Infectious Disease Practice Test (Sample)

Study Guide

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Questions

1. Which herpesvirus is responsible for causing Epstein-Barr Virus infection?

A. Herpes Simplex Virus

B. Herpes 4

C. Herpes Zoster

D. Human Cytomegalovirus

2. Which vaccine is recommended for healthcare workers to prevent Hepatitis B?

A. MMR vaccine

B. Influenza vaccine

C. Hepatitis B vaccine

D. Tetanus vaccine

3. What is the typical manifestation of Kawasaki syndrome?

A. Fever and joint pain

B. Strawberry tongue and rash

C. High blood pressure and fatigue

D. Pneumonia and coughing

4. What type of rash is characterized by satellite lesions?

A. Psoriasis

B. Candida rash

C. Eczema

D. Athlete's foot

5. What condition is indicated by fever, abdominal distention, diarrhea, and pink papular rashes after returning from central Africa?

A. Malaria

B. Typhoid fever

C. Dengue fever

D. Yellow fever

6. What is the most common treatment for acute gastroenteritis caused by viral infections?

A. Antibiotics

B. Fluid replacement

C. Aspirin

D. Antiviral medication

7. What is the characteristic laboratory finding in a dengue fever infection?

A. Leukocytosis

B. Anemia

C. Thrombocytopenia

D. Hyperglycemia

8. What condition is suggested by a patient presenting with erythema migrans after recent outdoor exposure?

A. Rocky Mountain spotted fever

B. Lyme disease

C. Scabies

D. Relapsing fever

9. What disease is caused by the Plasmodium parasite?

A. Dengue fever

B. Malaria

C. Lymphatic filariasis

D. Chagas disease

10. In the context of a recent travel history, which symptom is most concerning for potential infectious disease?

A. Pneumonia

B. Cough

C. Fever

D. Skin rash

Answers

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

Explanations

1. Which herpesvirus is responsible for causing Epstein-Barr Virus infection?

A. Herpes Simplex Virus

B. Herpes 4

C. Herpes Zoster

D. Human Cytomegalovirus

The herpesvirus responsible for causing Epstein-Barr Virus (EBV) infection is indeed classified as Herpesvirus 4, which is part of the larger Herpesviridae family. EBV is well-known for being associated with infectious mononucleosis and is also implicated in various cancers, such as Burkitt lymphoma and nasopharyngeal carcinoma. Herpesvirus 4 is distinct in that it can establish lifelong latency in the body after initial infection, primarily residing in B lymphocytes. This latent phase is crucial for understanding the virus's role in different diseases, particularly those related to immune function. The other viruses in the choices relate to different infections: Herpes Simplex Virus causes conditions such as cold sores and genital herpes, Herpes Zoster is responsible for chickenpox and shingles, and Human Cytomegalovirus is associated with congenital infections and complications in immunocompromised individuals. Each of these herpesviruses has unique characteristics and clinical implications, differentiating them from Epstein-Barr Virus. Thus, identifying EBV as Herpesvirus 4 is essential for understanding its medical significance and the diseases it can cause.

2. Which vaccine is recommended for healthcare workers to prevent Hepatitis B?

A. MMR vaccine

B. Influenza vaccine

C. Hepatitis B vaccine

D. Tetanus vaccine

The Hepatitis B vaccine is specifically designed to protect individuals from the Hepatitis B virus, which can be particularly dangerous for healthcare workers who are at increased risk of exposure due to their job. Healthcare workers may come into contact with blood and other potentially infectious materials, making vaccination essential to prevent infection. The vaccine prompts the immune system to produce antibodies against the virus, offering protection against Hepatitis B infection and its potential complications, including chronic liver disease and liver cancer. While the MMR vaccine protects against measles, mumps, and rubella, and the influenza vaccine provides immunity against seasonal flu, they do not offer protection against Hepatitis B. The tetanus vaccine is focused on preventing tetanus infections and is not related to blood-borne pathogens like Hepatitis B. Therefore, the Hepatitis B vaccine is the most relevant and important for healthcare workers in this context.

3. What is the typical manifestation of Kawasaki syndrome?

A. Fever and joint pain

B. Strawberry tongue and rash

C. High blood pressure and fatigue

D. Pneumonia and coughing

Kawasaki syndrome is characterized by a specific set of symptoms that help in its diagnosis. The most typical manifestations include fever, conjunctivitis, lymphadenopathy, and skin changes such as a rash and the distinct appearance of the tongue, often described as "strawberry tongue." This condition primarily affects young children and is associated with inflammation of the blood vessels, which can lead to serious complications like coronary artery aneurysms if left untreated. The presence of a strawberry tongue, which features red and swollen papillae on the tongue surface, along with a rash, are hallmark signs of Kawasaki syndrome. These symptoms reflect the systemic inflammation and vasculitis that the syndrome induces in affected individuals. While fever and joint pain can occur in various illnesses, including other inflammatory conditions, they are not specific to Kawasaki syndrome. Similarly, high blood pressure and fatigue can be associated with numerous health issues, while pneumonia and coughing typically point to respiratory infections rather than the vasculitis seen in Kawasaki syndrome. Thus, the combination of strawberry tongue and rash is a key indicator of this specific disease, corroborating the correct choice.

4. What type of rash is characterized by satellite lesions?

A. Psoriasis

B. Candida rash

C. Eczema

D. Athlete's foot

The type of rash that is characterized by satellite lesions is indeed associated with a Candida infection. In cases of a candidal rash, particularly in areas of skin that are subject to moisture, such as the groin, armpits, or under the breasts, one may observe distinct red patches surrounded by smaller red lesions. These smaller lesions, known as satellite lesions, indicate that the infection is not confined to a single area but is rather spreading or has multiple foci due to the yeast's proliferation. The presence of satellite lesions is a hallmark of Candida dermatitis and signifies irritation and fungal infection, often exacerbated in moist environments. Consequently, recognizing these satellite lesions is crucial for accurate diagnosis and subsequent treatment of the rash.

5. What condition is indicated by fever, abdominal distention, diarrhea, and pink papular rashes after returning from central Africa?

A. Malaria

B. Typhoid fever

C. Dengue fever

D. Yellow fever

The symptoms presented—fever, abdominal distention, diarrhea, and pink papular rashes—are highly indicative of typhoid fever, especially considering the travel history to central Africa. Typhoid fever is caused by the bacterium Salmonella typhi and is often linked to contaminated food and water, which is a significant risk in areas with less sanitary conditions. The presence of abdominal distention and diarrhea fits the gastrointestinal complications commonly seen in typhoid fever, where the infection affects the intestines leading to symptoms such as these, and the systemic nature of the fever aligns with the body's response to a bacterial infection. Additionally, the occurrence of rash, particularly in cases of typhoid fever, can manifest as a rose-colored spot or papular rash that appears on the abdomen and trunk. This is a classic presentation associated with typhoid. In contrast to other options, malaria primarily presents with intermittent fever and chills, and does not typically cause diarrhea or a rash in the same presentation. Dengue fever is characterized by high fever, severe headache, retro-orbital pain, and a petechial rash rather than papular lesions. Yellow fever also features fever and can include hemorrhagic symptoms along with liver involvement, but abdominal

6. What is the most common treatment for acute gastroenteritis caused by viral infections?

A. Antibiotics

B. Fluid replacement

C. Aspirin

D. Antiviral medication

The most common treatment for acute gastroenteritis caused by viral infections is fluid replacement. This condition often leads to dehydration due to symptoms like vomiting and diarrhea, which result in the loss of fluids and electrolytes. The primary goal of treatment in cases of viral gastroenteritis is to maintain hydration and restore the balance of electrolytes. Oral rehydration solutions are typically recommended, especially for mild to moderate dehydration, as they contain the right balance of water, salts, and sugars to effectively rehydrate the body. In more severe cases, intravenous fluid replacement may be necessary to ensure adequate hydration and electrolyte levels. Antibiotics are ineffective against viral infections and are therefore not used in this context. Antiviral medications target specific viral infections and are not the standard treatment for the majority of cases of viral gastroenteritis. Aspirin is not indicated for treating gastroenteritis and is generally avoided in children due to its association with Reye's syndrome, a serious condition. Thus, fluid replacement stands out as the most relevant and effective treatment approach for viral gastroenteritis.

7. What is the characteristic laboratory finding in a dengue fever infection?

A. Leukocytosis

B. Anemia

C. Thrombocytopenia

D. Hyperglycemia

Thrombocytopenia is the characteristic laboratory finding in dengue fever infection. This condition refers to a lower than normal platelet count in the blood. In dengue fever, the virus can affect the bone marrow and lead to decreased production of platelets, which are crucial for normal blood clotting. As the disease progresses, especially during the critical phase, patients may experience further reduction in platelet counts, which can put them at risk for bleeding complications. This laboratory finding is significant because it can help clinicians differentiate dengue from other acute febrile illnesses. Monitoring platelet counts is essential in managing dengue patients, as severe thrombocytopenia can indicate a more severe form of the disease, such as dengue hemorrhagic fever. Thus, the presence of thrombocytopenia is a critical marker that guides clinical decisions and patient management in dengue infections.

8. What condition is suggested by a patient presenting with erythema migrans after recent outdoor exposure?

A. Rocky Mountain spotted fever

B. Lyme disease

C. Scabies

D. Relapsing fever

The presentation of erythema migrans, especially in the context of recent outdoor exposure, strongly suggests Lyme disease. Erythema migrans is a distinctive skin rash that is often described as a "bull's-eye" lesion, characterized by a central clearing with a red border. This specific type of rash is highly indicative of Lyme disease, which is caused by the bacterium Borrelia burgdorferi and transmitted through bites from infected black-legged ticks. The recent outdoor exposure serves as a critical context because Lyme disease is endemic in certain geographic areas, especially in wooded or grassy regions where these ticks thrive. If a patient reports having spent time in such environments and develops this characteristic rash, it raises the suspicion of Lyme disease significantly. In contrast, while Rocky Mountain spotted fever, scabies, and relapsing fever are all important infectious conditions, they do not typically present with erythema migrans. Rocky Mountain spotted fever usually involves rash that begins at the wrists and ankles, scabies causes intense itching and is characterized by small red bumps or blisters, and relapsing fever is known for recurrent episodes of fever and not for a specific rash like erythema migrans. Thus, the presence of this specific rash following outdoor exposure

9. What disease is caused by the Plasmodium parasite?

A. Dengue fever

B. Malaria

C. Lymphatic filariasis

D. Chagas disease

The disease caused by the Plasmodium parasite is malaria. This parasite is transmitted to humans primarily through the bites of infected female Anopheles mosquitoes. Once inside the human body, the Plasmodium parasite undergoes a complex lifecycle that affects red blood cells, leading to the main symptoms of malaria, which include fever, chills, sweats, headaches, nausea, and vomiting. This distinct lifecycle and transmission mechanism differentiate malaria from other diseases. For instance, dengue fever is caused by viruses transmitted by Aedes mosquitoes, lymphatic filariasis results from parasitic worms and is spread by various mosquito species, while Chagas disease is caused by the Trypanosoma cruzi parasite and is usually transmitted by triatomine bugs, not mosquitoes. Therefore, the specific association of malaria with the Plasmodium parasite validates the correctness of the chosen answer.

10. In the context of a recent travel history, which symptom is most concerning for potential infectious disease?

A. Pneumonia

B. Cough

C. Fever

D. Skin rash

Fever is a significant symptom to consider in the context of recent travel history, especially when evaluating for potential infectious diseases. This is because fever often indicates an underlying infection, which could be caused by various pathogens encountered during travel. Many infectious diseases prevalent in different geographical regions often present with fever as a prominent symptom, such as malaria, dengue fever, or typhoid fever, among others. While pneumonia, cough, and skin rash can also be concerning symptoms, they are not as universally indicative of an infectious disease as fever is. Pneumonia and cough might suggest a respiratory infection, which could be related to various factors but may not directly indicate a specific, severe infectious disease without additional context. Similarly, skin rashes can arise from a variety of conditions — infectious and non-infectious alike — but without the systemic involvement that fever usually signifies. Thus, fever is a critical indicator in the setting of recent travel, as it prompts immediate consideration of tropical or travel-related infections that could potentially have serious implications for the patient's health.