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INTERNAL MEDICINE PRACTICE QUESTIONS

This free study guide includes:

- 50 questions to help you prepare for the ABIM Exam
- Combination of clinical vignettes and concept review
- Detailed text explanations with visual aids for each question

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INTERNAL MEDICINE PRACTICE QUESTIONS

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Dear Reader,

Thank you for downloading a copy of this eBook. If you are searching for study materials for the internal medicine board exam, you are on the verge of a significant milestone in your professional journey.

Knowmedge is an interactive platform that was launched in April 2013. It features over 750 questions designed to help you understand and reinforce the key concepts covered on the exam. Each of our questions features a highly interactive audio visual explanation, in which our content experts walk you through the principles underlying each question to methodically arrive at the correct answer.

This book contains 50 questions from the Knowmedge QVault collection. The questions are presented as a combination of clinical vignettes and concept review. Each question features a detailed text explanation along with a visual aid.

We hope you find the questions in this book to be a valuable asset as you prepare for your upcoming exam. If you are interested in learning more about Knowmedge, please visit us at www.knowmedge.com.

If you have any questions about the contents of this eBook, send me a note at sunir@knowmedge.com

Best of luck in your preparations!

Sincerely,

Sunir

Sunir Kumar, MD
Co-founder, Chief Editor
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Cardiovascular Disease

Question #1

Topic: Cardiovascular Disease

Subtopic: Hypertension

40-year old male with no past medical history presents to the office complaining of fatigue he has been feeling for the past 8 months. He denies any shortness of breath or lightheadedness. He reports mainly that he feels very tired during the day time and feels like he needs to take a nap. He also noted recently that he nearly falls asleep when driving to work. He denies any vision changes or chest pain. On examination, his heart rate is 84/min, blood pressure is 156/60mmHg, and BMI is 33.7kg/m². Head and neck exam shows unremarkable fundoscopic exam and increased neck circumference. Cardiac examination shows regular rate and rhythm, normal S1 and S2, and no gallops or murmurs. Lung exam is clear to auscultation. Abdominal examination shows obese abdomen, but otherwise unremarkable. Extremities are without edema. Which of the following is the most appropriate next step?

- A. Obtain an echocardiogram
- B. Start hydrochlorothiazide
- C. Perform nocturnal pulse oximetry
- D. Start metoprolol
- E. Obtain an electrocardiogram

Answer #1

Topic: Cardiovascular Disease

Subtopic: Hypertension

Correct Answer: C (Perform nocturnal pulse oximetry)

This patient has symptoms (daytime hypersomnolence) and risk factors (obesity, increased neck circumference) for obstructive sleep apnea. Sleep apnea is an important reversible cause of hypertension. Therefore it is important to evaluate and treat this patient for sleep apnea prior to initiating anti-hypertensive therapies. If treatment for sleep apnea does not result in lower the blood pressure, the next step would be to begin medications for blood pressure reduction.

Let's go over the answer choices:

- **Choice A** (Echocardiogram) is sometimes helpful in the management of hypertensive patients to assess for left ventricular hypertrophy, but would not be the next step for this patient.
- **Choice B** (Hydrochlorothiazide) is an appropriate first-line agent for essential hypertension, but it is more important to evaluate and treat this patient for a reversible etiology of his hypertension prior to starting therapy.
- **Choice C** (Nocturnal pulse oximetry) is the correct choice for screening this patient for obstructive sleep apnea.
- **Choice D** (Metoprolol) is no longer recommended as a first-line agent for essential hypertension unless there are certain comorbidities such as prior myocardial infarction or systolic congestive heart failure.
- **Choice E** (Electrocardiogram) would not be helpful in the initial management of this patient.

Topic: Cardiovascular Disease

Subtopic: Hypertension

Obstructive Sleep Apnea



Risk Factors

Obesity
Increased neck circumference

Symptoms

Daytime hypersomnolence

Screening

Nocturnal
pulse oximetry

Complication

Hypertension

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Based on symptomology, rule out reversible causes of hypertension before initiating pharmacological therapy

Question #2

Topic: Cardiovascular Disease

Subtopic: Ischemic Heart Disease



76-year-old male with hypertension, dyslipidemia, and osteoarthritis of the knees, is admitted for evaluation of chest pain. The chest pain is intermittent, occasionally occurring at rest and not worsened by exertion. He is pain free on arrival to the emergency room. The patient’s home medications include aspirin 81mg daily and lisinopril 10mg daily. His vital signs show blood pressure 154/76mmHg and heart rate 76/min. Physical examination is unremarkable. His admitting electrocardiogram is shown above, and is unchanged from prior EKGs from one, three, and four years. He has had no further symptoms during the hospital stay. Which of the following is the most appropriate next step in management?

- A. Exercise stress test without imaging
- B. Exercise stress test with nuclear imaging
- C. Pharmacologic stress test with nuclear imaging
- D. Exercise stress with echocardiography
- E. Cardiology consultation for catheterization

Answer #2**Topic:** Cardiovascular Disease**Subtopic:** Ischemic Heart Disease**Correct Answer:** Choice B (Aspirin with colchicine)

This is a patient admitted with atypical chest pain who undergoes a “rule-out myocardial infarction” protocol. The next step to risk stratify this patient is a stress test. His baseline EKG shows a left-bundle branch block (LBBB) that is chronic (present on prior ECGs). In general, exercise stress testing of any sort should be avoided if the goal is to diagnose ischemia in a patient with a pre-existing LBBB.

Let's go over the answer choices:

- **Choice A** (Exercise stress test without imaging) is not correct. A patient must have an “interpretable” baseline EKG to be able to detect ischemia when the patient exercises. If a patient has a pre-existing LBBB, then the EKG cannot be used to detect ischemia that develops when a patient exercises. Thus, an EKG stress test is not sufficient in a patient with LBBB, and some form of imaging must be performed.
- **Choice B** (Exercise stress test with nuclear imaging) and **Choice D** (Exercise stress with echocardiography) are not correct. As stated in **Choice A**, in general, performing exercise stress test in patients with LBBB is not preferred. Exercising imaging tests in patients with LBBB can produce false-positive test results because the LBBB causes artifacts with both nuclear images and echocardiograms when done with exercise testing.
- **Choice C** (Pharmacologic stress test with nuclear imaging) is the correct answer. It is the only stress test among the answer choices that does not involve exercise. Pharmacologic stress tests are always done with imaging.
- **Choice E** (Cardiology consultation for catheterization) is not correct because this patient has atypical chest pain without any objective evidence of ischemia.

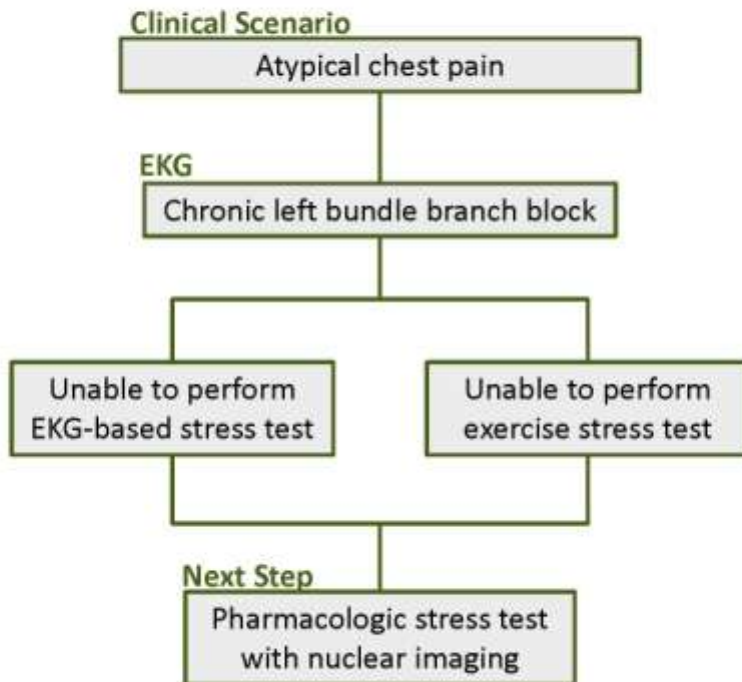
Topic: Cardiovascular Disease

Subtopic: Ischemic Heart Disease

Left Bundle Branch Block



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Question #3**Topic:** Cardiovascular Disease**Subtopic:** Ischemic Heart Disease

76-year-old male with history of hypertension, hypercholesterolemia and tobacco use presents to the outpatient office complaining of substernal chest pressure, lightheadedness, mild associated dyspnea. He reports the sensation has been present for one month and occurs when he walks on level ground for 100 yards and is relieved after a few minutes of rest. The symptoms have been increasing in intensity and occurring with lower levels of exertion for the last 4 days. He denies any symptoms at rest. He denies any previous cardiac history. Physical examination shows blood pressure 100/64mmHg and heart rate 116/min. In general, he appears in no acute distress. Cardiac examination shows normal S1 and S2, a 2/6 systolic murmur at the right-upper sternal border, no gallops, and no rubs. Lungs are clear to auscultation. Extremities are warm without edema. 12-lead EKG shows sinus tachycardia with 1mm ST-segment in leads V4 through V6. Laboratory data show the following:

- | | |
|----------------------------------|------------------------------|
| - Sodium 139mEq/L | - Potassium 3.9mEq/L |
| - Chloride 104mEq/L | - Bicarbonate 24meq/L |
| - BUN 18mg/dL | - Creatinine 0.7mg/dL |
| - Troponin-I 0.48ng/mL | - Creatine kinase 354U/I |
| - Creatine kinase-MB fraction 4% | - WBC 9,400/ μ L |
| - Hemoglobin 6.8 g/dL | - Platelets 168,000/ μ L |

Which of the following is the most appropriate next step?

- A. Emergent cardiac catheterization
- B. Intravenous nitroglycerin, aspirin, and intravenous heparin
- C. Pharmacologic stress test with nuclear imaging
- D. Intravenous metoprolol
- E. Stool guaiac testing

Answer #3**Topic:** Cardiovascular Disease**Subtopic:** Ischemic Heart Disease**Correct Answer:** Choice E (Stool guaiac testing)

While this patient has symptoms consistent with unstable angina and cardiac enzymes and EKG indicate non-ST-elevation myocardial infarction, he has significant anemia. The tachycardia (heart rate greater than 100/min) and the “flow murmur” on examination are secondary to the anemia. Significant anemia can produce symptoms and signs of cardiac ischemia due to decreased oxygen delivery to the myocardial tissue. Moreover, before starting treatment for ischemia, which involves anticoagulants, it is important to be mindful of contraindications to these therapies. Active bleeding can be worsened with anticoagulants and can actually cause further harm to a patient such as this. The first step should be to evaluate sources of bleeding and also to correct the anemia with transfusions. The patient’s symptoms and EKG may even improve after transfusion, once the oxygen carrying capacity of his blood has been improved to normal levels.

Let’s go over the answer choices:

- **Choice A** (Emergent cardiac catheterization) is not correct. The first and most important step for this patient is to determine the cause of his anemia and administer blood transfusion. Catheterization and stenting, which also involves the use of anticoagulants, can be detrimental in a patient such as this. Once a stent is implanted, antiplatelet therapy with aspirin and clopidogrel must be maintained and if he develops worsening gastrointestinal bleeding, then there is a significant problem of stopping the antiplatelet regimen. Stopping antiplatelet therapy too soon after stent implantation can lead to stent thrombosis and myocardial infarction. Therefore, this patient should only be taken to catheterization once the bleeding has been identified and corrected and if he has persistent symptoms or signs of cardiac ischemia after the anemia is treated.
- **Choice B** (Intravenous nitroglycerin/heparin and aspirin) is not correct because it does not treat the underlying cause of his ischemia symptoms, which is the anemia. In fact, heparin and aspirin may worsen the anemia.

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- **Choice C** (Pharmacologic stress test with nuclear imaging) is not correct. This patient needs evaluation and treatment of his anemia.
- **Choice D** (Intravenous metoprolol) is not correct. While this patient is tachycardic, the tachycardia is a compensatory response likely due to his anemia and possible blood loss.
- **Choice E** (Stool guaiac testing) is the correct answer. He should be evaluated and treated for the cause of his anemia. This test looks for hidden blood in a stool sample.

Topic: Cardiovascular Disease

Subtopic: Ischemic Heart Disease

NSTEMI



Clinical Scenario

Unstable angina
Cardiac enzymes
EKG indicates NSTEMI

Tachycardia
"Flow murmur"

indicative of

Anemia

Next Step

Stool guaiac testing

Can be worsened
with anticoagulants

Significant anemia can produce signs and symptoms of cardiac ischemia and needs to be treated with blood products

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Question #4

Topic: Cardiovascular Disease

Subtopic: Arrhythmias

79-year-old female with hypertension presents to the emergency department complaining of fatigue and lightheadedness. She had recent viral gastroenteritis with nausea and vomiting that resolved two days ago. Her home medications include atenolol 75mg daily, hydrochlorothiazide 25mg daily, and lisinopril 10mg daily. In the emergency room, vitals show heart rate 34/min and blood pressure 80/62mmHg. Laboratory data are notable for serum creatinine of 2.5mg/dL and serum potassium of 4.2mEq/L. Previously, her serum creatinine was known to be normal. 12-lead ECG shows marked sinus bradycardia without any ST-segment changes. Which of the following medications is the most appropriate to administer next?

- A. Intravenous calcium gluconate
- B. Intravenous 50% dextrose solution and insulin
- C. Intravenous glucagon
- D. Intravenous magnesium sulfate

Answer #4**Topic:** Cardiovascular Disease**Subtopic:** Arrhythmias**Correct Answer:** Choice C (Intravenous glucagon)

This patient has an acutely reduced glomerular filtration rate due to recent gastrointestinal illness while taking diuretic and angiotensin converting enzyme inhibitor. Therefore, she has reduced clearance of atenolol, which is renally excreted. She has bradycardia (heart rate less than 60/min) and hypotension from beta-blocker toxicity. Thus, she needs beta-blocker reversal.

Let's go over the answer choices:

- **Choice A** (Intravenous calcium gluconate) is not correct. Intravenous calcium can be used in patients with toxicity from calcium-channel blocking agents. However, this patient needs to be treated for beta-blocker toxicity.
- **Choice B** (Intravenous 50% dextrose solution and insulin) is not correct. This is the treatment for patients with hyperkalemia. This patient does not have hyperkalemia.
- **Choice C** (Intravenous glucagon) is the correct answer. Glucagon is used in the treatment of beta-blocker toxicity. In patients who have excess beta-blockade, glucagon acts by activating the cyclic AMP secondary messenger system through glucagon receptors, essentially bypassing the blocked beta-adrenergic receptors. Thus, until the patient's body can clear the beta-blocker, she can be treated with intravenous glucagon. She should also receive supportive care with intravenous normal saline solution. If she does not improve with glucagon and IV fluids, externally pacemaker or transvenous pacemaker can also be used until the beta-blocker is cleared from the system.
- **Choice D** (Intravenous magnesium sulfate) is not correct. This is not used in the treatment of beta-blocker toxicity.

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