Podiatry Board Preparation Software

Sample Podiatric Orthopedics and Medicine Questions with FARC Inc, *Critiques*

These sample items and item critiques are provided to help DPMs better understand how the new CBT [computer-based-testing] and CPC [clinical-pathology-conference] styled examination questions were developed and should be answered for the Orthopedics and Medicine examinations!

Question

A 25-year-old man comes to the clinic because he has had pain in the ankle since he sustained an inversion injury 10 days ago. The patient is otherwise healthy.

On physical examination, the skin is intact and mild edema is noted. Tenderness to palpation is noted over the distal fibula and antero-medial ankle. Neurovascular examination shows no abnormalities. X-ray study shows a spiral-oblique fracture of the distal fibula and widened medial clear space. Which of the following is the most appropriate management?

(A) Application of a long leg cast
(B) Application of a short leg cast
(C) Closed reduction and external fixation
(D) Open reduction and internal fixation
(E) Percutaneous pinning

Critique

This question assesses the examinee's ability to correctly interpret an x-ray study [or descriptor] to determine the diagnosis and then select the most appropriate management.

The correct answer is Option (D), open reduction and internal fixation. The descriptor shows oblique fracture of the lateral malleolus, widening of the medial clear space, and likely lateral displacement of the talus. On the basis of these findings, the diagnosis is supination external rotation, type IV (Weber B2), which is an unstable injury to the ankle that requires operative intervention.

Option (A), application of a long leg cast, is plausible but incorrect because closed reduction must be performed first. Additionally, even with adequate closed reduction and cast immobilization, outcomes with surgery are superior.

Option (B), application of a short leg cast, is incorrect because this method of immobilization allows internal and external rotation of the leg and is, therefore, not suitable management of this patient's injury.

Option (C), closed reduction and external fixation, is incorrect because although this intervention is useful for fractures of the tibial plafond or for ankle arthrodesis, it is not appropriate for the injury described.

Option (E), percutaneous pinning, is incorrect because this intervention is not as appropriate as fixation with a plate and screws.

Question

A 19-year-old woman is brought to the emergency department by ambulance after she sustained an injury to the right knee while rollerblading. The patient says she felt sudden, severe pain in the knee when she turned a corner quickly. She fell to the ground and was unable to bear weight on the right leg.

Physical examination shows swelling and deformity of the right knee as well as inability to fully extend and straighten the right lower extremity. X-ray studies show dislocation of the patella. In addition to administration of analgesics, which of the following is the most appropriate management?

(A) Arthroscopic lateral release
(B) Arthroscopic medial plication
(C) Closed reduction of the patella
(D) Open reduction of the patella
(E) Tibial tubercle medialization

Critique

This question tests the examinee's ability to select the most appropriate management of a patient with a known diagnosis.

The correct answer is Option (C), closed reduction of the patella. The patient's age, gender, and athletic activity are all predisposing factors of this injury, and the x-ray study confirms the diagnosis. Prompt reduction of a dislocated patella is the most appropriate management because the longer the patella remains dislocated, the more damage is done to the medial retinaculum and the medial ligamentous structure. In addition, risks of closed reduction are minimal compared with other surgical options.

Option (A), arthroscopic lateral release, is incorrect because this procedure is not indicated for management of acute patellofemoral instability. It is a more suitable intervention for patients with retinacular tightness and pain.

Option (B), arthroscopic medial plication, is incorrect because this procedure is used to manage chronic patellofemoral instability.

Option (D), open reduction of the patella, is incorrect because surgery is rarely required for management of dislocation of the patella. Open reduction may be needed, but this is only in circumstances in which closed reduction is repeatedly unsuccessful or when a clear mechanical obstruction to reduction is evident.

Option (E), tibial tubercle medialization, is incorrect because this procedure is used to correct patellofemoral alignment in patients with patellofemoral instability due to factors such as increased Q angle.

Question

A 16-year-old girl who plays tennis on her high school team is brought to the emergency department by her parents because she has had pain and worsening swelling of her right knee since she sustained an injury during a match four hours ago. The patient says she was playing on a hard court and fell directly onto her knee. She was able to complete the match. The pain is localized to the anterior aspect of the knee and is dull in nature. The patient rates the pain as 6 on a 10-point scale.

Physical examination of the right knee shows a fluctuant mass (5×3 cm) over the patella. Full range of motion is noted, and muscle strength is 5/5. Result of apprehension test is negative. Which of the following is the most likely diagnosis?

(A) Dislocation of the patella
(B) Fracture of the patella
(C) Patellar tendinitis
(D) Prepatellar bursitis
(E) Sprain of the patellar ligament

Critique

This question tests the examinee's ability to discriminate among various types of injury involving the patella to determine the most likely diagnosis.

The correct answer is Option (D), prepatellar bursitis. The history and physical examination findings of a direct blow to the anterior aspect of the knee followed by localized pain, swelling, a fluctuant mass, normal to near-normal range of motion (depending on size of the mass), and normal muscle strength are characteristic of prepatellar bursitis.

Option (A), dislocation of the patella, is incorrect because the patient does not exhibit characteristics of this condition, such as the knee acutely giving way, intense pain, rapid swelling, and deformity. Additionally, findings on range of motion and muscle strength testing would not be expected to be normal if dislocation of the patella were present. Also, negative result of apprehension test effectively excludes dislocation of the patella as a possible diagnosis.

Option (B), fracture of the patella, is plausible but incorrect in the patient described for several reasons. Pain from fracture is typically intense and would most likely preclude the patient from completing her tennis match. Additionally, in a patient with fracture of the patella, physical examination is unlikely to show full range of motion and muscle strength is likely to be diminished because of pain.

Option (C), patellar tendinitis, is incorrect because this condition typically is the result of an overuse injury from repetitive overloading of the extensor mechanism of the knee. The physical examination findings in the patient described are not consistent with patellar tendinitis.

Option (E), sprain of the patellar ligament, is incorrect because this injury would cause pain and swelling localized to the patellar tendon and decreased muscle strength because of pain. Complete rupture of the patellar ligament would manifest as inability to extend the knee.

Question

A 54-year-old man with a history of metastatic lung cancer comes to the office because he had sudden onset of pain in the lower back 24 hours ago. Which of the following findings in this patient differentiates lumbar disk herniation from cauda equine syndrome as the cause of his pain?

(A) Anesthesia of the saddle region
(B) Bilateral weakness of the legs
(C) Impotence
(D) Pain radiating to one buttock
(E) Urinary incontinence

Critique

This question tests the examinee's ability to discriminate between clinical characteristics of lumbar disk herniation and cauda equina syndrome.

The correct answer is Option (D), pain radiating to one buttock. Most lumbar disk herniations are posterolateral, and 90% to 95% of compressive radiculopathies occur at the level of L4-L5 and L5-S1. Pain associated with disk disease is usually localized to the lower back and gluteal region and commonly radiates down the leg, particularly below the knee. Therefore, pain radiating to one buttock differentiates lumbar disk herniation from cauda equina syndrome.

Cauda equina syndrome is typically associated with significant neurologic disability and is caused by an intraspinal lesion caudal to the conus medullaris that impacts two or more of the 18 nerve roots comprising the cauda equina. Clinical manifestations most often include bilateral leg weakness in multiple root distributions (L3-S1); bowel, bladder, and sexual dysfunction; and/or perineal sensory loss (S2-S4). Causes of cauda equine syndrome include neural tube defects, infection or inflammation, trauma, spinal stenosis, or mass lesions (e.g., tumor, ruptured disk).

Therefore, Option (A), anesthesia of the saddle region, Option (B), bilateral weakness of the legs, Option (C), impotence, and Option (E), urinary incontinence, are incorrect because they are characteristic of cauda equina syndrome and do not support the diagnosis of lumbar disk herniation.

Question

A 32-year-old man comes to the clinic because he has had pain in the back for the past 24 hours. The patient says he first noticed the pain when he awoke in the morning and had difficulty getting out of bed. He had been playing flag football the day before the pain began but did not sustain any injuries during the game. Acetaminophen has provided only minimal relief of the patient's pain.

On physical examination, pain is elicited on palpation of the back on the left, lateral to the region of L2-L5. Full range of motion is noted in vertebral flexion, extension, lateral rotation, and lateral bending, with some hesitancy because of pain on the left side. Which of the following is the most appropriate initial step?

(A) Anti-inflammatory and muscle relaxant therapy
(B) CT scan of the lumbar spine
(C) Epidural injection of a corticosteroid
(D) MRI of the lumbar spine
(E) Strict bed rest and application of moist heat to the lower back

Critique

This question tests the examinee's ability to recognize signs and symptoms of a common musculoskeletal disorder and then determine the most appropriate initial step.

The correct answer is Option (A), anti-inflammatory and muscle relaxant therapy. In high-performing or "weekend" athletes, the most common causes of pain in the lower back are musculoligamentous sprains and strains. Typical signs and symptoms include pain and muscle spasm localized over the posterior paraspinous muscles. Range of motion may be decreased because of pain. Pain in the midback as well as neurologic symptoms, which are suggestive of structural deformities, should be absent. During the acute phase, the most appropriate management is therapy with anti-inflammatory drugs and muscle relaxants.

Option (B), CT scan of the lumbar spine, is incorrect because there is no clinical evidence of structural deformity (e.g., fracture) or neurologic symptoms.

Option (C), epidural injection of a corticosteroid, is incorrect because although this therapy has been shown to be effective in reducing radicular pain in patients with disk herniation, it is not indicated in the treatment of acute strain or sprain of the back.

Option (D), MRI of the lumbar spine, is incorrect because there is no clinical evidence of structural deformity or neurologic complaint (e.g., radiculopathy).

Option (E), strict bed rest and application of moist heat to the lower back, is plausible but incorrect because most studies show that patients have a more rapid functional recovery if they maintain some level of activity, even during the acute phase.

Question

A 63-year-old man is referred to the office by his primary care provider because he has pain in the right knee that has been worsening over the past two years. He usually plays tennis several times per week, but recently the pain has made it difficult for him to continue this routine. Conservative treatment measures such as courses of nonsteroidal anti-inflammatory drugs and injections of cortisone have failed to relieve the patient's pain.

Current physical examination of the right knee shows moderate effusion and tenderness along the medial joint line. Result of McMurray test is positive. MRI of the knee shows a 3-cm defect of the articular cartilage of the medial femoral condyle. Weight-bearing x-ray studies of the right knee show no narrowing of the joint spaces. Which of the following is the most appropriate management?

(A) Application of a medial unloader knee brace
(B) Arthroscopy with microfracture of the articular cartilage defect
(C) Osteochondral grafting of the articular cartilage defect
(D) Total arthroplasty of the knee
(E) Unicompartmental joint replacement

Critique

This question tests the examinee's ability to recognize signs and symptoms of a common musculoskeletal disorder and interpret imaging studies to determine the appropriate management.

The correct answer is Option (B), arthroscopy with microfracture of the articular cartilage defect. Recent studies have shown that microfracture of a defect that is 3 cm or smaller restores pain-free activity in 80% to 90% of patients. Therefore, arthroscopy with microfracture is the most appropriate treatment of the patient described.

Option (A), application of a medial unloader knee brace, Option (D), total arthroplasty of the knee, and Option (E), unicompartmental joint replacement, are incorrect because the x-ray studies do not show joint space narrowing.

Option (C), osteochondral grafting of the articular cartilage defect, is incorrect because this intervention has not been proven to be effective in the knee joint of patients in this age group.

Question

A 35-year-old man comes to a podiatry office because he has had pain and swelling of the right knee for the past three days. Also, for the past two days, he has felt feverish. The patient is able to ambulate, but walking exacerbates the pain in his knee. Temperature is 39.3°C (102.7°F).

On physical examination, the right knee is red, warm to touch, and tender. A large effusion is noted. Which of the following diagnostic studies of the knee is the most appropriate initial step?

(A) Arthrocentesis
(B) Arthroscopy
(C) Bone scan
(D) CT scan
(E) MRI

Critique

This question tests the examinee's ability to select the most appropriate study to determine the diagnosis.

The correct answer is Option (A), arthrocentesis. The clinical presentation described is characteristic of septic joint. Arthrocentesis for aspiration and analysis of joint fluid is the only diagnostic study that will specify the diagnosis of septic joint.

Option (B), arthroscopy, is incorrect because this study is not the initial step in diagnosis.

Option (C), bone scan, is incorrect because this study is appropriate to nonspecifically localize areas of inflammation but cannot be used to distinguish infectious from sterile processes.

Option (D), CT scan, and Option (E), MRI, are incorrect because these studies are more sensitive for diagnosing osteomyelitis and periarticular abscesses.

Question

A 49-year-old man comes to the sports medicine podiatry office because he has pain in the right hip and thigh that has been worsening since he fell while working in his yard two weeks ago.

Physical examination shows a healing puncture wound over the proximal aspect of the thigh. Erythema and warmth are noted over the lateral aspect of the right hip and the proximal aspect of the right thigh. Full range of motion of the hip is noted, and distal sensation and pulses are intact.

On laboratory studies, erythrocyte sedimentation rate is 30 mm/hr. Results of complete blood cell count are within normal limits. X-ray studies of the hip show a slightly raised periosteum in the proximal femoral shaft. Which of the following additional diagnostic studies is most appropriate?

(A) CT scan
(B) Indium 111 bone scan
(C) MRI
(D) Technetium 99m bone scan
(E) Ultrasonography

Critique

This question tests the examinee's ability to review a detailed clinical scenario, including history and physical examination findings, interpret laboratory values, evaluate x-ray study findings, and then determine the most appropriate additional study to establish the diagnosis.

The correct answer is Option (C), MRI. The clinical presentation is characteristic of osteomyelitis, and MRI is the most appropriate study to confirm this diagnosis because it shows marrow edema and periosteal elevation.

Option (A), CT scan, is incorrect because this study is not sensitive for acute osteomyelitis.

Option (B), indium 111 bone scan, and Option (D), technetium 99m bone scan, are incorrect because although these studies might show increased metabolic activity in patients with osteomyelitis, this finding is not distinguishable from post-traumatic injury, cancer, or postoperative findings.

Option (E), ultrasonography, is incorrect because this study can only show fluid collection next to bone, which is not distinguishable from a traumatic response.

Question

A male neonate who was delivered vaginally at term one hour ago has a deformity of the right foot.

On physical examination, plantar flexion of the ankle, inversion of the subtalar joint, and medial subluxation of the talocalcaneal and calcaneocuboid joints are noted. The position of the foot cannot be passively corrected. Which of the following disorders is the most likely diagnosis?

(A) Calcaneovalgus
(B) Congenital clubfoot
(C) Metatarsus adductus
(D) Pes planus
(E) Tarsal coalition

Critique

This question tests the examinee's knowledge of anatomy and the ability to correlate this knowledge with physical examination findings to determine the diagnosis.

The correct answer is Option (B), congenital clubfoot. The physical examination findings described are characteristic of congenital clubfoot.

Option (A), calcaneovalgus, is incorrect because this condition involves the foot in dorsiflexion, not plantar flexion.

Option (C), metatarsus adductus, is incorrect because this condition is characterized by deformity that can be passively corrected.

Option (D), pes planus, is incorrect because in patients with this condition, the foot is flexible.

Option (E), tarsal coalition, is incorrect because this condition typically presents during the second decade of life but can present as early as 3 years of age, when the tarsal bones begin to ossify.

Question

A 6-year-old boy is brought to the office by his parents because he has had pain in the right hip with weight-bearing as well as obvious limping for the past week. The patient's parents say they have noticed the child favoring his right leg during the past few weeks. He has not had any recent illness or injury to the leg.

Medical history includes no chronic disease conditions.

Physical examination shows tenderness on passive internal rotation of the hip joint and mild diffuse atrophy of the right thigh musculature. X-ray studies of the hip and femur show no abnormalities. Which of the following studies is the most appropriate next step?

(A) Aspiration of the hip
(B) Bone scan
(C) CT scan
(D) MRI
(E) Ultrasonography

Critique

This question tests the examinee's ability to review a detailed clinical scenario, including history and physical examination findings, evaluate x-ray study findings, and then determine the most appropriate additional study to establish the diagnosis.

The correct answer is Option D, MRI. The clinical presentation is characteristic of Legg-CalvéPerthes disease, and MRI is the most sensitive study for staging of this condition.

Option (A), aspiration of the hip, is incorrect because the patient has no history of current or recent illness and, therefore, septic joint is very low on the differential diagnosis list.

Option (B), bone scan, is incorrect because it can only confirm the presence of avascular necrosis and not the extent of involvement of the femoral head.

Option (C), CT scan is incorrect because although this study is used to diagnosis Legg-Calvé-Perthes disease, it is not as sensitive as MRI.

Option (E), ultrasonography, is incorrect because this study can only confirm the presence of a joint effusion, which is a nonspecific finding when confirming a suspected diagnosis of Legg-Calvé-Perthes disease.

Question

A 12-year-old boy is brought to the office by his mother because he has had intermittent pain in the right hip during the past two weeks. The patient ambulates with difficulty. He has not had fever, chills, malaise, recent illness, or trauma to the hip. The patient is obese but otherwise healthy.

On physical examination, vague pain in the groin is elicited on range of motion of the right hip. The most appropriate next step is x-ray studies to rule out which of the following conditions?

(A) Femoral acetabular impingement syndrome
(B) Legg-Calvé-Perthes disease
(C) Septic arthritis
(D) Slipped capital femoral epiphysis
(E) Tear of the labrum

Critique

This question tests the examinee's ability to discriminate between various types of conditions involving the hip joint in a pediatric patient and determine which condition is most likely to be ruled out by x-ray studies.

The correct answer is Option (D), slipped capital femoral epiphysis. The history and physical examination findings are characteristic of slipped capital femoral epiphysis, including obesity, limp, and pain with range of motion of the joint.

Option (A), femoral acetabular impingement syndrome, is incorrect because the most appropriate study to rule out this condition is MRI, not x-ray studies.

Option (B), LeggCalvé-Perthes disease, is plausible but Incorrect in this patient considering his age because the mean age of onset of Legg-Calvé-Perthes disease is 7 years and x-ray studies do not rule this condition out.

Option (C), septic arthritis, is plausible but incorrect because the patient has no history of acute illness and x-ray studies do not rule this condition out.

Option (E), tear of the labrum, is incorrect because the patient has no history of injury and because MRI is the best diagnostic study to evaluate tear of the labrum.

Question

A 19-year-old man who is a long-distance runner is referred to the office by his primary care provider because he has had dull, aching pain in his right thigh after running during the past nine months. Six months ago, the patient's primary care provider prescribed ibuprofen, which relieves the pain only temporarily.

The patient has no history of specific injury.

Physical examination shows no abnormalities of the right lower extremity. X-ray studies of the right femur show cortical thickening of the distal one-third of the shaft with a central nidus measuring approximately 8 mm in diameter. Which of the following is the
most likely diagnosis?

(A) Aneurysmal bone cyst
(B) Enchondroma
(C) Osteoblastoma
(D) Osteochondroma
(E) Osteoid osteoma

Critique

This question tests the examinee's ability to review a detailed clinical scenario, including history and physical examination findings, evaluate x-ray study findings, and then determine the most likely diagnosis.

The correct answer is Option (E), osteoid osteoma. The x-ray finding of cortical thickening with a central nidus is characteristic of osteoid osteoma.

Option (A), aneurysmal bone cyst, is incorrect because although the femur is the most common site of involvement of aneurysmal bone cyst, it usually presents as a large lytic lesion.

Option (B), enchondroma, is incorrect because although the distal femur is a potential location for this lesion, it is characterized as a lytic area filled with a calcified matrix.

Option (C), osteoblastoma, is plausible but incorrect because although it is closely related to osteoid osteoma, the two are distinguished by the size of the nidus: larger than 2 cm represents osteoblastoma, and 1 cm or less represents osteoid osteoma. In addition, the pain of osteoblastoma is less likely to be relieved by nonsteroidal anti-inflammatory drug therapy.

Option (D), osteochondroma, is incorrect because this lesion arises from the growth plate on the metaphyseal side and results in an exostosis that points away from the joint of origin.

Question

A 72-year-old man comes to the office for follow-up examination eight weeks after he underwent total arthroplasty of the right hip. The patient's rehabilitation had been progressing fairly well until approximately five days ago, when worsening pain developed in the hip. The patient says the pain is aggravated by walking and persists during sleeping hours even after he takes acetaminophen. Infection of the prosthetic joint is suspected.

Which of the following is the most likely causative organism?

(A) Coagulase-negative staphylococcus
(B) *Escherichia coli*
(C) Group A beta-hemolytic streptococcus
(D) *Haemophilus influenzae*
(E) *Pseudomonas aeruginosa*

Critique

This question tests the examinee's ability to apply scientific concepts to a clinical scenario by discriminating between multiple possible bacterial species to determine the most likely causative organism of any orthopedic/podiatric joint infection.

The correct answer is Option (A), coagulase-negative staphylococcus. The most commonly cultured microorganism (30% to 43%) from prosthetic joint infections is coagulase-negative staphylococcus. The likelihood of infection with other organisms depends on perioperative or contiguous factors, hematogenous seeding from distant infections, and/or other comorbid diseases. The scenario described does not include any of these factors.

Option (B), *Escherichia coli*, and Option (E), *Pseudomonas aeruginosa*, are incorrect because they are gram-negative bacilli, which are uncommon causes of prosthetic joint infection. Gram-negative bacilli account for 3% to 6% of prosthetic joint infections.

Option (C), group A beta-hemolytic streptococcus, is incorrect because streptococci account for only 9% to 10% of prosthetic joint infections.

Option (D), *Haemophilus influenzae*, is incorrect because it is a very uncommon cause of prosthetic joint infection. Its absolute burden is unknown.

Question

A 69-year-old woman is brought to the emergency department by her husband 45 minutes after she had sudden onset of dyspnea and severe pain in the left side of the chest. You are on call.

The patient underwent right total ankle joint replacement three weeks ago. Temperature is 37.3°C (99.2°F), pulse rate is 120/min, respirations are 22/min and labored, and blood pressure is 140/88 mmHg in the left arm with the patient supine. The patient seems anxious.

Physical examination shows persistent cough. Auscultation of the chest shows accentuation of the pulmonary component of S, unilateral crackles, and wheezing. Which of the following is the most likely diagnosis?

(A) Acute myocardial infarction
(B) Aortic aneurysm
(C) Bacterial pneumonia
(D) Pulmonary embolism
(E) Spontaneous pneumothorax

Critique

This question tests the examinee's ability to determine the most likely diagnosis in a patient who has sudden onset of chest pain and shortness of breath after undergoing ankle surgery and a period of immobilization.

The correct answer is Option (D), pulmonary embolism. The history and physical examination findings in the setting of recent surgery and immobilization are most suggestive of pulmonary embolism.

Option (A), acute myocardial infarction, is incorrect because cough and unilateral lung findings are unusual in the setting of this condition.

Option (B), aortic aneurysm, is incorrect because of the absence of symptoms such as tearing pain or radiation to the back.

Option (C), bacterial pneumonia, is incorrect because this condition is characterized by fever and/or chills, and the presentation of this condition is not typically acute.

Option (E), spontaneous pneumothorax, is incorrect because no obvious risk factors for this condition are noted. In addition, unilateral absent breath sounds might be expected with spontaneous pneumothorax.

Question

A 36-year-old woman with diabetic nephropathy comes to the office for an almost healed IGTN surgery follow-up done elsewhere. During the interview, the patient says she has had fatigue for the past month.

Physical examination shows pallor and pale conjunctivae, a grade 2/6 systolic murmur that is heard best over the left lower sternal border, and bilateral mild, pitting edema of the lower extremities.

Laboratory studies show hemoglobin level of 9.8 g/dL and estimated glomerular filtration rate, calculated using the Modification of Diet in Renal Disease (MDRD) Study equation, is 19 mL/min/1.73 m

Therapy with an erythropoiesis stimulating agent was previously initiated by her GP. Which of the following is the target hemoglobin level for this patient?

(A) 7-8 g/dL
(B) 9-10 g/dL
(C) 11-12 g/dL
(D) 13-14 g/dL
(E) 15-16 g/dL

Critique

This question tests the examinee's ability to review a detailed clinical scenario and determine the appropriate target hemoglobin level for the patient described.

The correct answer is Option (C), 11-12 g/dL. The patient's symptoms of pallor, pale conjunctivae, and systolic murmur are consistent with anemia, which is confirmed by the laboratory findings. In a patient with chronic kidney disease, anemia is most likely secondary to the disease process. Current National Kidney Foundation (NKF) Kidney Disease Outcomes Quality Initiative (KDOQI) and Kidney Disease: Improving Global Outcomes (KDIGO) guidelines specify an optimal target range for hemoglobin level of 11-12 g/dL.

Option (A), 7-8 g/dL, and Option (B), 9-10 g/dL, are incorrect because hemoglobin levels lower than the target range is insufficient to alleviate symptoms of anemia.

Option (D), 13-14 g/dL, and Option (E), 15-16 g/dL, are incorrect because hemoglobin levels higher than the target range are associated with increased morbidity and mortality.

Question

A 56-year-old woman comes to the emergency department because she has had increasing swelling of the right ankle over the past two days, since she sustained an injury while playing outdoors with her grandchildren. She says she has been taking over-the-counter ibuprofen 400 to 800 mg every four to six hours to relieve the pain.

Medical history includes mild hypertension, which is currently controlled with lisinopril.

Results of laboratory studies show elevated levels of serum creatinine and blood urea nitrogen. Acute renal failure induced by use of nonsteroidal anti-inflammatory drugs is suspected. If this suspected diagnosis is correct, which of the following additional abnormal laboratory results is most likely?

(A) Decreased serum chloride level
(B) Decreased serum potassium level
(C) Decreased serum sodium level
(D) Elevated serum potassium level
(E) Elevated serum sodium level

Critique

This question tests the examinee's ability to recognize the adverse effects of medications and the associated laboratory findings.

The correct answer is Option (D), elevated serum potassium level. The suspected diagnosis is acute renal failure induced by use of nonsteroidal anti-inflammatory drugs (NSAIDs), which are associated with nephrotoxicity. Because hyperkalemia is the most common manifestation of acute renal failure secondary to use of NSAIDs, the laboratory result that is most likely to be abnormal in the patient described is elevated serum potassium level.

Option (A), decreased serum chloride level, is incorrect because chloride ions are not lost excessively in acute renal failure induced by nonsteroidal anti-inflammatory drug (NSAID) therapy.

Option (B), decreased serum potassium level, is incorrect because this finding represents hypokalemia, which is the opposite of what would be noted in a patient with acute renal failure secondary to use of NSAIDs.

Option (C), decreased serum sodium level, is incorrect because the patient does not have signs of significant volume overload and because sodium abnormalities are not the most common manifestation of acute renal failure.

Option (E), elevated serum sodium level, is incorrect because serum sodium level is rarely elevated above the normal range unless significant dehydration is present.