

CNN-NP Practice Test

1. Acute renal failure (ARF) occurs rapidly and results in the loss of nephron function. Which of the following conditions may result in prerenal ARF?
 - a. Obstruction in the ureter, bladder, or urethra as a result of bladder stones, an enlarged prostate, drugs, malignancy, or a blocked urinary catheter
 - b. A decreased blood supply to the kidney from dehydration, trauma, infection, hepatorenal syndrome, vascular problems, or sepsis
 - c. Toxins or medications, excess myoglobin, hemolysis, glomerulonephritis, or multiple myeloma
 - d. Diabetes, hypertension, or lupus erythematosus
2. Blunt trauma in which rhabdomyolysis occurs, resulting in myoglobinuria, may cause which of the following types of acute renal failure?
 - a. Prerenal
 - b. Postrenal
 - c. Panrenal
 - d. Intrinsic
3. Glomerulonephritis is an inflammation of the glomeruli and nephrons of the kidney that can damage its filtering ability, leading to an accumulation of fluid and wastes in the body. Possible causes of glomerulonephritis include:
 - a. Streptococcal infection of kidney.
 - b. Viral infection, such as hepatitis or hiv.
 - c. Poststreptococcal infection, usually of the throat.
 - d. B and C.
4. Treatment for acute renal failure (ARF) begins with the physician attempting to reverse the underlying cause. Which of the following steps are taken to reduce the mortality rate from ARF?
 - a. Consult with a nephrologist early in the treatment.
 - b. Prevent further damage by avoiding possible nephrotoxic agents.
 - c. Treat hyperkalemia.
 - d. All of the above are true.
5. Renal replacement therapy (dialysis) may be indicated when a patient exhibits:
 - a. Polyuria.
 - b. Hyperkalemia, volume overload, and metabolic acidosis refractory to medical therapy.
 - c. Uremic complications of pericarditis and encephalopathy.
 - d. B and C.
6. Sodium polystyrene sulfonate (SPS), a potassium-binding resin used to decrease total body potassium, is administered by which of the following routes?
 - a. Oral
 - b. Rectal
 - c. Intravenous
 - d. A and B
 - e. A and C

7. What are the parameters that define chronic kidney disease?
- It lasts at least 3 months.
 - It is caused by an injury to the kidney or a disease process, resulting in a glomerular filtration rate of less than 60 mL/min normalized to the body surface.
 - Biopsy shows normal kidney structure.
 - A and B are true.
 - A and C are true.
8. Which of the following disorders are the top two causes of chronic kidney disease?
- Systemic lupus erythematosus and HIV
 - Diabetes mellitus and hypertension
 - Infection and hepatitis
 - Nephropathy and kidney stones
9. The National Kidney Foundation has identified several contributing factors that increase the susceptibility for developing chronic kidney disease. Which of the following factors may accelerate the disease process?
- Smoking
 - Ethnicity
 - Age
 - All of the above
10. The American Diabetes Association recommends screening for chronic kidney disease for any patient diagnosed with type 2 diabetes. Which of the following tests should be performed to detect abnormal kidney function?
- Albuminuria and hematuria and, if positive, then a protein-creatinine ratio test
 - Prothrombin time and partial thromboplastin time
 - Blood gases and D-dimer
 - Low-density lipoprotein and lactate dehydrogenase
11. Which of the following complications are commonly seen in stage 2 kidney disease?
- Abnormal calcium, phosphate, and parathyroid hormone levels
 - Hypertension
 - Anemia and fluid overload
 - A and B
 - A and C
12. The glomerular filtration rate (GFR) is the rate at which filtrates move through the kidney. What is the expected GFR level in stage 1 chronic kidney disease?
- 60–89 mL/min/1.73m²
 - > 90 mL/min/1.73m²
 - 30–59 mL/min/1.73m²
 - 15–29 mL/min/1.73m²

Answer Key and Explanations

1. B: Prerenal acute renal failure (ARF) is the result of a decreased blood supply to the kidney. An obstruction of the urinary flow results in postrenal ARF, and intrinsic or intrarenal ARF refers to a disease process inside the kidney itself or kidney damage as a result of medications, toxins, myoglobin from muscle breakdown (e.g., in blunt trauma), hemolysis, glomerulonephritis, and multiple myeloma. Diabetes, hypertension, and lupus erythematosus are causes of chronic kidney disease.
2. D: Excessive muscle breakdown (rhabdomyolysis), which results in myoglobinuria, may lead to intrinsic acute renal failure. Myoglobin, released from the damaged muscle cells, causes precipitation with secretory proteins from the tubule cells. This leads to the formation of tubular casts and results in tubular obstruction to urinary flow.
3. D: Glomerulonephritis is the result of a poststreptococcal infection, usually of the throat. It may also be caused by viral infections, such as HIV and hepatitis B and C; immune diseases; and vasculitis.
4. D: It is very important to consult a nephrologist early in the treatment of acute renal failure. Nephrotoxic agents should be avoided, and hyperkalemia must be treated.
5. D: Polyuria is not a symptom that would require renal replacement therapy nor would oliguria, unless it presented with other signs and symptoms. Hyperkalemia, volume overload, metabolic acidosis refractory to medical therapy, and the uremic complications of pericarditis and encephalopathy are all conditions that would indicate the need for dialysis (renal replacement therapy).
6. D: The routes of administration of sodium polystyrene sulfonate are oral or rectal. A low-potassium diet is also recommended.
7. D: Chronic kidney disease is caused by an injury or disease that lasts more than 3 months, resulting in the decrease in the glomerular filtration rate to less than 60 mL/min normalized to the body surface. A kidney biopsy shows pathological changes.
8. B: Chronic kidney disease (CKD) may be caused by several preexisting disorders, including: diabetes mellitus (types 1 and 2), hypertension, stones, systemic lupus erythematosus, HIV, hepatitis B, infection, nephropathy, cystic disease, antibodies, and anemia. The two leading causes of CKD are diabetes mellitus and hypertension.
9. E: Factors that may accelerate the development of chronic kidney disease include smoking (e.g., smoking clearly increases the rate of progression), age (e.g., older age), ethnicity (e.g., increased incidence among African Americans, Native Americans, Latinos, Asians, and Pacific Islanders), family history, diet, exercise, and body mass index (e.g., in the early stages, obese patients benefit from losing weight, while obesity among dialysis patients does not affect survival).
10. A: The dipstick test for albumin and blood cells is the first step in analyzing a patient for kidney disease. If positive for albumin, the next step is a protein-creatinine ratio test. If the dipstick is positive for blood or white cells, a more comprehensive microscopic analysis needs to be done. Prothrombin time and partial thromboplastin time are done to assess the effectiveness of anticoagulant drugs, not to evaluate kidney function. Blood gases are done to measure the oxygen and carbon dioxide levels in the blood and are not commonly done to determine kidney disease in

its initial stages. Thrombotic conditions and diseases are ruled out with D-dimer tests. Low-density lipoprotein tests are performed to calculate one type of cholesterol, and lactate dehydrogenase is done to assess muscle damage, as when, for example, determining if a heart attack has occurred.

11. D: Abnormal calcium, phosphate, parathyroid hormone levels, and hypertension are all complications that may arise during stage 2 chronic kidney disease (CKD). Anemia and fluid overload are complications associated with stage 3 CKD.

12. B: The stages of chronic kidney disease, including the associated glomerular filtration rates (GFRs), are: stage 1: kidney damage with a normal or above normal GFR of more than 90 mL/min/1.73m²; stage 2: kidney damage with mildly lowered GFR of 60–89 mL/min/1.73m²; stage 3: moderate level of damage and a GFR of 30–59 mL/min/1.73m²; stage 4: severe damage and a GFR of 15–29 mL/min/1.73m²; and stage 5: kidney failure and a GFR of less than 15 or dialysis.

13. F: Therapies that supplement dialysis include: suitable water and sodium intake for regulation of extracellular fluid volume and plasma osmolality, dietary restriction or supplementation for potassium balance, phosphate binders (calcitriol) when indicated for calcium–phosphate balance, sodium bicarbonate for acid–base balance, avoidance of excess magnesium to maintain magnesium levels, an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker for the synthesis of renin–angiotensin, and erythropoietin for the synthesis of erythropoietin.

14. C: Factors that influence the diagnosis of chronic kidney disease (CKD) include the size of the kidney, determined by renal ultrasound, hemoglobin level, and ongoing assessment of renal function. In acute kidney disease, size is not a factor, while in CKD, the evidence of a small kidney in addition to a reduced glomerular filtration rate for more than 3 months indicate CKD. Assessing reversible renal dysfunction is an important step in determining chronic disease. Evaluation of extracellular fluid volume, hypotension or extreme hypertension, cardiac failure, urinary obstruction, sepsis, and nephrotoxins is helpful in determining if damage is reversible.

15. E: Stage 3 complications include low 25-hydroxy and 1,25-dihydroxycholecalciferol levels, anemia, and fluid overload. Abnormal potassium, bicarbonate, uric acid, and magnesium (electrolyte) levels are all complications found in stage 4.

16. D: Phosphorus, calcium, and potassium should be monitored in patients with chronic renal failure. Iron is important, as hemoglobin levels may drop if anemia is present, but it is not considered to have a major effect on kidney function.

17. D: A primary kidney disease (intrinsic) can cause glomerulonephritis (GN), or it may be a secondary complication of a systemic disease, infection, cancer, or drugs. The most common systemic diseases that have GN as a complication are lupus erythematosus, diabetes nephritis, or Goodpasture syndrome. Streptococcal infection may result in glomerular damage, not directly from the bacterial infection but indirectly from the increase in antibodies that deposit in the glomeruli. Antigen–antibody complexes block filtration in the glomeruli, and result in edema, hypertension, low serum albumin, hematuria, and decreased urinary output. It is important to determine the type and cause of GN to develop a successful treatment plan.

18. D: Diabetes, hypertension, drug use, and infection all may cause glomerulosclerosis. A diet high in calcium is not a cause of this condition.

19. C: The main sign of glomerulosclerosis is proteinuria, which may cause no symptoms in the early stages. In later stages, swelling of the ankles and retention of fluid in the abdomen may occur.