Immunology & HIV Practice Test (Sample)

Study Guide

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Questions

1. What is the primary function of immune tolerance in individuals infected with HIV?

- **A. To eliminate the virus completely**
- **B. To manage immune responses to prevent tissue damage**
- **C. To amplify the immune response against secondary infections**
- **D. To lower the levels of viral replication**

2. In which order should a nurse respond when a patient develops wheezing and dyspnea after receiving IV antibiotics?

- **A. Discontinue the antibiotic infusion, Start 100% oxygen, Inject epinephrine, Prepare infusion of dopamine, Give diphenhydramine.**
- **B. Start 100% oxygen, Discontinue the antibiotic infusion, Inject epinephrine, Give diphenhydramine, Prepare infusion of dopamine.**
- **C. Give diphenhydramine, Inject epinephrine, Start 100% oxygen, Discontinue the antibiotic infusion, Prepare infusion of dopamine.**
- **D. Inject epinephrine, Start 100% oxygen, Prepare infusion of dopamine, Discontinue the antibiotic infusion, Give diphenhydramine.**

3. What action should a nurse take for a patient who missed an appointment for weekly immunotherapy?

- **A. Schedule an additional dose that week.**
- **B. Administer the usual dosage of the allergen.**
- **C. Consult with the health care provider about giving a lower allergen dose.**
- **D. Re-evaluate the patient's sensitivity to the allergen with a repeat skin test.**

4. What does HIV stigma refer to?

- **A. Negative attitudes and beliefs about individuals living with HIV**
- **B. A form of medical treatment for HIV**
- **C. A type of vaccine for HIV prevention**
- **D. A government policy regarding HIV**

5. Which patient should the nurse assess first in an HIV clinic?

- **A. Patient whose latest CD4+ count is 250/µL**
- **B. Patient whose rapid HIV-antibody test is positive**
- **C. Patient who has had 10 liquid stools in the last 24 hours**
- **D. Patient who has nausea from prescribed antiretroviral drugs**

6. What symptom may indicate the need for urgent assessment in an HIV patient?

- **A. Persistent fatigue**
- **B. Sudden weight loss**
- **C. High fever**
- **D. Severe diarrhea**

7. What nursing intervention is a priority for a patient with a CD4+ count of 800/µL?

- **A. Teach about the effects of antiretroviral agents.**
- **B. Encourage adequate nutrition, exercise, and sleep.**
- **C. Discuss likelihood of increased opportunistic infections.**
- **D. Monitor for symptoms of acquired immunodeficiency syndrome (AIDS).**

8. Which of the following best describes Pneumocystis jirovecii pneumonia?

- **A. A common cold affecting healthy individuals**
- **B. An opportunistic lung infection in HIV patients**
- **C. Viral pneumonia with high mortality rates**
- **D. A pneumonia not related to immune status**

9. Which patient demographic has the highest risk of developing HIV over time?

- **A. Those with average health and no risky behaviors.**
- **B. Those with high-risk sexual behaviors.**
- **C. Those receiving routine health screenings.**
- **D. Those utilizing preventive health care services.**

10. Which of the following statements regarding antibiotics and viral infections is accurate?

A. Antibiotics are effective against all infections

B. Antibiotics can treat influenza symptoms

C. Antibiotics are ineffective for viral infections

D. Antibiotics should be taken at the onset of viral symptoms

Answers

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

Explanations

1. What is the primary function of immune tolerance in individuals infected with HIV?

A. To eliminate the virus completely

B. To manage immune responses to prevent tissue damage

C. To amplify the immune response against secondary infections

D. To lower the levels of viral replication

The primary function of immune tolerance in individuals infected with HIV is to manage immune responses to prevent tissue damage. In the context of HIV infection, the immune system can become overly activated, which may lead to a hyper-inflammatory response. Such a reaction can cause significant harm to the body's own tissues, exacerbating the effects of the virus and increasing morbidity. Immune tolerance helps to maintain a balance in immune responses, allowing the body to tolerate certain levels of the virus without triggering an excessive inflammatory response. This is particularly important in the context of chronic infections like HIV, where persistent activation of the immune system can lead to immune exhaustion and increased risk of opportunistic infections or other complications. By managing these responses, immune tolerance facilitates a stable environment where the immune system can function effectively without causing additional damage due to inflammation. Other choices focus on responses that may not align with the actual role of immune tolerance. For example, completely eliminating the virus might not be achievable in chronic HIV cases, while amplifying the immune response against secondary infections can lead to potential tissue damage in the context of ongoing HIV infection. Similarly, while lowering levels of viral replication is a goal in treatment, it does not specifically pertain to immune tolerance, which is more about controlling the immune reaction to the

2. In which order should a nurse respond when a patient develops wheezing and dyspnea after receiving IV antibiotics?

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B. Start 100% oxygen, Discontinue the antibiotic infusion, Inject epinephrine, Give diphenhydramine, Prepare infusion of dopamine.

C. Give diphenhydramine, Inject epinephrine, Start 100% oxygen, Discontinue the antibiotic infusion, Prepare infusion of dopamine.

D. Inject epinephrine, Start 100% oxygen, Prepare infusion of dopamine, Discontinue the antibiotic infusion, Give diphenhydramine.

The correct response order is based on the urgency of the interventions required for a patient who is experiencing wheezing and dyspnea, which suggests an acute allergic reaction or anaphylaxis following an infusion of antibiotics. Discontinuing the antibiotic infusion immediately addresses the potential cause of the reaction, halting further exposure to the allergen. Immediately followed by starting 100% oxygen ensures that the patient receives optimal respiratory support during this critical time when they may be struggling to breathe. Injecting epinephrine is paramount because it acts rapidly to counteract anaphylactic symptoms by vasoconstriction, bronchodilation, and reducing vascular permeability. This medication is often the first-line treatment in cases of severe allergic reactions or anaphylaxis. While administering diphenhydramine is important for managing allergic reactions, it is not as critical in the immediate response as the aforementioned steps. Although preparing an infusion of dopamine may be relevant in managing hypotension that can accompany severe allergic reactions, it is not the immediate priority compared to ensuring airway patency and addressing life-threatening symptoms. This systematic approach prioritizes interventions in a way that rapidly stabilizes the patient while also addressing the likely cause of their symptoms.

3. What action should a nurse take for a patient who missed an appointment for weekly immunotherapy?

A. Schedule an additional dose that week.

B. Administer the usual dosage of the allergen.

C. Consult with the health care provider about giving a lower allergen dose.

D. Re-evaluate the patient's sensitivity to the allergen with a repeat skin test.

In the context of a patient who has missed their weekly immunotherapy appointment, consulting with the healthcare provider about giving a lower allergen dose is an important and appropriate action. This approach acknowledges the potential risk associated with missing a dose, as the patient's immune system may have altered its response in the absence of regular exposure to the allergen. Immunotherapy works by gradually desensitizing the patient to the specific allergens through controlled exposure. Missing an appointment can disrupt this process, which may lead to increased sensitivity upon resuming treatment. By discussing the option of a lower allergen dose with the healthcare provider, the nurse ensures that the patient's safety is prioritized and that any potential adverse reactions can be minimized. This cautious approach helps to re-establish the patient's immunotherapy regimen effectively and safely after a missed dose. Other actions, such as scheduling an additional dose or administering the usual dosage, may pose a risk to the patient due to increased sensitivity. Re-evaluating the patient's sensitivity with a repeat skin test is generally more invasive and may not be practical or necessary right away. Consulting with the provider about the possibility of adjusting the dose strikes a balance between maintaining the treatment protocol and considering the patient's current state.

4. What does HIV stigma refer to?

A. Negative attitudes and beliefs about individuals living with HIV

B. A form of medical treatment for HIV

C. A type of vaccine for HIV prevention

D. A government policy regarding HIV

HIV stigma specifically refers to the negative attitudes and beliefs held by individuals and society toward those living with HIV. This can encompass discrimination, fear, and misconceptions about the virus and its transmission, often leading to social isolation, emotional distress, and a reluctance among individuals to seek testing or treatment. These stigmatizing attitudes can have profound impacts on the quality of life of those affected, as well as public health efforts in terms of prevention and education. The other options do not accurately describe HIV stigma: medical treatment and vaccines are related to the management and prevention of HIV, while government policy may pertain to laws and regulations about HIV, but does not encapsulate the societal perceptions and individual attitudes that constitute stigma. Understanding these negative perceptions is crucial in addressing the broader challenges faced by those living with HIV and in promoting a more informed and compassionate approach to health care and support.

5. Which patient should the nurse assess first in an HIV clinic?

A. Patient whose latest CD4+ count is 250/µL

B. Patient whose rapid HIV-antibody test is positive

C. Patient who has had 10 liquid stools in the last 24 hours

D. Patient who has nausea from prescribed antiretroviral drugs

The patient who has had 10 liquid stools in the last 24 hours should be prioritized for assessment due to the potential for severe dehydration and electrolyte imbalances. This situation can be particularly acute for individuals with HIV, as they may have compromised immune systems. Diarrhea can lead to significant fluid loss and if not addressed promptly, it could quickly escalate into a critical condition. In contrast, while a CD4+ count of 250/µL indicates immunosuppression and requires monitoring, it does not necessarily signify immediate danger compared to the acute need for assessment related to excessive diarrhea. The patient with a positive rapid HIV-antibody test is still in the initial stages of care and will require follow-up but is not in immediate physical distress. The patient experiencing nausea from antiretroviral drugs does need attention, but this condition, while uncomfortable, typically does not pose the same immediate risk to life or health as the potential consequences of severe diarrhea can. Prioritizing care in the clinic setting requires assessing patients at greater risk of rapid deterioration, making the patient with liquid stools the most critical to evaluate first.

6. What symptom may indicate the need for urgent assessment in an HIV patient?

A. Persistent fatigue

B. Sudden weight loss

C. High fever

D. Severe diarrhea

Severe diarrhea in an HIV patient may indicate a significant and urgent assessment need due to the potential for dehydration, electrolyte imbalance, and an underlying opportunistic infection. In individuals living with HIV, especially those who may have a compromised immune system, the onset of severe gastrointestinal symptoms can signify a serious condition that requires immediate medical evaluation. Diarrhea can be caused by a variety of factors, including infections from pathogens that typically would be managed by a healthy immune system. In the context of HIV, it becomes crucial to determine whether the diarrhea is a result of a viral, bacterial, or parasitic infection, as these can be common in immunocompromised individuals. In contrast, while persistent fatigue, sudden weight loss, and high fever can also be concerning symptoms, they do not necessarily indicate the same immediate risk to health as severe diarrhea. Persistent fatigue and sudden weight loss can be indications of a chronic process or gradual disease progression, while a high fever alone can result from numerous causes that may not warrant emergency intervention unless accompanied by other critical symptoms. Thus, the presence of severe diarrhea is a clear indication that the patient requires urgent assessment to prevent serious complications.

7. What nursing intervention is a priority for a patient with a CD4+ count of 800/µL?

A. Teach about the effects of antiretroviral agents.

B. Encourage adequate nutrition, exercise, and sleep.

C. Discuss likelihood of increased opportunistic infections.

D. Monitor for symptoms of acquired immunodeficiency syndrome (AIDS).

The choice to encourage adequate nutrition, exercise, and sleep as a priority intervention for a patient with a CD4+ count of 800/µL underscores the importance of maintaining overall health and well-being in individuals with HIV. A CD4+ count in this range indicates that the patient's immune system is functioning relatively well, which suggests they are in a stable phase of HIV. Promoting a healthy lifestyle through balanced nutrition, regular physical activity, and sufficient rest is crucial for supporting the immune system, enhancing the body's ability to respond to infections, and improving overall quality of life. These interventions help to optimize immune function, even in patients who are currently stable, and can play a significant role in delaying disease progression and the onset of complications related to HIV. While discussing the effects of antiretroviral agents and monitoring for AIDS symptoms are relevant considerations in the management of HIV, at this stage, where the patient's CD4+ count is still relatively high, the focus can shift to preventive health measures to ensure that the patient remains healthy and active. Opportune discussions about opportunistic infections are also important but are generally more urgent when the patient's immune function is significantly compromised. Thus, promoting a lifestyle that supports health and well-being integrates well with the

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Pneumocystis jirovecii pneumonia is best described as an opportunistic lung infection that primarily affects individuals with weakened immune systems, particularly those with HIV/AIDS. This organism is a type of fungus that typically does not cause disease in healthy individuals, but in those with compromised immune systems, such as patients with CD4 counts below 200 cells/mm³, it can lead to significant respiratory distress and is often life-threatening if not treated promptly. Given its association with immunocompromised patients, especially those with HIV, Pneumocystis jirovecii pneumonia is classified as an opportunistic infection. This means it takes advantage of the weakened immune state, which is characteristic of advanced HIV infection. The other options do not accurately reflect the nature of this pneumonia: it is not commonly experienced by healthy individuals (as indicated in the first option), it is not viral in origin (contradicting the definition of viral pneumonia), and it is directly related to a person's immune status as an opportunistic infection, which makes the fourth option inaccurate as well.

9. Which patient demographic has the highest risk of developing HIV over time?

A. Those with average health and no risky behaviors.

B. Those with high-risk sexual behaviors.

C. Those receiving routine health screenings.

D. Those utilizing preventive health care services.

The demographic group with the highest risk of developing HIV over time is primarily characterized by high-risk sexual behaviors. Individuals engaging in such behaviors, which may include having unprotected sex with multiple partners, are exposed to a greater likelihood of encountering the virus. High-risk activities not only elevate the chance of exposure to HIV but also can lead to its transmission if one partner is HIV-positive. In contrast, groups described by average health with no risky behaviors, those receiving routine health screenings, and individuals utilizing preventive health care services typically have measures in place that either reduce the risk of HIV exposure or facilitate early detection and treatment, further lowering the chances of developing HIV over time. These latter groups often engage in practices that contribute to overall health and wellness, including the use of barrier methods during sexual activity and regular consultations with healthcare providers, resulting in lower transmission rates overall.

10. Which of the following statements regarding antibiotics and viral infections is accurate?

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Antibiotics are specifically designed to target and kill bacteria or inhibit their growth, making them an essential treatment for bacterial infections. However, they do not have any effect on viruses, which are entirely different pathogens. Viral infections, such as influenza, are caused by viruses that replicate inside host cells and do not possess the cellular machinery that antibiotics target. Therefore, the statement that antibiotics are ineffective for viral infections accurately reflects this understanding. By acknowledging that antibiotics cannot treat viral infections, this answer aligns with established medical knowledge and guidelines regarding the appropriate use of antibiotics and the treatment of various types of infections. The other statements do not accurately reflect the relationship between antibiotics and viral infections. For example, antibiotics cannot treat influenza symptoms or any viral illness, and they should not be administered just based on the onset of viral symptoms, as this may contribute to antibiotic resistance and other healthcare issues. It's important for medical treatment to distinguish between bacterial and viral infections to ensure proper care and management.