

Rosh Internal Medicine Boost End of Rotation (EOR) Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

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- 1. What is the first-line treatment for hypertension in a patient with heart failure?**
 - A. Calcium channel blockers**
 - B. ACE inhibitors**
 - C. Thiazide diuretics**
 - D. Beta-blockers**
- 2. A 23-year-old man presents with a painless right-sided scrotal mass that transilluminates. What is the most likely diagnosis?**
 - A. Hydrocele**
 - B. Spermatocele**
 - C. Testicular cancer**
 - D. Varicocele**
- 3. In the context of scleroderma, which symptom is most consistent with the diagnosis?**
 - A. Dry mouth and dry eye complaints**
 - B. Skin tightening around the fingers with pitting at the fingertips**
 - C. Tenderness at the temporal areas**
 - D. Weakness of proximal muscles without pain**
- 4. In a 67-year-old woman with productive cough and lung infiltrate, what is the most appropriate management option?**
 - A. Admission to the ICU and start treatment with levofloxacin**
 - B. Admission to the medical ward and start treatment with ceftriaxone and azithromycin**
 - C. Discharge with a five-day course of azithromycin**
 - D. Discharge with a seven-day course of doxycycline**
- 5. What lifestyle modification is recommended for patients with hypertension?**
 - A. Increased sodium intake**
 - B. Regular physical activity**
 - C. High-fat diet**
 - D. Smoking cessation**

- 6. A 45-year-old man with a persistent cough is taking multiple medications. Which medication is most likely causing his symptoms?**
- A. Amlodipine**
 - B. Aspirin**
 - C. Clonidine**
 - D. Lisinopril**
- 7. What is the most likely diagnosis for a patient with inflammation of medium-sized arteries and a negative ANCA test?**
- A. Eosinophilic granulomatosis with polyangiitis**
 - B. Granulomatosis with polyangiitis**
 - C. Henoch-Schönlein purpura**
 - D. Polyarteritis nodosa**
- 8. In the treatment of Alzheimer disease, which pharmacologic treatment is known for its neuroprotective qualities?**
- A. Donepezil**
 - B. Memantine**
 - C. Selegiline**
 - D. Vitamin E**
- 9. Which class of medication can exacerbate heart failure symptoms in certain patients?**
- A. Beta-blockers**
 - B. Non-steroidal anti-inflammatory drugs (NSAIDs)**
 - C. ACE inhibitors**
 - D. Diuretics**

10. What is the most appropriate choice for secondary prophylaxis of rheumatic fever in a patient with mitral valve disease?

- A. Intramuscular injection of penicillin G benzathine every 21-28 days for 10 years**
- B. Intramuscular injection of penicillin G benzathine every 21-28 days until age 40**
- C. Oral azithromycin 250 mg once daily for 10 years**
- D. Oral penicillin V 250 mg twice daily for 10 years**

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Answers

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1. B
2. A
3. B
4. B
5. B
6. D
7. D
8. B
9. B
10. B

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Explanations

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1. What is the first-line treatment for hypertension in a patient with heart failure?

- A. Calcium channel blockers**
- B. ACE inhibitors**
- C. Thiazide diuretics**
- D. Beta-blockers**

The first-line treatment for hypertension in a patient with heart failure is ACE inhibitors. This class of medications plays a crucial role in managing heart failure for several reasons. ACE inhibitors help to reduce the workload of the heart by lowering blood pressure, which lessens the strain on the heart muscle. They achieve this by inhibiting the conversion of angiotensin I to angiotensin II, a potent vasoconstrictor, thereby promoting vasodilation and decreasing afterload. In addition to their hypotensive effect, ACE inhibitors have been shown to improve survival outcomes in patients with heart failure with reduced ejection fraction (HFrEF). They also contribute to the reduction of fluid retention, which is a common complication in heart failure patients, thereby improving symptoms such as dyspnea and edema. While other classes of medications, such as beta-blockers, thiazide diuretics, and calcium channel blockers, can have roles in the management of heart failure or hypertension, they do not replace ACE inhibitors as the first-line treatment in this specific context. Beta-blockers may also be used in heart failure and can help improve heart function and lower heart rate, but they are typically not initiated before ACE inhibitors in cases of hypertension related to heart failure. Thiaz

2. A 23-year-old man presents with a painless right-sided scrotal mass that transilluminates. What is the most likely diagnosis?

- A. Hydrocele**
- B. Spermatocoele**
- C. Testicular cancer**
- D. Varicocele**

The most likely diagnosis in this case is a hydrocele. A hydrocele presents as a fluid-filled sac around the testicle, which commonly causes a painless scrotal swelling. The characteristic feature of a hydrocele is that it transilluminates, meaning that when a light is placed behind the scrotum, the fluid in the hydrocele allows light to pass through, making it appear illuminated. This happens because the hydrocele is typically filled with clear fluid. In contrast, while a spermatocoele also presents as a painless scrotal mass, it usually contains sperm and may not always transilluminate as well as a hydrocele. Testicular cancer, which is generally associated with a solid mass, typically does not transilluminate and is often painful or presents with other systemic symptoms. A varicocele, caused by dilated veins within the scrotum, often feels like a "bag of worms" and does not transilluminate. Thus, the presentation of a painless scrotal mass that transilluminates strongly points towards a hydrocele being the most likely diagnosis.

3. In the context of scleroderma, which symptom is most consistent with the diagnosis?

A. Dry mouth and dry eye complaints

B. Skin tightening around the fingers with pitting at the fingertips

C. Tenderness at the temporal areas

D. Weakness of proximal muscles without pain

The symptom that is most consistent with the diagnosis of scleroderma is skin tightening around the fingers with pitting at the fingertips. Scleroderma is characterized by the excessive deposition of collagen in tissues, leading to skin thickening and tightening, particularly in the distal parts of the limbs, such as the fingers. This phenomenon is often referred to as "sclerodactyly," where the skin on the fingers becomes taut and the fingers may also display pitting or ulcers, especially at the fingertips due to vascular changes or ischemia. The presence of skin changes, specifically the distinctive tightening and potential pitting, is a hallmark feature that helps differentiate scleroderma from other conditions that may have overlapping symptoms. Thus, observing these specific manifestations supports the diagnosis of scleroderma effectively. Other symptoms listed, while they may present in various autoimmune or connective tissue disorders, are not as strongly associated with scleroderma. For example, dry mouth and dry eye complaints are more characteristic of Sjögren's syndrome, tenderness at the temporal areas may suggest temporal arteritis, and weakness of proximal muscles without pain is typically seen in conditions such as polymyositis rather than in scleroderma. Hence, the skin symptom is the most

4. In a 67-year-old woman with productive cough and lung infiltrate, what is the most appropriate management option?

A. Admission to the ICU and start treatment with levofloxacin

B. Admission to the medical ward and start treatment with ceftriaxone and azithromycin

C. Discharge with a five-day course of azithromycin

D. Discharge with a seven-day course of doxycycline

The situation described involves a 67-year-old woman presenting with a productive cough and lung infiltrate, suggesting a likely case of pneumonia. The most appropriate management option in this scenario is to admit the patient to the medical ward and initiate treatment with ceftriaxone and azithromycin. This choice is grounded in the understanding of community-acquired pneumonia (CAP) management guidelines, particularly for patients who may be at higher risk due to age and presenting symptoms. Ceftriaxone is a broad-spectrum cephalosporin antibiotic that provides effective coverage against *Streptococcus pneumoniae* and other common pathogens responsible for bacterial pneumonia. Azithromycin, a macrolide, offers additional coverage against atypical organisms, such as *Mycoplasma pneumoniae* and *Chlamydia pneumoniae*. The combination of these two antibiotics ensures a broad spectrum of coverage, addressing both typical and atypical bacteria that could be responsible for the pulmonary infection. Admitting the patient to the medical ward is warranted due to her age and the signs of a significant infection, which may necessitate closer monitoring and support during treatment. Proceeding with outpatient treatment, as indicated in the other options, might not adequately address the severity of her condition and could lead to complications or treatment failure,

5. What lifestyle modification is recommended for patients with hypertension?

- A. Increased sodium intake**
- B. Regular physical activity**
- C. High-fat diet**
- D. Smoking cessation**

Regular physical activity is a cornerstone lifestyle modification recommended for patients with hypertension. Engaging in consistent physical activity helps lower blood pressure by improving the efficiency of the heart, reducing vascular resistance, and aiding in weight management, which is particularly beneficial given that obesity is a significant risk factor for high blood pressure. The American Heart Association and other health organizations advocate for at least 150 minutes of moderate-intensity aerobic exercise each week, which can be broken down into manageable sessions. Physical activity not only helps to control or reduce blood pressure but also supports overall cardiovascular health. In contrast, increasing sodium intake, adopting a high-fat diet, and continuing to smoke can exacerbate hypertension and increase the risk of cardiovascular diseases. Therefore, promoting regular physical activity stands out as a safe and effective strategy for managing blood pressure in hypertensive patients.

6. A 45-year-old man with a persistent cough is taking multiple medications. Which medication is most likely causing his symptoms?

- A. Amlodipine**
- B. Aspirin**
- C. Clonidine**
- D. Lisinopril**

The presence of a persistent cough in this patient is most likely due to the use of lisinopril, which is an angiotensin-converting enzyme (ACE) inhibitor. One of the most common and well-recognized side effects of ACE inhibitors like lisinopril is a dry cough. This occurs due to the accumulation of bradykinin, which is a peptide that can cause irritation in the respiratory tract. Patients often report this cough as a bothersome side effect, and it can be persistent enough to interfere with daily activities. In contrast, the other medications listed are less commonly associated with cough. Amlodipine, a calcium channel blocker, is typically used to manage hypertension and does not have cough as a side effect. Aspirin, while sometimes irritating to the stomach, is not associated with cough. Clonidine, an alpha-2 adrenergic agonist used for hypertension, is also not linked to causing a cough. Thus, in the context of this patient who is experiencing a persistent cough and is on multiple medications, lisinopril stands out as the agent most likely responsible for these symptoms.

7. What is the most likely diagnosis for a patient with inflammation of medium-sized arteries and a negative ANCA test?

- A. Eosinophilic granulomatosis with polyangiitis**
- B. Granulomatosis with polyangiitis**
- C. Henoch-Schönlein purpura**
- D. Polyarteritis nodosa**

The presence of inflammation in medium-sized arteries along with a negative ANCA (antineutrophil cytoplasmic antibodies) test strongly suggests polyarteritis nodosa (PAN) as the most likely diagnosis. PAN is a type of systemic vasculitis that primarily affects medium-sized muscular arteries, leading to ischemia and inflammation in various organs without the renal or respiratory involvement typically seen in ANCA-associated vasculitides. In this condition, the absence of ANCA is a key differentiating factor, as eosinophilic granulomatosis with polyangiitis and granulomatosis with polyangiitis are both associated with positive ANCA tests. Henoch-Schönlein purpura primarily affects small vessels and is related to IgA deposition, making it distinct from PAN. In summary, the characteristics of medium-sized artery involvement combined with the negative ANCA test clearly align with polyarteritis nodosa, making it the most appropriate diagnosis in this scenario.

8. In the treatment of Alzheimer disease, which pharmacologic treatment is known for its neuroprotective qualities?

- A. Donepezil**
- B. Memantine**
- C. Selegiline**
- D. Vitamin E**

Memantine is recognized for its neuroprotective qualities in the treatment of Alzheimer's disease. It is an NMDA receptor antagonist, which helps modulate the activity of glutamate, an important neurotransmitter involved in learning and memory. In Alzheimer's disease, excessive activation of NMDA receptors by glutamate can lead to neuronal damage and cell death. By blocking this receptor, memantine can help reduce excitotoxicity, thereby providing neuroprotective effects and assisting in the preservation of cognitive function. In addition to its neuroprotective properties, memantine is typically used for moderate to severe Alzheimer's disease and can be combined with cholinesterase inhibitors for an enhanced therapeutic effect. Its unique mechanism of action differentiates it from other drugs used to treat Alzheimer's, which primarily focus on symptom management rather than neuroprotection. While donepezil is effective for symptomatic management by increasing acetylcholine levels, it does not offer the same level of neuroprotection. Selegiline is a monoamine oxidase inhibitor primarily used in Parkinson's disease, and although it may have some neuroprotective effects, it isn't a standard treatment for Alzheimer's. Vitamin E, though studied for its antioxidant properties, has inconsistent evidence regarding its role in Alzheimer's management and is not primarily

9. Which class of medication can exacerbate heart failure symptoms in certain patients?

A. Beta-blockers

B. Non-steroidal anti-inflammatory drugs (NSAIDs)

C. ACE inhibitors

D. Diuretics

Non-steroidal anti-inflammatory drugs (NSAIDs) can exacerbate heart failure symptoms due to their effects on renal function and fluid retention. In patients with heart failure, the kidneys often have reduced perfusion due to compromised cardiac output. NSAIDs can cause vasoconstriction of the afferent arterioles in the kidneys, leading to decreased glomerular filtration rate (GFR) and potential worsening of kidney function. As a result, this can lead to sodium and water retention, worsening edema and heart failure symptoms. In patients already managing heart failure, the extracellular fluid volume is often carefully controlled; any additional fluid retention provoked by NSAIDs can exacerbate congestion and heart failure symptoms. This makes NSAIDs particularly concerning in the context of heart failure management. In contrast, beta-blockers are often used to manage heart failure symptoms by decreasing heart rate and contractility, ACE inhibitors help in reducing afterload and improve cardiac output, and diuretics are used to alleviate fluid overload without exacerbating heart failure symptoms. Thus, understanding the pharmacological impact of these medications is crucial in the management of patients with heart failure.

10. What is the most appropriate choice for secondary prophylaxis of rheumatic fever in a patient with mitral valve disease?

A. Intramuscular injection of penicillin G benzathine every 21-28 days for 10 years

B. Intramuscular injection of penicillin G benzathine every 21-28 days until age 40

C. Oral azithromycin 250 mg once daily for 10 years

D. Oral penicillin V 250 mg twice daily for 10 years

For a patient with mitral valve disease due to a history of rheumatic fever, long-term secondary prophylaxis is essential to prevent recurrent rheumatic fever and further damage to the heart valves. The standard recommendation for secondary prophylaxis in such patients is the administration of intramuscular penicillin G benzathine every 21 to 28 days. In this specific case, the most appropriate duration of secondary prophylaxis is typically until the individual reaches age 40, particularly if they have evidence of ongoing valve damage or significant heart disease. This approach balances the need for preventive treatment with the understanding that the risk of rheumatic fever decreases as patients age if they remain free of additional throat infections with Group A Streptococcus. The rationale for using intramuscular penicillin G benzathine every 21-28 days is due to the long-acting nature of the formulation, which provides sustained levels of penicillin in the bloodstream, offering consistent protection against streptococcal infections that could trigger another episode of rheumatic fever. Other options listed may not provide appropriate coverage or comply with the recommended guidelines for duration and form of prophylaxis. For instance, oral penicillin or azithromycin are less effective at maintaining therapeutic levels over time compared to the