Registered Electroencephalographic Technologist (R. EEG T.) Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. What does HIPAA regulate?

A. Patient privacy

B. Hospital accreditation process

C. Health care worker training program

D. Federally funded insurance program

2. Which form of activity in the EEG may indicate severe brain dysfunction?

A. Alpha rhythm

B. Mu rhythm

C. Burst suppression activity

D. Sleep spindles

3. Which scenario typically does NOT cause an attenuation of the posterior dominant alpha rhythm in a normal adult?

A. Having patient open eyes

B. Having patient solve complex math problem with eyes closed

C. Light sleep

D. Relaxed wakefulness with eyes closed

4. Which artery is formed by the joining of the vertebral arteries?

A. Basilar

B. Posterior cerebral

C. Common carotid

D. Middle cerebral

5. Eyelid myoclonia with absences and eye closure induced seizures is characteristic of:

A. Jeavons syndrome

B. Ramsay-hunt syndrome

C. Rasmussen syndrome

D. Landau kleffner syndrome

6. A patient has a generalized tonic-clonic seizure during EEG recording. What is the primary responsibility of the EEG technologist if one electrode is pulled off?

A. Protect the patient from injury and keep EEG running

B. Stop the recording and fix the electrode

C. Stop the recording and protect the patient from injury

D. Fix the electrode and then attend to the patient

7. Which pattern is associated with Creutzfeldt-Jakob disease?

A. Polyspike complex

B. Spike and wave complex

C. Multifocal sharp waves

D. Periodic sharp waves

8. Which condition is characterized by dementia, myoclonus, and biphasic or triphasic repetitive discharges?

A. Subacute sclerosing panencephalitis (SSPE)

B. Reyes syndrome

C. Creutzfeldt-Jakob disease (CJD)

D. Wilson's disease

9. What is the main concern for transmission of infection in an EEG laboratory?

A. Insects

B. Food

C. Air

D. Blood

10. What might cause a build-up of slowing several minutes after hyperventilation?

A. Moyamoya disease

B. Patient continues to hyperventilate

C. CVD

D. Focal lesion

Answers

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

Explanations

1. What does HIPAA regulate?

A. Patient privacy

B. Hospital accreditation process

C. Health care worker training program

D. Federally funded insurance program

The correct answer is that HIPAA regulates patient privacy. The Health Insurance Portability and Accountability Act (HIPAA) was enacted in 1996 to protect sensitive patient information from being disclosed without the patient's consent or knowledge. This law establishes national standards for the protection of health information, particularly electronic health information, and includes provisions for securing and managing patient data. It sets rules for data privacy, the sharing of medical records, and how healthcare providers need to protect patient privacy rights. In this context, while the other options may relate to healthcare in various ways, they do not specifically pertain to the core focus of HIPAA. For instance, hospital accreditation and health care worker training programs are governed by different regulatory bodies and standards, focusing on the quality of care and professional training, rather than directly managing patient privacy. Similarly, federally funded insurance programs are related to health coverage but do not encompass the privacy protections outlined in HIPAA. Thus, HIPAA's primary function is rooted in ensuring that patient privacy is maintained across healthcare systems.

2. Which form of activity in the EEG may indicate severe brain dysfunction?

A. Alpha rhythm

B. Mu rhythm

C. Burst suppression activity

D. Sleep spindles

Burst suppression activity is characterized by periods of high amplitude spikes or waves followed by flat or nearly flat segments of the EEG recording. This pattern typically indicates severe brain dysfunction and is often seen in conditions where there is significant deterioration of cerebral function, such as during deep anesthesia, comas, or encephalopathies. The presence of burst suppression is a critical finding as it suggests a reduction in the brain's ability to maintain normal electrical activity and reflects a disorganized and severely compromised neural state. In contrast, alpha rhythm, mu rhythm, and sleep spindles are generally associated with functionally intact states of the brain. The alpha rhythm is usually present during relaxed wakefulness, the mu rhythm is found over the motor cortex during idle state but can disappear with movement, and sleep spindles are indicative of non-REM sleep stages reflecting normal sleep cycles. Thus, burst suppression serves as a significant marker of abnormal brain function, distinguishing it from other EEG patterns indicative of normal or more mild disturbances.

3. Which scenario typically does NOT cause an attenuation of the posterior dominant alpha rhythm in a normal adult?

A. Having patient open eyes

B. Having patient solve complex math problem with eyes closed

C. Light sleep

D. Relaxed wakefulness with eyes closed

In the context of EEG patterns, the posterior dominant alpha rhythm is typically observed in a relaxed, alert state, particularly when the eyes are closed. When the eyes are closed and the individual is relaxed, this rhythm is pronounced and can be seen prominently on the EEG. This state is characterized by the eyes being shut, leading to a reduction in visual sensory input, which allows for the full expression of the alpha rhythm in the brainwaves. In contrast, opening the eyes or engaging in complex cognitive tasks like solving math problems can lead to an attenuation of the alpha rhythm. This is because visual stimuli and cognitive processing activate other brain areas, which can disrupt and diminish the alpha frequency activity. Light sleep, while it may initially show alpha activity, typically transitions into different sleep stages where alpha rhythms are suppressed or altered. Thus, relaxed wakefulness with the eyes closed is the scenario that does not attenuate the alpha rhythm in a normal adult, as this is the condition under which the alpha rhythm is most robustly observed.

4. Which artery is formed by the joining of the vertebral arteries?

A. Basilar

B. Posterior cerebral

C. Common carotid

D. Middle cerebral

The basilar artery is formed by the joining of the left and right vertebral arteries, which come together at the base of the brain. This union occurs at the level of the brainstem, specifically at the level of the medulla oblongata. The basilar artery plays a crucial role in supplying blood to the posterior part of the brain, including the brainstem and the cerebellum. In contrast, the posterior cerebral artery branches off from the basilar artery, supplying the occipital lobes and the inferior surface of the temporal lobes. The common carotid artery originates from the aorta (on the left side) or the brachiocephalic trunk (on the right side) and bifurcates into the internal and external carotid arteries, which are responsible for supplying blood to the anterior parts of the head and neck. The middle cerebral artery, also a branch of the internal carotid artery, supplies a significant portion of the lateral aspect of the cerebral hemispheres. Understanding the relationships and roles of these vessels is essential for comprehending blood flow pathways in the brain and their clinical implications.

5. Eyelid myoclonia with absences and eye closure induced seizures is characteristic of:

A. Jeavons syndrome

B. Ramsay-hunt syndrome

C. Rasmussen syndrome

D. Landau kleffner syndrome

Eyelid myoclonia with absences and eye closure induced seizures is a hallmark of Jeavons syndrome. This condition is characterized by brief episodes of unresponsiveness (absence seizures) that are often triggered by blinking or eye closure. In addition to these absences, individuals with Jeavons syndrome also experience myoclonic jerks, particularly involving the eyelids. The unique aspect of eyelid myoclonia differentiates it from other syndromes. In contrast, Ramsay-Hunt syndrome is primarily associated with herpes zoster infection affecting the facial nerve and does not typically present with eyelid myoclonia or absence seizures. Rasmussen syndrome involves progressive brain damage and is characterized by seizures but not specifically eyelid myoclonia or absences. Landau-Kleffner syndrome is related to acquired aphasia and seizures, but it does not display the specific feature of eyelid myoclonia associated with Jeavons syndrome. Thus, the characteristics of Jeavons syndrome make it the most appropriate choice given the symptoms described.

6. A patient has a generalized tonic-clonic seizure during EEG recording. What is the primary responsibility of the EEG technologist if one electrode is pulled off?

A. Protect the patient from injury and keep EEG running

B. Stop the recording and fix the electrode

C. Stop the recording and protect the patient from injury

D. Fix the electrode and then attend to the patient

The primary responsibility of the EEG technologist during a generalized tonic-clonic seizure is to ensure the safety of the patient while maintaining the integrity of the EEG recording. This is crucial because the seizure activity provides valuable information that can assist in diagnosis and management. When one electrode is pulled off during the seizure, the immediate concern is to protect the patient from potential injury due to the violent nature of the seizure. Keeping the EEG running allows for the capture of essential seizure activity, which is critical for accurate interpretation by the clinician. Therefore, by prioritizing the patient's safety while continuing the recording, the technologist fulfills their duty to both the well-being of the patient and the clinical utility of the EEG data. Maintaining a balance between patient safety and data integrity is essential in this context, which is why the correct response emphasizes protection from injury and continuing the EEG recording.

7. Which pattern is associated with Creutzfeldt-Jakob disease?

A. Polyspike complex

B. Spike and wave complex

C. Multifocal sharp waves

D. Periodic sharp waves

The pattern associated with Creutzfeldt-Jakob disease is characterized by periodic sharp waves. In patients with this neurodegenerative disorder, the EEG findings often reveal these periodic sharp wave complexes, which typically occur at regular intervals, indicating a form of cortical irritability. This is distinct from other patterns that might not be specifically linked to the pathology of Creutzfeldt-Jakob disease. Periodic sharp waves can help differentiate Creutzfeldt-Jakob disease from other types of encephalopathies, as this finding is relatively unique to prion diseases. The presence of these waves is correlated with the rapid progression of cognitive decline and other clinical features of the disease. Understanding this specific EEG pattern is crucial for the diagnosis and management of patients suspected of having Creutzfeldt-Jakob disease.

8. Which condition is characterized by dementia, myoclonus, and biphasic or triphasic repetitive discharges?

A. Subacute sclerosing panencephalitis (SSPE)

B. Reyes syndrome

C. Creutzfeldt-Jakob disease (CJD)

D. Wilson's disease

The condition characterized by dementia, myoclonus, and biphasic or triphasic repetitive discharges is Creutzfeldt-Jakob disease (CJD). CJD is a prion disease that leads to rapidly progressive dementia and neurological symptoms. The myoclonus seen in patients with CJD is a hallmark feature of the disease, and the distinctive electroencephalographic (EEG) finding of biphasic or triphasic discharges is often observed in the later stages. These specific EEG patterns are significant because they can assist in the differentiation of CJD from other neurodegenerative disorders and help in establishing the diagnosis. The conjunction of cognitive decline, involuntary jerking movements (myoclonus), and these specific EEG findings create a profile that is highly indicative of CJD, making it the correct answer among the provided options. Subacute sclerosing panencephalitis (SSPE) does involve changes in cognitive function and may have distinct EEG patterns but is primarily linked to post-measles viral infection. Reyes syndrome can result in encephalopathy often characterized by different EEG changes and is associated with acute liver failure, generally not featuring myoclonus. Wilson's disease is a genetic disorder that can

9. What is the main concern for transmission of infection in an EEG laboratory?

A. Insects

B. Food

C. Air

D. Blood

The primary concern for transmission of infection in an EEG laboratory is blood. Electroencephalographic procedures often involve contact with the patient's scalp and the application of electrodes, which may require the use of conductive gels that can create minor abrasions or punctures in the skin. If these abrasions come into contact with blood or there are any existing infections that could be transmitted through blood, this poses a significant risk. Additionally, any blood on electrodes or equipment can serve as a vector for pathogens, contributing to infection transmission among patients and staff. Proper infection control practices, such as the use of disposable electrodes, gloves, and thorough cleaning of equipment, are essential to mitigate this risk in the EEG setting. Thus, the focus on blood as the main concern reflects the need for diligence in preventing bloodborne pathogens from introducing infection within the laboratory environment.

10. What might cause a build-up of slowing several minutes after hyperventilation?

A. Moyamoya disease

B. Patient continues to hyperventilate

C. CVD

D. Focal lesion

The rationale behind the correct answer relates to how cerebral blood flow dynamics are affected following hyperventilation, particularly concerning cerebrovascular disease (CVD). Hyperventilation leads to a state of respiratory alkalosis, which subsequently causes cerebral vasoconstriction and reduced blood flow. In patients with CVD, especially those with compromised blood flow due to vascular occlusions or stenosis, the ability to maintain adequate cerebral perfusion is further impaired. A potential effect of this reduced perfusion is a build-up of slowing on the electroencephalogram (EEG), which can manifest as generalized or focal slowing depending on the extent of the vascular compromise and underlying brain function. This slowing can appear several minutes after the onset of hyperventilation due to the lag in cerebral blood flow changes and resulting hypoperfusion. In contrast, other options such as moyamoya disease and focal lesions may present differently on EEG and would not typically result in a build-up of slowing specifically due to hyperventilation. Continuous hyperventilation is less likely to be a factor in itself; rather, it would usually lead to consistent EEG changes rather than a delayed accumulation.