HESI Cardiology Practice Exam (Sample)

Study Guide

BY EXAMZIFY

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Questions

1. **Which laboratory test is most important for the nurse to monitor in a client after a myocardial infarction?**

   A. Troponin

   B. Myoglobin

   C. Homocysteine

   D. Creatine kinase (CK)

2. **What symptom might a client with early left ventricular heart failure report?**

   A. My ankles are swollen

   B. I am tired at the end of the day

   C. When I eat a large meal, I feel bloated

   D. I have trouble breathing when I walk rapidly

3. **What is a common complication of myocardial infarction?**

   A. Stroke

   B. Heart failure or arrhythmias

   C. Hypertension

   D. Diabetes

4. **What might an increase in P-R intervals signal during an ECG assessment?**

   A. Possible arrhythmia

   B. Normal conduction

   C. Increased heart rhythm

   D. Reduced cardiac strain

5. **What does the ejection fraction indicate?**

   A. The overall heart size

   B. The percentage of blood pumped out of the ventricles with each heartbeat

   C. The amount of blood returning to the heart

   D. The frequency of heartbeats per minute

6. Which test measures the electrical activity of the heart over a 24-hour period?

   A. Echocardiogram

   B. Electrocardiogram

   C. Holter monitor

   D. Stress test

7. What does the CHA2DS2-VASc score assess?

   A. Heart failure severity

   B. Coronary artery disease risk

   C. Stroke risk in patients with atrial fibrillation

   D. Medication adherence

8. Which lifestyle change can improve overall cardiovascular health?

   A. Engaging in regular physical activity

   B. Reducing sleep hours

   C. Increasing sugar intake

   D. Avoiding all social interactions

9. During patient education, what should the nurse inform clients about monitoring their daily weight in heart failure management?

   A. It can help detect fluid retention early.

   B. It is not necessary unless symptoms worsen.

   C. It should be done weekly.

   D. It has no impact on treatment plans.

10. What is pericarditis?

   A. Weakening of the heart muscle

   B. Inflammation of the pericardium (the heart's outer lining)

   C. A blockage in the coronary artery

   D. A type of heart valve disease

Answers

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

Explanations

1. Which laboratory test is most important for the nurse to monitor in a client after a myocardial infarction?

A. Troponin

B. Myoglobin

C. Homocysteine

D. Creatine kinase (CK)

Monitoring troponin levels is crucial after a myocardial infarction because troponin is a specific cardiac biomarker that indicates heart muscle injury. When myocardial tissue is damaged, troponin proteins are released into the bloodstream, making them a highly sensitive and specific indicator of cardiac cell death. Elevated troponin levels can help in diagnosing the occurrence and extent of an infarction, guiding treatment decisions, and assessing recovery. The other tests, while they can provide useful information, do not have the same specificity or reliability for diagnosing myocardial infarctions. For example, myoglobin is an early marker of muscle injury but lacks specificity to cardiac tissue. Homocysteine is typically associated with cardiovascular risk rather than direct assessment of acute myocardial injury. Creatine kinase can indicate muscle damage as well, but it is not specific to cardiac injury and can be elevated in various conditions, making it less ideal for monitoring a client specifically after a myocardial infarction. Therefore, troponin is the most important test to monitor for its direct correlation with myocardial cell injury.

2. What symptom might a client with early left ventricular heart failure report?

A. My ankles are swollen

B. I am tired at the end of the day

C. When I eat a large meal, I feel bloated

D. I have trouble breathing when I walk rapidly

In the context of early left ventricular heart failure, the symptom of having trouble breathing when walking rapidly is particularly relevant. This symptom, known as exertional dyspnea, occurs because the left ventricle's decreased efficiency in pumping blood leads to inadequate oxygenation of the blood during physical exertion. As the heart fails to meet the body's increasing demand for oxygenated blood during activities, individuals may experience shortness of breath, especially during activities that require more exertion, such as walking quickly or exercising. Exertional dyspnea is one of the hallmark symptoms of left ventricular dysfunction, as it reflects the heart's inability to cope with the increased workload associated with physical activity. In early left ventricular heart failure, this symptom may arise even with minimal exertion, indicating the onset of the heart's inability to effectively manage blood flow and pressure within the pulmonary circulation. The other symptoms listed, such as swollen ankles, general fatigue, and feelings of bloating after a large meal, can be associated with heart failure but are often more indicative of fluid retention, systemic venous congestion, or other factors that may develop later as left ventricular heart failure progresses.

3. What is a common complication of myocardial infarction?

A. Stroke

B. Heart failure or arrhythmias

C. Hypertension

D. Diabetes

The common complication of myocardial infarction that is most directly associated with the event is heart failure or arrhythmias. Following a myocardial infarction, which is the death of heart muscle tissue due to a lack of blood supply, the heart's ability to pump effectively can be impaired. This impairment can lead to heart failure, where the heart cannot maintain adequate blood flow to meet the body's demands. Additionally, the damage to the heart muscle can disrupt the electrical pathways, resulting in arrhythmias, which are irregular heartbeats. These complications arise from the structural and functional changes that occur in the myocardium after an ischemic episode. In essence, the weakening of the heart muscle and alteration of the conduction system are direct results of the myocardial infarction, making heart failure and arrhythmias prevalent complications in the post-infarction setting. Other conditions listed, while they might be related to or influenced by cardiovascular health, do not typically arise as immediate complications of a myocardial infarction.

4. What might an increase in P-R intervals signal during an ECG assessment?

A. Possible arrhythmia

B. Normal conduction

C. Increased heart rhythm

D. Reduced cardiac strain

An increase in P-R intervals during an ECG assessment can indicate a possible arrhythmia, specifically a condition known as first-degree heart block. The P-R interval represents the time it takes for electrical impulses to travel from the atria through the atrioventricular (AV) node before reaching the ventricles. When this interval is prolonged, it suggests a delay in conduction through the AV node, which is a hallmark of arrhythmias. In this case, the heart's electrical conduction system is not operating efficiently, leading to the potential for more serious rhythm disturbances. While variations in the P-R interval can be seen in healthy individuals, a consistent increase typically warrants further investigation for underlying issues affecting the heart's electrical pathways. Understanding this context helps differentiate normal conduction and heart strain measures, where a normal P-R interval indicates effective conduction, and no direct correlation exists between increased P-R intervals and reduced cardiac strain.

5. What does the ejection fraction indicate?

A. The overall heart size

B. The percentage of blood pumped out of the ventricles with each heartbeat

C. The amount of blood returning to the heart

D. The frequency of heartbeats per minute

Ejection fraction is a critical measurement used to evaluate the efficiency and performance of the heart, particularly the ventricles. It is defined as the percentage of blood that is pumped out of the ventricles with each contraction. This percentage reflects the heart's ability to effectively pump blood throughout the body, which is essential for maintaining adequate circulation and oxygen delivery to tissues. A healthy heart typically has an ejection fraction ranging from 55% to 70%, indicating that a significant portion of the blood within the ventricles is being utilized with each heartbeat. If the ejection fraction is lower than normal, it may suggest heart dysfunction, heart failure, or other cardiac issues, as the heart is not pumping effectively. In contrast, options related to heart size, blood return to the heart, or heart rate do not convey the same specific insight into pumping efficiency as the ejection fraction does. Thus, "the percentage of blood pumped out of the ventricles with each heartbeat" accurately describes the significance and implications of the ejection fraction in cardiology.

6. Which test measures the electrical activity of the heart over a 24-hour period?

A. Echocardiogram

B. Electrocardiogram

C. Holter monitor

D. Stress test

The Holter monitor is a device specifically designed to continuously record the electrical activity of the heart over a 24-hour period or longer. This test is particularly useful for detecting irregular heart rhythms (arrhythmias) that may not be present during a standard electrocardiogram (ECG) due to the brief nature of that test. Patients wear the Holter monitor, which consists of electrodes attached to the chest that connect to a portable recording device. This allows for continuous monitoring of the heart's electrical signals while the person goes about their daily activities, providing a more comprehensive look at heart activity over time. In contrast, an echocardiogram uses ultrasound waves to create images of the heart's structure and function, focusing on its physical properties rather than its electrical activity. An electrocardiogram provides a snapshot of heart activity at a single moment in time, making it less effective for ongoing monitoring. A stress test typically evaluates heart function under physical exertion, but does not measure electrical activity continuously throughout the day. Therefore, the Holter monitor stands out as the accurate choice for a test that measures the electrical activity of the heart over an extended period.

7. What does the CHA2DS2-VASc score assess?

A. Heart failure severity

B. Coronary artery disease risk

C. Stroke risk in patients with atrial fibrillation

D. Medication adherence

The CHA2DS2-VASc score is specifically designed to assess the risk of stroke in patients who have atrial fibrillation. This scoring system takes into consideration various risk factors, such as congestive heart failure, hypertension, age, diabetes, prior stroke or transient ischemic attack (TIA), vascular disease, and sex. By calculating the total score based on these criteria, healthcare providers can estimate a patient's risk of stroke, which informs decisions regarding anticoagulation therapy to prevent thromboembolic events. In contrast, other options do not align with the specific purpose of the CHA2DS2-VASc score. Assessing heart failure severity, evaluating coronary artery disease risk, or measuring medication adherence each involve different clinical tools and scoring systems that focus on those particular areas of cardiovascular health, rather than on the risk of stroke linked to atrial fibrillation.

8. Which lifestyle change can improve overall cardiovascular health?

A. Engaging in regular physical activity

B. Reducing sleep hours

C. Increasing sugar intake

D. Avoiding all social interactions

Engaging in regular physical activity is a fundamental lifestyle change that can significantly enhance overall cardiovascular health. Regular exercise strengthens the heart muscle, improves circulation, and helps to maintain a healthy weight. It can also lower blood pressure and improve cholesterol levels, both of which are critical factors in reducing the risk of heart disease. Additionally, physical activity promotes better blood sugar control and reduces inflammation in the body. Furthermore, it has benefits beyond physical health, such as improving mental well-being and reducing stress, which can further contribute to heart health. Incorporating regular exercise, such as brisk walking, cycling, or swimming, into daily routines is widely recommended by health professionals as a key component of a heart-healthy lifestyle. In contrast, reducing sleep hours, increasing sugar intake, and avoiding social interactions can have negative effects on cardiovascular health. Insufficient sleep can lead to a range of health problems including increased stress levels and higher blood pressure. Increased sugar intake is associated with numerous health risks, including obesity and diabetes, both of which are significant risk factors for cardiovascular disease. Similarly, social interactions are important for mental and emotional well-being, and isolation can contribute to stress and poor health outcomes. Therefore, engaging in regular physical activity stands out as the most beneficial lifestyle change for

9. During patient education, what should the nurse inform clients about monitoring their daily weight in heart failure management?

A. It can help detect fluid retention early.

B. It is not necessary unless symptoms worsen.

C. It should be done weekly.

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Monitoring daily weight in the context of heart failure management is crucial because it serves as an early warning system for fluid retention. In patients with heart failure, weight can fluctuate significantly due to changes in fluid balance. By tracking daily weight, individuals can identify an increase that may indicate a worsening of their condition, such as fluid overload, which could lead to more serious complications like congestive heart failure exacerbation. This proactive approach allows for timely interventions, such as adjusting medications or dietary changes (e.g., restricting sodium intake), which can help manage symptoms and improve overall outcomes. Recognizing these shifts early can enable both patients and healthcare providers to implement strategies to prevent further deterioration, making daily weight monitoring a vital component of heart failure management.

10. What is pericarditis?

A. Weakening of the heart muscle

B. Inflammation of the pericardium (the heart's outer lining)

C. A blockage in the coronary artery

D. A type of heart valve disease

Pericarditis is defined as the inflammation of the pericardium, which is the fibrous sac that surrounds the heart. This inflammatory process can result from a variety of causes, including infections (viral or bacterial), autoimmune disorders, or post-myocardial infarction.   The inflammation can lead to symptoms such as chest pain, which may worsen with deep breathing or lying down, as well as fever and difficulty breathing. Identifying pericarditis is crucial because it can lead to complications such as pericardial effusion (fluid accumulation in the pericardial space) or constrictive pericarditis if not addressed appropriately. This understanding of pericarditis is essential for differentiating it from other cardiac issues, such as coronary artery disease, which involves blockages in heart arteries, or heart valve disease, which pertains to malfunctions of the heart valves. The weakening of the heart muscle, known as cardiomyopathy, also represents a different pathological condition unrelated to pericarditis. Thus, recognizing the specific definition of pericarditis as inflammation of the pericardium is fundamental in the context of cardiology.