WORKBOOK ANSWERS
CHAPTER 11
DISEASES AND CONDITIONS OF THE URINARY SYSTEM
As a progressive noninfectious disease, chronic CGN leads to irreversible renal damage and renal failure.

An infection caused by Group A beta hemolytic *Streptococcus*

Symptoms of renal calculi vary with the degree of obstruction.

Patient’s urine may appear dark or may be described as coffee-colored.

Producing, storing, and excreting urine; secreting renin, which regulates blood pressure, and erythropoietin, which acts as a stimulus to red blood cell production

Drugs, insecticides, organic solvents, and cleaning agents

Insult to the brain, spinal cord, or the nerves supplying the lower urinary tract

Surgical removal
Nephrotic syndrome is a disease of the basement membrane of the glomerulus that is secondary to a number of renal diseases and a variety of systemic disorders.

Diabetes mellitus

Ascending bacterial invasion of the urinary tract, sexually transmitted diseases, viruses, fungi, parasites, and inflammation as a result of chemotherapy or radiation

To empty the bladder before surgery, to obtain a sterile urine specimen, to relieve urinary retention, and to treat incontinence

Pus in urine

Proteinuria, edema, decreased urine volume, hematuria, hypertension, headaches, visual disturbances, malaise

Weakening of the pelvic floor muscles and the urethral structure, trauma from childbirth (most common cause), pregnancy, hormone changes, medications, obesity

Environmental factors, occupational exposure to aniline dyes or diesel exhaust, cigarette smoking, and history of prior bladder cancer

There is a sudden and severe reduction in renal function. Nitrogenous waste products begin to accumulate in the blood, causing an acute uremic episode.

2 months
23. Analgesic therapy, fluid hydration, lithotripsy, surgical procedures

24. It is inherited.

25. Multiple grapelike cysts form from dilated nephrons and collecting ducts, and the kidneys enlarge.

26. Nephrons are composed of the glomerulus, Bowman’s capsule, proximal convoluted tubule, loop of Henle, distal convoluted tubule, and collecting duct.

27. Nephrons, the units of function in the kidney, are responsible for filtration, reabsorption, and secretion of urine. Each kidney (Figure 11-2, p. 584), as a primary organ of the urinary system, processes blood to form urine that contains waste products to be eliminated from the body.

28. The bean-shaped organs, about the size of a human fist, are located in the back, retroperitoneal to the abdominal cavity and lateral to the spinal column.
29. Each kidney is separated into three areas or regions: the cortex, the medulla, and the renal pelvis.

30. Blood enters the kidneys by way of the renal arteries through the hilum. The arteries divide and divide again and again into smaller arteries that ultimately enter the nephrons. Blood leaves the kidneys by way of the renal veins.

31. Urine leaves the kidneys by way of two long, slender tubes, the ureters that enter the lower part of the urinary bladder. Peristalsis in the muscular walls of the ureters moves the urine into the urinary bladder where it is temporarily stored until it is passed from the body by way of the urethra. Urine is voluntarily excreted from the bladder by way of the urethra in a process called urination or micturition. The urethra is a tubular structure that extends from the base of the urinary bladder to the urinary meatus (urethral orifice) on the external surface of the body.
## FILL IN THE BLANKS

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<td>kidneys, ureters, urinary bladder, urethra</td>
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ANATOMIC STRUCTURES
THE URINARY SYSTEM

1. Renal vein
2. Adrenal gland
3. Ribs
4. Renal artery
5. Kidney (left)
6. Aorta
7. Ureter
8. Rectum
9. Ureteral opening
10. Trigone
11. Urethra
12. Penis
13. Prostate gland
14. Urinary bladder
15. Pelvis
16. Inferior vena cava
17. Hilum

ANATOMIC STRUCTURES
ANATOMY OF KIDNEY

1. Arcuate artery
2. Interlobar artery
3. Renal artery
4. Renal vein
5. Renal pelvis
6. Ureter
7. Glomerulus
8. Tubule
9. Nephron
10. Renal cortex
11. Renal medulla
12. Calyx
13. Renal capsule

ANATOMIC STRUCTURES
THE NEPHRON

1. Proximal convoluted tubule
2. Peritubular capillaries
3. Collecting tubule
4. Descending limb of loop of Henle
5. Ascending limb of loop of Henle
6. Peritubular capillaries (vasa recta)
7. Arcuate artery and vein
8. Interlobular artery and vein
9. Distal convoluted tubule
10. Afferent arteriole
11. Juxtaglomerular apparatus
12. Efferent arteriole
13. Glomerulus
14. Bowman’s capsule
15. Renal corpuscle

ANATOMIC STRUCTURES
URINE FORMATION

1. Filtration
2. Reabsorption
3. Reabsorption secretion

### Multiple Choice Questions

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Possible Acute Glomerulonephritis

Patients complaining of bloody urine accompanied by edema, headache, and flank or pelvic pain require prompt medical attention. The child should be scheduled for an appointment on the day of the call or referred to an urgent care or emergency care facility.
PATIENT SCREENING #2

- Possible Pyelonephritis

Patients complaining of bloody or foul-smelling urine accompanied by fever, chills, nausea, vomiting, and pelvic and flank pain require prompt medical attention. Schedule an appointment on the day of the call or refer to an urgent care or emergency care facility.
PATIENT SCREENING #3

Possible Kidney Stones

Patients experiencing pain from kidney stones should be considered emergency situations. If these individuals cannot be examined in the office as soon as possible, they should be referred to an emergency care facility where they can receive analgesic intervention. The patient who is experiencing sudden onset of severe flank pain and pelvic pressure and pain that is accompanied by nausea and vomiting requires immediate observation and treatment. Schedule an appointment on the day of the call or refer to an urgent care or emergency care facility.
Patients experiencing pelvic and low back pain accompanied by fever and chills, along with the classic symptoms of frequency and urgency, require prompt attention. Advise them they will need to provide a urine specimen upon arrival at the office. The patient should be scheduled for an appointment as soon as possible.
PATIENT SCREENING #5

Possible Stress Incontinence

Although not a urologic emergency, stress incontinence can seem like an emergency for the individual experiencing it. Therefore the patient should be scheduled for an appointment as soon as possible.
Acute Glomerulonephritis

Review the printed information with the patient and family, and then explain the underlying cause. Reinforce that patients have been instructed to take medications as prescribed—especially antibiotics—until all are gone. During the acute stage, bedrest should be instituted along with sodium intake restriction. A review of the symptoms to be reported to the physician is helpful. These symptoms include weight gain, decreased urinary output, changes in urine color, and an increase in blood pressure. Pregnant women with a history of acute glomerulonephritis require frequent medical evaluation.
PATIENT TEACHING #2

Pyelonephritis

After reviewing the printed information with the patient, confirm that she understands the information. Advise her to void after engaging in sexual intercourse. In addition, if she begins to experience symptoms, she should increase fluid intake, especially water. She should be encouraged to wipe the perineum from the front to the back to avoid spreading fecal matter from the rectum to the urinary meatus. Offer visual aids, including videos when available, that explain the anatomy and function of the urinary system.
PATIENT TEACHING #3

Renal Calculi

After reviewing the printed information with the patient, instruct him or her to strain urine for stones, making sure he or she has an appropriate strainer to use. Encourage intake of at least eight glasses of water per day. Explain risk factors such as a urinary tract infection (UTI), stasis of urine, prolonged dehydration, prolonged immobilization, and long-term ingestion of certain medications. Patients should avoid foods high in oxalates, purine, and phosphorus. Some physicians prefer limiting the intake of calcium, whereas others place no restrictions on calcium intake. Offer visual aids, including videos when available, that explain the anatomy and function of the urinary system.
Diabetic Nephropathy

After reviewing the printed information with the patient, make an attempt to make him aware of the importance of maintaining blood glucose at appropriate levels. He also should be advised about the importance of monitoring his blood pressure and keeping it at acceptable levels. Compliance with prescribed drug therapy is also important.
PATIENT TEACHING #5

Stress Incontinence

The printed material contains information about methods of coping with the condition. Patient teaching involves providing information on Kegel exercises and other methods to strengthen pelvic and perineal muscles. Diet and fluid intake may be discussed. Assistance with locating community or other resource agencies and information is helpful. Provide information to help with locating community support groups. Generate print-on-demand electronic materials when possible as teaching tools.