



4TH DAILY CARDIOLOGY SYMPOSIUM

CONCISE, PRECISE, PRACTICAL

QUIZ CORNER

Correct Answers

* The questions are adopted from a Q bank used for US medical licensing exam.



Health First Always

Q 1

64 Y/O man complains of cramping pain in his left thigh after walking 2 blocks. The pain goes away with resting. PMH is negative for DM. Ex-smoker (30 PY). BP 132/86 mmHg, HR: 70/min and regular, distal pulses are diminished in the left leg. ABI: 0.98 on the right and 0.75 on the left.

This patient is at greatest risk for which of the following over the next 5 years?

- A. Above-knee amputation
- B. Below-knee amputation
- C. End-stage renal disease
- D. Intracranial hemorrhage
- E. Myocardial infarction

Q 2

46 Y/O man comes with exertional dyspnea and dry cough plus occasional episodes of suffocating nighttime cough relieved only by sitting up.

PMH: MI 6 months ago and DLP. Current medications: metoprolol, aspirin and rosuvastatin.

Social drinker, nonsmoker. FH: stroke in father, T2D in mother.

Ph/E: BP: 150/100 mmHg. HR: 60/min. Bibasilar crackles, cardiac apex palpable in the left sixth intercostal space, bilateral pitting leg edema.

Which of the following is most likely to be associated with this patient's condition?

- A. Constriction of the renal efferent arterioles.
- B. Decreased plasma colloid pressure.
- C. Decreased renal venous pressure.
- D. Dilation of renal afferent arterioles.
- E. High sodium delivery to the distal tubule.
- F. Increased chloride delivery to the macula densa

Q 3

32 Y/O woman is brought to the ER due of 12 hours of imbalance and dizziness.

The patient has no history of neurologic disease, recent trauma or surgery. Temperature: 36.7 C, BP: 118/78 mmHg, HR: 80 min, PR: 15/ min. ECG shows NSR.

Lab: Hematocrit: 31%, Leukocytes: 4200 mm³, Platelets: 88000/mm³

Neuroimaging reveals an acute cerebellar infarction.

Echocardiography shows several small oscillating densities on the mitral valve with mild regurgitation. Multiple blood cultures and additional workup for infection are NL.

What is the most appropriate next step in management of this patient?

- A. Ambulatory ECG monitoring
- B. Antineutrophil cytoplasmic autoantibody testing.
- C. Antiphospholipid antibody testing.
- D. Colon cancer screening.
- E. Mitral valve surgery.

Q 4

64 Y/O man is being discharged after admission due to NSTEMI and successful PCI. The patient has a history of HTN and was treated with lisinopril before admission. FH: CABG at age 65 in father and DM in sister. The patient drinks a 6-pack of beer most nights and does not use tobacco or recreational drugs. BMI: 28.5 kg/m², BP: 142/89 mmHg. Dental hygiene is poor. The lungs are clear, no heart murmurs. A faint bruit is heard over the right carotid artery. Lower extremity pulses are full and there is no peripheral edema. Fasting laboratory results: Total cholesterol: 306 mg/dL, HDL: 40 mg/dL, LDL: not calculated, Triglycerides: 465 mg/dL, Na: 140 mEq/L, K: 3.8 mEq/L, Cl: 100 mEq/L, HCO₃: 24 mEq/L, Creatinine: 0.8 mg/dL, Ca: 9.2 mg/dL, BS: 102 mg/dL, TFT: NL. In addition to high-intensity statin therapy, which of the following is the best recommendation for management of this patient's lipid disorder?

- A. Carbohydrate-free diet
- B. Extended-release niacin
- C. Fenofibrate
- D. Metformin
- E. Reduced alcohol intake
- F. Omega-3 supplementation

Q 5

68 Y/O man is brought to the ER after sudden weakness and falling down. The patient had no presyncopal symptoms prior to falling. He has no chronic medical conditions but has not seen a doctor for many years. He drinks 3 or 4 beers a day and has a 40 P/Y smoking history.

T: 36.8 C, BP: 128/78 mmHg, PR: 80/min. BMI: 18 kg/m², Cardiopulmonary exam: NL.

The patient is slow to respond to questions and has dysarthria. CBC and serum chemistries: NL.

ECG: NSR. Brain MRI: multiple subacute strokes of differing ages. Echocardiography: several small, mobile vegetations on the mitral and aortic valve leaflets with trace valvular regurgitation. Multiple blood cultures reveal no growth. PCR testing and serology for organisms that cause culture-negative endocarditis are negative.

Which of the following is the most appropriate next step in the management?

- A. Abdominal fat pad biopsy
- B. CT scan of the chest and abdomen for malignancy
- C. Endomyocardial biopsy
- D. Repeat echocardiography after 6 weeks of antibiotic therapy
- E. Urinary 5-hydroxyindoleacetic acid (5-HIAA) measurement

Q 6

73 Y/O man is brought to the ER after repeated episodes of lightheadedness. Yesterday, the patient felt lightheaded while jogging and sat down on the curb to prevent a fall. A similar episode occurred 6 weeks ago when he felt lightheaded while climbing stairs. He has had some exertional shortness of breath associated with chest discomfort for the past few months but has had no headache, blurry vision, or chest pain.

PMH: HTN. Current meds: ASA, HCTZ. He has a 20-pack-year history and occasionally drinks a glass of wine. BP: 142/90 mmHg, HR: 80/min, RR: 16/min. ECG: NSR plus LVH.

Which of the following is most likely to diagnose this patient's condition?

- A. 24-hour ECG monitoring
- B. Carotid doppler study
- C. Echocardiography
- D. Tilt table testing
- E. Myocardial Perfusion Imaging

Q 7

34 Y/O man comes to the RE due to palpitations for the past 4 hours. He has no associated chest pain, SOB, or dizziness. Medical history is significant for Wolff-Parkinson-White syndrome with 3 prior episodes of supraventricular tachycardia. He declined cardiac ablation previously. The patient does not use tobacco or recreational drugs and drinks alcohol only on social occasions. He had 5 cans of beer at a party the previous night. BP: 120/80 mmHg and pulse is irregularly irregular. ECG shows AF with a rate of 180/min. What is the best next step in management of this patient?

- A. Adenosine
- B. Digoxin
- C. Lidocaine
- D. Procainamide
- E. Verapamil

Q 8

An imaging study detects an incidental 3.5 cm infrarenal abdominal aortic aneurysm in a 70 Y/O man. He has no associated symptoms. PMH: HTN, DM, DLP. The patient is maintained on anticoagulation due to paroxysmal AF. He has smoked 1-2 packs of cigarettes a day for the past 40 years, and he drinks 1 or 2 glasses of wine daily. The patient is physically active, bikes regularly, and enjoys hiking. Ph/E: BP: 150/78 mmHg, PR: 80/min. Heart sounds: NL, Lungs: clear. Lab results: Cr: 1.7 mg/dL, LDL: 150 mg/dL, HbA1c: 7.8%

Which of the following is most strongly associated with aneurysm progression in this patient?

- A. Active smoking
- B. Anticoagulation
- C. Exercise activities
- D. LDL
- E. Systolic hypertension
- F. Uncontrolled diabetes mellitus

Q 9

60 Y/O woman comes to the office due to several months of lower extremity swelling.

PMH: HTN, DM and hepatitis C infection. The patient was also diagnosed with latent tuberculosis 10 years ago, but she declined antibiotic therapy.

Ph/E: BP: 120/80 mmHg, HR: 90/min, symmetric pitting edema of the lower extremities. The liver is palpated 4 cm below the costal margin, and ascites is present. The tip of the spleen is palpated on deep inspiration. Hepatojugular reflux is present when sustained pressure is applied to the upper abdomen. The lungs are clear. Which of the following findings is most suggestive of a cardiac cause for this patient's edema?

- A. Ascites
- B. Clear lungs
- C. Hepatojugular reflux
- D. Hepatomegaly
- E. Lower extremity edema
- F. Splenomegaly

Q 10

62 Y/O woman comes to the ER due to worsening SOB and nonproductive cough for 1 week. The patient has become more symptomatic since this morning; she is unable to complete sentences and says she can't breathe, especially when supine. The patient has a recent history of breast cancer treated with a mastectomy followed by radiation and chemotherapy. She has no history of heart or lung disease and has never smoked.

T: 37.2 C, BP: 160/100 mmHg, HR: 130/min and irregular, RR: 30/min. The patient is sitting on the edge of the bed. She appears restless and is using accessory muscles of respiration. Cardiac exam: irregularly irregular tachycardia with normal heart sounds, distended neck veins, bilateral crackles. Which of the following is the best next step in management of this patient?

- A. Dobutamine
- B. Intravenous fluids and corticosteroids
- C. Noninvasive positive pressure ventilation
- D. Oral anticoagulation
- E. Pericardiocentesis

Q 11

65 Y/O woman comes to the clinic due to markedly decreased urine output for the past 24 hours. The patient underwent coronary angiography by the physician's colleague 5 days ago and was discharged the next day in stable condition. PMH: HTN, DM, CAD. T: 37 C, BP: 140/92 mmHg, HR: 88/min, RR: 14/min. Lab results: Cr: 3.4 mg/dL, BUN: 40 mg/dL. Acute tubular necrosis secondary to the contrast used during angiography is suspected. Review of the medical chart before and after the procedure reveals that the patient did not receive adequate hydration prior to angiography. The patient is very concerned and asks why she is unable to urinate. Which of the following is the most appropriate response?

- A. Given your underlying health conditions, this is unfortunately an expected event that occurs occasionally after angiography.
- B. Let me ask your regular physician to call you and discuss what might have happened.
- C. The cause of your condition is unlikely to ever be known, but let's focus on what we can do now with the best possible care.
- D. This complication could have been prevented if your physician had given intravenous hydration prior to the procedure. Unfortunately, the physician forgot to do this.
- E. This may be related to your recent angiography, but I need to discuss it with your regular physician before I can give you a definitive answer.

Q 12

45 Y/O man comes to you due to chest pain and dyspnea that occur when he walks quickly or climbs stairs. The symptoms last about 10 minutes and slowly fade away with rest.

PMH: HTN, DLP, CAD and CABG 7 yrs ago.

Ph/E: BP: 140/78 mmHg, HR: 78/min and regular, no heart murmurs, lungs: clear

Seven minutes into the treadmill exercise test, the patient develops chest pain and the treadmill is stopped. Sublingual nitroglycerin is administered, which almost immediately relieves the patient's pain.

What is the predominant mechanism responsible for the rapid pain relief in this patient?

- A. Coronary arteriolar vasodilation
- B. Decreased left ventricular contractility
- C. Decreased left ventricular wall stress
- D. Dilation of systemic arteries
- E. Negative chronotropic effect

Q 13

78 Y/O man comes to the office due to lower extremity swelling. He has had progressive DOE over the past 2 years. Over the past 2 months, the patient has noticed lower extremity swelling, decreased appetite, and increased abdominal girth.

PMH: poorly controlled HTN, no CAD, nonsmoker, no prior surgery

BP: 165/88 mmHg, HR: 72/min and regular, afebrile, jugular veins are distended and there are prominent V waves. A holosystolic murmur is heard at the lower sternal border, and there is 3+ pitting edema of the lower extremities bilaterally.

Which of the following best explains the physical examination findings in this patient?

- A. Dilation of the pulmonary arteries
- B. Dilation of the tricuspid valve annulus
- C. Flailing of a tricuspid valve leaflet
- D. Fusion of the tricuspid valve commissures
- E. Increased intrapericardial pressure

Q 14

46 Y/O man comes to the office for F/U due to a blood pressure reading of 150/95 mmHg during a preemployment examination. He has had no symptoms, and his PMH is unremarkable. The patient is an ex-smoker with a 10 PY history; he does not use alcohol or illicit drugs. He has a family history of HTN, and his father died of a stroke at age 68. BP: 145/90 mm Hg (repeat: 144/92 mm Hg), HR: 75/min and regular, BMI: 29 kg/m, Ph/E: unremarkable. This patient should be screened for which of the following conditions?

- A. Abdominal aortic aneurysm
- B. Brain aneurysm
- C. Diabetes melitus
- D. Pheochromocytoma
- E. Renal artery stenosis

Q 15

32 Y/O man comes to the office for a routine preemployment physical. He has been feeling well. 10 yrs ago, his father died suddenly at age 54.

BP: 175/103 mmHg in the right arm and 180/105 mmHg in the left, HR: 82/min.

BMI: 22.1 kg/m². Heart: NL, Lungs: clear. Bilateral, nontender, upper abdominal masses are palpated on examination. Hb: 15.2 g/dL, Cr: 0.8 mg/dL.

Which of the following is the most appropriate next step in evaluating this patient's condition?

- A. 24-hour urine cortisol
- B. Abdominal ultrasound
- C. Captopril-enhanced radionuclide renal scan
- D. Plasma aldosterone/renin ratio
- E. Urine metanephrines

Q 16

20 Y/O college wrestler is brought to the ER after a syncopal episode. The episode occurred during the final match of a wrestling competition. The referee called the match after the patient was pinned by his opponent. When the patient stood, he suddenly swayed and then collapsed. He was unconscious for approximately a minute. The patient says that he felt light-headed prior to the episode but adds that he frequently feels light-headed when standing after competitive matches. He reports no similar symptoms at any other time. The patient is not in pain. He has no PMH, FH is significant for hypertension.

T: 36.7 C , BP: 110/60 mmHg, HR: 72/min, RR: 16/min. The patient is awake, alert, and oriented, with normal speech, dry mucous membranes are noted on oropharyngeal examination. Heart and lungs: NL. Strength is 5/5 in the upper and lower extremities, and gait is normal. ECG: NL, Lab: Hb: 18.2 g/dL, Hct: 54%, PLT: 380,000/mm³, WBC: 9,000/mm³, Na: 140 mEq/L, K: 3.1 mEq/L, Cl: 104 mEq/L, HCO₃: 24 mEq/L, BUN: 26 mg/dL, Cr: 1.2 mg/dL

What is the most likely cause of this patient's syncope?

- A. Cardiac conduction abnormality
- B. Carotid hypersensitivity
- C. Conversion disorder
- D. Hypertrophic cardiomyopathy
- E. Orthostatic hypotension

Q 17

60 Y/O man with AF comes to the office after a recent hospitalization. The patient was diagnosed with paroxysmal atrial fibrillation 2 years ago. His prior symptomatic episodes had self-terminated within a few days, but 3 weeks ago he experienced persistent palpitations and dyspnea with no chest pain or syncope. The patient underwent electrical cardioversion and sinus rhythm was restored, but AF recurred after several hours. Today the patient reports he has had no further symptoms. He takes metoprolol and Apixaban. He does not use tobacco, alcohol, or recreational drugs. BP: 130/78 mmHg, HR: 102/min and irregular. Spo2: 98% on room air, BMI: 35 kg/m², normal jugular venous pressure, clear lungs, and no lower extremity edema. CBC, serum electrolytes and creatinine, TFT, and echocardiogram performed during the recent hospitalization were NL. Which of the following is the most appropriate next step in management of this patient's arrhythmia?

- A. Check response to carotid sinus massage
- B. Obtain CT pulmonary angiography
- C. Obtain sleep apnea testing
- D. Order plasma free metanephrines level

Q 18

A large case-control study was conducted to assess the relationship between COVID-19 infection and acute myocarditis. The OR for COVID-19 among patients with acute myocarditis compared to healthy subjects (controls) was reported as 5.0 (95% confidence interval [4.7-5.2], p 0.01). The authors concluded that the risk of acute myocarditis was approximately 5 times higher in COVID-19 patients; this was based on the assumption that odds ratio is a good approximation of relative risk in this study.

Which of the following best supports this assumption?

- A. The confidence interval for the odds ratio is narrow
- B. The exposure is associated with the disease
- C. The incidence of acute myocarditis is low
- D. The odds ratio is highly statistically significant
- E. The sample size is large

Q 19

55 Y/O man comes to the emergency department due to right lower quadrant pain and is diagnosed with acute appendicitis. The patient is admitted to the hospital after undergoing an emergency appendectomy. He has a history of Graves disease treated with methimazole but has not been taking his medications regularly. One day after the procedure, the patient becomes restless, tremulous, agitated, and short of breath. T: 38.9 C, BP: 210/110 mmHg, HR: 140/min. Lung examination is notable for fine bibasilar crackles. ECG shows sinus tachycardia. Which of the following parameters are most likely to be seen on hemodynamic measurement?

- A. Cardiac Index: decreased, SVR: increased, PCWP: decreased
- B. Cardiac Index: normal, SVR: decreased, PCWP: normal
- C. Cardiac Index: normal, SVR: increased, PCWP: normal
- D. Cardiac Index: increased, SVR: decreased, PCWP: increased
- E. Cardiac Index: increased, SVR: normal, PCWP: decreased

Q 20

68 Y/O man comes for outpatient follow-up after recent CABG. He describes anterior chest pain when he bends or moves his upper extremities. The patient has no chest pain, dyspnea, fever, chills, or abdominal pain. He underwent uncomplicated surgery with internal thoracic artery harvesting 6 days ago. The patient is afebrile, and vital signs are within normal limits. PMH: DM, obesity, and COPD. Examination reveals a midsternal wound that is clean with well-approximated sutures and minimal serous discharge at the lower edge but without erythema.

On palpation the sternum appears to be rocking and clicking with patient coughing.

Which of the following is the best management for this patient?

- A. Clinical observation only
- B. Compressive sternal dressing
- C. Negative pressure wound therapy
- D. Oral antibiotics
- E. Surgical exploration and sternal fixation



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