NBRC Sleep Disorders Specialty (SDS) Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

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Questions

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1. What are two other names for 60Hz artifact?

A. Phase Filter and Amplitude Filter

B. Line Filter and Notch Filter

C. Wave Filter and Sound Filter

D. Frequency Filter and Signal Filter

2. What is the normal range for QRS interval duration?

A. 0.02 - 0.08 seconds

B. 0.04 - 0.10 seconds

C. 0.12 - 0.20 seconds

D. 0.10 - 0.15 seconds

3. During each sleep study, which of the following should the sleep technician document at regular intervals?

A. Ambient noise level

B. Body position

C. Room temperature

D. Impedance checks

4. What charge is present at the front of the eye?

A. Negative

B. Neutral

C. Positive

D. Polar

5. What does a Couplet on an ECG refer to?

A. Three PVCs in succession

B. Two PVCs in a row

C. Single PVCs with normal beats

D. Four PVCs without interruption

6. What type of artifact are High-Frequency Filters (HFF) primarily used to attenuate in EEG channels?

A. Electrical artifact

B. Cardiac artifact

C. Muscle artifact

D. Eye movement artifact

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7. If a patient calls complaining of water in the tubing of their CPAP, what is the best instruction for the sleep tech to provide?

A. Decrease humidity temperature setting

B. Drain the water from the tubing prior to each use

C. Return the equipment to the DME for replacement

D. Clean the interface exhalation ports

8. Which measurement is regarded as the most reliable assessment of a patient's circulatory stability during an A-fib event?

A. Respiratory rate

B. Pulse rate

C. Blood pressure

D. Oxygen saturation

9. What is the classification of an ECG tracing showing an irregular rhythm with QRS duration greater than 0.12 seconds?

A. Atrial fibrillation

B. Normal sinus rhythm

C. Premature ventricular contraction (PVC)

D. Ventricular tachycardia

10. What is the most likely diagnosis for a patient with a sleep efficiency of 83%?

A. Normal

B. Insomnia

C. Hypersomnia

D. Sleep Apnea

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Answers

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

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Explanations

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1. What are two other names for 60Hz artifact?

A. Phase Filter and Amplitude Filter

B. Line Filter and Notch Filter

C. Wave Filter and Sound Filter

D. Frequency Filter and Signal Filter

The correct answer identifies two terms commonly used to describe the 60Hz artifact, which is associated with electrical interference that can impact sleep study recordings. The choices "Line Filter" and "Notch Filter" refer specifically to methods of eliminating this unwanted electrical noise from the data being analyzed. A line filter is designed to reduce interference from electrical sources that operate at a specific frequency, typically 60Hz in North America, thereby helping clean the recorded signals from extraneous noise. Similarly, a notch filter precisely targets and attenuates a narrow band of frequencies, filtering out the 60Hz artifacts without significantly affecting the other components of the signal being measured. Other options do not correctly correlate with the terminology used in the context of sleep studies and artifact management. For example, the terms in the first choice, "Phase Filter" and "Amplitude Filter," are not standard designations for addressing 60Hz interference, and the other pairs do not align with established practices in filtering electrical noise in clinical settings. Understanding these filters is critical for interpreting polysomnography data accurately and mitigating the effects of artifacts on sleep studies.

2. What is the normal range for QRS interval duration?

A. 0.02 - 0.08 seconds

B. 0.04 - 0.10 seconds

C. 0.12 - 0.20 seconds

D. 0.10 - 0.15 seconds

The QRS interval duration, which represents the time it takes for the ventricles of the heart to depolarize and contract, is considered normal when it falls within the range of 0.04 to 0.10 seconds. This interval is measured on an electrocardiogram (ECG) and is crucial for assessing the electrical conduction through the heart's ventricles. A QRS duration shorter than this normal range may suggest a more efficient conduction system, whereas a duration longer than 0.10 seconds may indicate a delay in conduction, such as in the case of bundle branch blocks or other types of conduction abnormality. Recognizing the normal range is essential for accurate interpretation of ECGs and diagnosing potential arrhythmias or other cardiac conditions. By understanding this standard range, healthcare providers can better evaluate a patient's cardiac health and identify any potential issues that need to be addressed.

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3. During each sleep study, which of the following should the sleep technician document at regular intervals?

A. Ambient noise level

B. Body position

C. Room temperature

D. Impedance checks

Documenting body position at regular intervals during a sleep study is crucial because it significantly impacts sleep architecture and can influence the diagnosis of various sleep disorders, particularly sleep apnea. Different body positions can lead to differing degrees of airway obstruction, especially in conditions like obstructive sleep apnea, where supine position may exacerbate symptoms due to gravitational effects on soft tissue and the tongue. Tracking body position provides valuable data for evaluating the efficacy of certain positions as interventions during the study. While ambient noise levels, room temperature, and impedance checks are indeed important aspects of a sleep study, they do not need to be documented with the same frequency as body position. Ambient noise levels and room temperature may influence sleep quality, but they are typically assessed at the beginning of a study or noted if there are significant changes rather than being recorded continuously. Impedance checks are essential for ensuring proper electrode function, but they are conducted at set intervals rather than recorded continuously as they primarily focus on the integrity of the monitoring equipment rather than directly impacting the interpretation of sleep stages or disorders. Hence, focusing on body position provides the most pertinent information for assessing sleep patterns and diagnosing conditions.

4. What charge is present at the front of the eye?

A. Negative

B. Neutral

C. Positive

D. Polar

The presence of a positive charge at the front of the eye is due to the unique physiological and biochemical characteristics of the corneal surface. The cornea is covered with a layer of epithelial cells that are highly organized and contain glycoproteins with positive charges. This positive surface charge helps maintain the stability of the tear film by attracting negatively charged components found in the tears, which are critical for protecting the eye and providing a smooth optical surface. Additionally, this positively charged environment plays a role in the eye's overall homeostasis and is essential for maintaining corneal hydration and clarity. The corneal endothelium, which lies behind the epithelium, also plays a vital role in regulating fluid balance, contributing further to the necessity of a positively charged surface to prevent corneal edema. In contrast, a neutral charge would indicate no significant interaction with surrounding fluids, which would not support the necessary physiological functions. A negative charge would not attract the tear film components properly, possibly leading to instability in the tear layer and several visual or health issues. The option of 'polar' is less specific and does not directly address the charge present at the front of the eye. Therefore, recognizing that the positive charge at the corneal surface is crucial for several vital functions

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5. What does a Couplet on an ECG refer to?

A. Three PVCs in succession

B. Two PVCs in a row

C. Single PVCs with normal beats

D. Four PVCs without interruption

A couplet on an ECG refers to two premature ventricular contractions (PVCs) that occur in succession. This term comes from the definition of a couplet, which in a broader context denotes a pair of items that are grouped together. In the context of heart rhythm, when two PVCs happen back-to-back, they represent an abnormality in the heart's electrical conduction system, often seen in various cardiac conditions. Understanding PVCs is crucial since they can indicate underlying heart disease, electrolyte imbalances, or increased sympathetic activity. Recognizing a couplet can help healthcare professionals assess the patient's cardiac stability and determine if further evaluation or intervention is needed.

6. What type of artifact are High-Frequency Filters (HFF) primarily used to attenuate in EEG channels?

A. Electrical artifact

B. Cardiac artifact

C. Muscle artifact

D. Eye movement artifact

High-Frequency Filters (HFF) are specifically designed to attenuate higher frequency signals within EEG channels, which are commonly produced by muscle activity. Muscle artifacts typically arise from contractions and movements in the muscles of the face, neck, and scalp, creating electrical noise that can interfere with the clarity and interpretation of the EEG readings. By utilizing HFF, the higher frequency components generated by these muscle activities are reduced, allowing for a more accurate representation of brain activity and enhancing the diagnostic value of the EEG. In contrast, electrical artifacts generally stem from interference from electrical devices, cardiac artifacts are tied to the heart's electrical signals, and eye movement artifacts are associated with movements of the eyes. While these other types of artifacts can also affect EEG readings, high-frequency filters specifically target the muscle artifacts that are prevalent in the high frequency range, making them an essential tool for improving the quality of the EEG signals measured.

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7. If a patient calls complaining of water in the tubing of their CPAP, what is the best instruction for the sleep tech to provide?

A. Decrease humidity temperature setting

B. Drain the water from the tubing prior to each use

C. Return the equipment to the DME for replacement

D. Clean the interface exhalation ports

When a patient experiences water in the tubing of their CPAP machine, adjusting the humidity temperature setting is often the most appropriate action. CPAP machines typically utilize a heated humidifier to add moisture to the air delivered to the patient. If the humidity level is too high, condensation can occur, leading to water accumulation in the tubing. By decreasing the humidity temperature setting, the level of moisture can be adjusted to prevent condensation and ensure a comfortable therapy experience for the patient. Draining water from the tubing before each use may provide a temporary fix, but it does not address the underlying issue of humidity control, which is key to preventing the problem from recurring. Replacing equipment through a durable medical equipment provider may be unnecessary unless there are persistent issues beyond just condensation, and cleaning the interface exhalation ports, while important for overall hygiene and effectiveness, does not resolve the issue of condensation in the tubing. Thus, adjusting the humidity temperature setting is the best instruction in this scenario.

8. Which measurement is regarded as the most reliable assessment of a patient's circulatory stability during an A-fib event?

A. Respiratory rate

B. Pulse rate

C. Blood pressure

D. Oxygen saturation

The most reliable assessment of a patient's circulatory stability during an atrial fibrillation (A-fib) event is the measurement of pulse rate. In A-fib, the heart's electrical impulses become disorganized, leading to an irregular and often rapid heartbeat. Monitoring the pulse rate provides crucial information about the heart's rhythm and efficiency in pumping blood throughout the body. A normal pulse rate indicates that the heart is still able to maintain adequate cardiac output despite the irregular activity, while significant deviations from normal can suggest compromised circulatory status. High rates may lead to a decreased filling time and inefficient blood flow, potentially causing symptoms like dizziness or fatigue. While blood pressure, respiratory rate, and oxygen saturation are important vital signs in assessing overall well-being, they can be influenced by various factors and may not directly reflect the heart's rhythm and stability in cases of A-fib. For example, blood pressure can remain stable even when the pulse rate is dangerously high or erratic, therefore not adequately representing circulatory stability. Ultimately, monitoring the pulse rate provides immediate insight into the effectiveness of the heart's contractions and its overall functional status during an A-fib event, making it the most reliable measure for this specific scenario.

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9. What is the classification of an ECG tracing showing an irregular rhythm with QRS duration greater than 0.12 seconds?

A. Atrial fibrillation

B. Normal sinus rhythm

C. Premature ventricular contraction (PVC)

D. Ventricular tachycardia

The classification of an ECG tracing displaying an irregular rhythm with a QRS duration greater than 0.12 seconds is indicative of a scenario that typically points toward ventricular ectopy. A QRS duration exceeding 0.12 seconds suggests the action potential is being conducted through the ventricles in an abnormal manner, often seen with conditions like premature ventricular contractions (PVCs). PVCs are characterized by arise early in the heart cycle, producing a wider and atypical QRS complex compared to the normal ventricular conduction pathway. This results in irregularities within the rhythm, given that the PVC interrupts the typical pattern due to its earlier onset in the cardiac cycle. The QRS complex is broader because the ventricles are depolarized in a manner that differs from the usual conduction pathways. While atrial fibrillation shows an irregular rhythm, it typically has a narrow QRS, and normal sinus rhythm doesn't align with the criteria since it would have your typical narrow QRS duration and a regular pattern. Ventricular tachycardia also features wide QRS complexes but typically presents with a more regular rhythm compared to what is described in the question. Thus, the description aligns best with a premature ventricular contraction.

10. What is the most likely diagnosis for a patient with a sleep efficiency of 83%?

A. Normal

B. Insomnia

C. Hypersomnia

D. Sleep Apnea

In the context of sleep disorders, sleep efficiency is defined as the percentage of time spent sleeping while in bed. A sleep efficiency of 83% suggests that the individual is spending a significant portion of their time in bed asleep, although it is lower than what is typically considered optimal. Normal sleep efficiency usually ranges from 85% to 90% or higher. An efficiency below this threshold can indicate some level of sleep disturbance; however, an 83% efficiency, while not ideal, does not necessarily imply a formal diagnosis of a sleep disorder like insomnia or sleep apnea. Insomnia generally involves a more significant reduction in sleep efficiency, often below 75%, along with complaints of difficulty initiating or maintaining sleep. Hypersomnia refers to excessive daytime sleepiness rather than sleep efficiency, while sleep apnea would likely present with more severe disruption of sleep patterns and efficiency. Thus, while an 83% sleep efficiency does indicate room for improvement, it may not be abnormal enough to warrant a diagnosis of sleep disorder, especially if the individual does not report significant sleep-related issues. In summary, an 83% sleep efficiency could be considered within the normal range for some individuals, particularly if they do not exhibit any additional symptoms suggesting a sleep disorder.

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