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PRACTICE QUESTIONS

United States Medical Licensing Exam® (USMLE)

STEP3

Step 3 - United States Medical Licensing Examination

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for United States Medical Licensing Exam® (USMLE) **STEP3**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, **STEP3**
- the question number
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Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

SINGLE CHOICE

A 58-year-old man with hypertension and type 2 diabetes presents with a 4-day history of fever, productive cough with rust-colored sputum, and right-sided pleuritic chest pain. Examination shows temperature 39.0°C, HR 110, RR 24, BP 128/78, and crackles in the right lower lobe. Chest X-ray confirms a lobar consolidation in the right lower lobe. He has no drug allergies and is otherwise healthy. Which of the following is the most appropriate initial outpatient antibiotic regimen?

- ☐ A Amoxicillin alone
- ☐ B Azithromycin alone
- ☐ C Levofloxacin alone
- ☒ D Amoxicillin-clavulanate plus a macrolide
- ☐ E Ceftriaxone alone

ANSWER D

WHY For outpatient treatment of community-acquired pneumonia in a patient with comorbidities (diabetes, chronic disease), the standard recommendation is a beta-lactam (such as amoxicillin-clavulanate) PLUS a macrolide, OR a respiratory fluoroquinolone alone. Amoxicillin or azithromycin alone is appropriate only for healthy patients without comorbidities. Levofloxacin alone would also be acceptable, but in current ATS/IDSA-aligned practice the combination of amoxicillin-clavulanate plus a macrolide is the preferred dual therapy. Ceftriaxone alone is used in inpatient settings, not outpatient management.

QUESTION 2

SINGLE CHOICE

A 62-year-old man with a history of smoking and hyperlipidemia presents to the emergency department with 45 minutes of substernal chest pressure radiating to the jaw, associated with diaphoresis and nausea. ECG shows 4 mm ST-segment elevation in leads II, III, and aVF. Blood pressure is 90/60 mmHg and heart rate is 52 bpm. After aspirin, nitroglycerin is contraindicated in this patient for which reason?

- ☒ **A** Right ventricular involvement is suggested by the inferior leads and bradycardia
- ☐ **B** He has an active upper GI bleed risk from the MI itself
- ☐ **C** Nitroglycerin is contraindicated with aspirin
- ☐ **D** ST elevation in the inferior leads indicates pericarditis, not MI
- ☐ **E** His age exceeds the cutoff for nitrate use in MI

ANSWER A

WHY Inferior STEMI (ST elevation in II, III, aVF) with hypotension and bradycardia strongly suggests right ventricular (RV) involvement. RV infarction is preload-dependent, and nitroglycerin reduces preload by venodilation, which can cause severe hypotension and cardiovascular collapse. RV involvement should be confirmed with right-sided ECG leads before nitrates are given. Aspirin is not contraindicated, the ECG clearly shows inferior STEMI rather than pericarditis, and there is no age cutoff.

QUESTION 3

SINGLE CHOICE

A new screening test for colorectal cancer is studied in 1,000 patients. Of 200 patients who actually have the disease, 180 test positive. Of 800 patients without the disease, 720 test negative. What is the sensitivity of this test?

- ☐ A $720/800 = 90\%$
- ☒ B $180/200 = 90\%$
- ☐ C $180/800 = 22.5\%$
- ☐ D $80/200 = 40\%$
- ☐ E $720/1,000 = 72\%$

ANSWER B

WHY Sensitivity = True Positives / (True Positives + False Negatives) = $180 / 200 = 90\%$. Sensitivity is the proportion of diseased patients correctly identified by the test. The 720/800 figure represents specificity, not sensitivity.

QUESTION 4

SINGLE CHOICE

A 45-year-old man is brought to the emergency department 36 hours after his last alcoholic drink with confusion, visual hallucinations, marked tremor, and diaphoresis. Vital signs: temperature 38.7°C, HR 128, BP 170/100, RR 26. Examination shows hyperreflexia but no focal neurologic deficits. Which of the following is the most appropriate initial pharmacologic therapy?

- ☐ A Haloperidol
- ☒ B Lorazepam
- ☐ C Phenytoin
- ☐ D Acamprosate
- ☐ E Thiamine alone

ANSWER B

WHY The clinical picture (36 hours since last drink, autonomic hyperactivity, hallucinations, tremor, altered mental status) is classic for alcohol withdrawal delirium (delirium tremens). Benzodiazepines such as lorazepam are first-line therapy because they enhance GABA activity, counteracting the CNS hyperexcitability. Haloperidol lowers the seizure threshold and does not address the underlying GABA deficit. Phenytoin is not effective for alcohol withdrawal seizures. Acamprosate is used for maintenance of alcohol abstinence, not acute withdrawal. Thiamine is essential to prevent Wernicke encephalopathy but is not adequate monotherapy for delirium tremens.

QUESTION 5

SINGLE CHOICE

A 70-year-old man with diabetes presents with a 2-day history of a hot, swollen, exquisitely tender left knee with limited range of motion. He has a temperature of 38.9°C. Joint aspiration reveals synovial fluid with a white blood cell count of 85,000/μL, predominantly neutrophils, and gram-positive cocci in clusters on Gram stain. Which of the following is the most appropriate next step?

- ☐ A Begin oral diclofenac and outpatient follow-up
- ☒ B Begin empiric intravenous vancomycin after arthrocentesis and admit for irrigation
- ☐ C Begin intra-articular corticosteroid injection
- ☐ D Begin allopurinol for presumed gout
- ☐ E Apply a knee immobilizer and defer antibiotics until culture speciation

ANSWER B

WHY Synovial fluid WBC >50,000/μL with neutrophil predominance and gram-positive cocci is consistent with septic arthritis (most often *Staphylococcus aureus*). Septic arthritis is a medical emergency that requires prompt empiric IV antibiotics (vancomycin to cover MRSA pending cultures) and orthopedic joint drainage/irrigation. NSAIDs, intra-articular steroids, and gout therapy are inappropriate and would worsen the infection. Antibiotics should not be deferred, as delay leads to joint destruction.

QUESTION 6

SINGLE CHOICE

An 80-year-old woman with a history of atrial fibrillation presents with severe diffuse abdominal pain for the past 3 hours. On examination, she has a heart rate of 110 (irregularly irregular), BP 95/60, and temperature 36.8°C. The abdomen is soft with mild diffuse tenderness but no guarding or rebound. Laboratories show WBC 18,000, lactate 6.2 mmol/L, and a mild metabolic acidosis. Which of the following is the most likely diagnosis?

- ☐ A Acute diverticulitis
- ☒ B Acute mesenteric ischemia
- ☐ C Acute pancreatitis
- ☐ D Perforated peptic ulcer
- ☐ E Small bowel obstruction

ANSWER B

WHY Acute mesenteric ischemia classically presents with 'pain out of proportion to exam' — severe pain with a relatively benign abdominal exam. The patient has atrial fibrillation (a major risk factor for embolic mesenteric ischemia), hypotension, leukocytosis, and elevated lactate with metabolic acidosis. Acute diverticulitis and perforated ulcer would typically have peritoneal signs. Pancreatitis would show epigastric pain radiating to the back with elevated lipase. Small bowel obstruction would show distension and obstructive symptoms.

QUESTION 7

SINGLE CHOICE

A 28-year-old woman with type 1 diabetes presents with 2 days of vomiting, polyuria, and abdominal pain. She is alert but tachypneic (RR 28, Kussmaul respirations), HR 118, BP 100/60. Labs: glucose 480 mg/dL, sodium 132 mEq/L (corrected 136), potassium 5.8 mEq/L, bicarbonate 10 mEq/L, pH 7.18, anion gap 22, ketones markedly positive. Which of the following is the most appropriate initial intravenous fluid?

- ☒ **A** 0.9% saline bolus
- ☐ **B** 5% dextrose in water (D5W)
- ☐ **C** 3% hypertonic saline
- ☐ **D** Lactated Ringer's only after potassium replacement
- ☐ **E** Half-normal saline (0.45%) as initial bolus

ANSWER A

WHY Initial management of DKA is aggressive isotonic fluid resuscitation with 0.9% saline to restore intravascular volume and improve perfusion. Potassium must be replaced once levels fall below the upper limit of normal and urine output is confirmed (insulin drives K⁺ intracellularly). Dextrose is added to fluids only when glucose falls below ~200 mg/dL. Half-normal saline and hypertonic saline are not appropriate initial fluids in DKA.

QUESTION 8

SINGLE CHOICE

A 64-year-old man with a 40-pack-year smoking history presents with progressive dyspnea on exertion. Spirometry shows FEV1 of 45% of predicted and FEV1/FVC ratio of 0.62. He has had two exacerbations in the past year, one requiring hospitalization. Which of the following is the most appropriate chronic pharmacologic therapy in addition to smoking cessation and vaccinations?

- ☐ A Short-acting beta-agonist (SABA) as needed only
- ☐ B Inhaled corticosteroid (ICS) monotherapy
- ☐ C Long-acting muscarinic antagonist (LAMA) monotherapy
- ☒ D Long-acting beta-agonist (LABA) + inhaled corticosteroid (ICS) combination
- ☐ E Oral prednisone daily

ANSWER D

WHY This patient has GOLD group E COPD (FEV1 45%, ≥ 2 exacerbations with one hospitalization). For symptomatic COPD patients with frequent exacerbations, GOLD guidelines recommend LABA + ICS combination therapy (often with a LAMA as triple therapy in the most severe cases). SABA-only therapy is inadequate for ongoing symptoms. ICS monotherapy is not recommended in COPD and increases pneumonia risk. LAMA monotherapy is appropriate for less severe disease (group A or B). Chronic oral steroids are not recommended due to long-term adverse effects.

QUESTION 9

MULTIPLE CHOICE

A 24-year-old woman with 7 weeks of amenorrhea presents with lower abdominal pain and vaginal bleeding. She is hemodynamically stable. Beta-hCG is 2,800 mIU/mL. Transvaginal ultrasound shows no intrauterine gestational sac and a 2 cm adnexal mass with a yolk sac adjacent to the right ovary, with free fluid in the cul-de-sac. Which of the following are appropriate components of initial management? (Choose two.)

- ☒ **A** Administer Rh immunoglobulin if she is Rh-negative
- ☐ **B** Expectant management without follow-up if pain resolves
- ☒ **C** Administer methotrexate as a single IM dose, given she is hemodynamically stable and meets criteria
- ☐ **D** Perform dilation and curettage to evaluate for products of conception
- ☐ **E** Order a type and crossmatch and arrange for urgent surgical evaluation given free fluid

ANSWER A - C

WHY Ectopic pregnancy management depends on hemodynamic stability, beta-hCG level, mass size, and presence of fetal cardiac activity. For a hemodynamically stable patient with an unruptured ectopic pregnancy, low beta-hCG (<5,000), and small mass without cardiac activity, methotrexate is appropriate. Rh immunoglobulin should be given to all Rh-negative women with any vaginal bleeding in pregnancy to prevent alloimmunization. Expectant management without follow-up is unsafe. D&C would not diagnose an ectopic and could disrupt a viable IUP if one were present. Given hemodynamic stability and absence of rupture signs, urgent surgical intervention is not required at this point, though type and screen remains reasonable if methotrexate fails or rupture occurs.