood and excrete in the urine. Effective at renal failure, the urea remains in the blood. Renal failure results in uremia, which is a high level of urea in the blood. If urea is not removed from the body it will eventually be converted to ammonia and this can lead to toxicity and related symptoms in all systems of the body. Renal failure is usually related to limited blood flow to the kidneys due to conditions such as surgical shock,

dehydration, embolism, and congestive heart failure. Acute renal failure can be caused by tumors, stones, or enlarged prostate, which block the flow of urine. Treatment for acute renal failure is successful most of the time. Chronic renal failure occurs at a slow pace and is usually the result of chronic kidney disease such as renal hypertension, pyelonephritis, glomerulonephritis, and PKD. Chronic renal failure can also be the result of long-term substance abuse, diabetes, and alcoholism. Symptoms can include those of acute renal failure and problems of infertility. Also impotence and bone weakness, leading to pain and fractures are also included. Symptoms of renal failure are not significant until approximately 75 percent of kidney function has been destroyed. Elevated BUN levels along with elevated blood creatinine levels are indicative of renal failure. History and physical exam along with blood testing assist in the diagnosis of the renal failure. Treatment can include medications such as antibiotics, antihypertensives, and diuretics as needed. Close monitoring of protein intake, sodium intake, and fluid intake is very important since the body will not be able to process these items normally. Dialysis and kidney transplantation might be options for long-term treatment. Dialysis is a procedure that cleanses the blood of waste products when the kidneys have failed. There are two types of dialysis: hemodialysis and peritoneal dialysis. During hemodialysis, the blood is routed out of an artery and through a hemodialyzer or artificial kidney. This machine mechanically cleans the blood. The machine is filled with a semi permeable, cellophane-like material and dialyzing solution. The waste products diffuse through the membrane into the dialyzing solution to cleanse the blood as the blood passed through the machine. The clean blood re-enters the patient through a venous access. Peritoneal dialysis involves performing a paracentesis to instill dialyzing solution into the peritoneal cavity. This uses the membrane that lines the peritoneal cavity to act as the semi permeable membrane. The dialyzing solution is allowed to stay in the

abdomen for varying amounts of time, during which waste products diffuse out of the peritoneal capillaries and into the dialyzing solution. The solution is then drained and disposed of (Neighbors, Tannehill-Jones, 2010).

Inflammation of the pelvis of the kidney is known as pyelonephritis. This can be caused due to a hematogenous or an ascending infection and can affect one or both kidneys. The risks of pyelonephritis can be increased by prostate enlargement, stones, tumors, and obstruction or urine flow blockage in the urinary tract caused by pregnancy. Abscesses commonly form in the kidney and rupture, filling the kidney pelvis with pus and escalating to pyuria. Other symptoms include a sudden onset of fever and chills with flank pain and hematuria. Treatment for pyelonephritis is antibiotics. Continuous occurrences will result in scarring of the kidney and even kidney failure (Neighbors, Tannehill-Jones, 2010).

People should treat their bodies with respect and should cherish every moment of life. No one is every promised tomorrow so we have to live today! Having a healthy body will help to prevent diseases from progressing into life threatening situations.

References

Neighbors, M. & Tannehill-Jones, R. (2010). Human diseases (3rd). Clifton Park, NY: Delmar Cengage.