

Microbiology Q & A

Jawtez's Q

2. Chagas disease is especially feared in Latin America because of the damage that can occur to the heart and parasympathetic nervous system and the lack of an effective drug for the symptomatic later stages. Your patient is planning to reside in a Venezuelan village for 1–2 years. Which one of the following suggestions would be of special value for avoiding Chagas disease?

- (A) Boil or treat all of your drinking water.
- (B) Sleep under a bed net.
- (C) Do not keep domestic pets in your house.
- (D) Never walk barefoot in the village compound.
- (E) Do not eat lettuce or other raw vegetables or unpeeled fruit.

15. An apparently fatigued but alert 38-year-old woman has spent 6 months as a teacher in a rural Thailand village school. Her chief complaints include frequent headaches, occasional nausea and vomiting, and periodic fever. You suspect malaria and indeed find parasites in red blood cells in a thin blood smear. To rule out the dangerous *falciparum* form of malaria, which one of the following choices is NOT consistent with a diagnosis of *Plasmodium falciparum* malaria based on a microscopic examination of the blood smear?

- (A) Red blood cells containing trophozoites with Schuffner's dots
- (B) Red blood cells containing >1 parasite per RBC
- (C) Banana-shaped or crescent-shaped gametocytes
- (D) Parasites within normal-sized red blood cells
- (E) Parasites with double nuclei

16. Given a diagnosis of uncomplicated *Plasmodium falciparum* malaria for the patient in Question 15, which one of the following treatment regimens is appropriate where chloroquine-resistance is known?

- (A) Oral artemisinin-based combination therapy (ACT)
- (B) Oral chloroquine
- (C) Intravenous chloroquine
- (D) Oral proguanil
- (E) Intravenous quinidine

17. Given a diagnosis of *Plasmodium falciparum*, you should tell the patient in Question 15 that (select one)
- (A) Relapse occurs with *Plasmodium vivax* and *Plasmodium ovale*, not *Plasmodium falciparum* and therefore no treatment for hypnozoites is necessary.
 - (B) Primaquine is used to prevent relapse of *Plasmodium falciparum*.
 - (C) Returning to the tropics would be dangerous because hypersensitivity to the parasite may have developed.
 - (D) The use of insecticide treated bednets in endemic areas is not necessary since she already had malaria.
 - (E) It is not necessary for her to take antimalarials when traveling in endemic areas.

Answers

2- B

15- A

16- A

17- A

1. Which one of the following best describes a physicochemical property of parvoviruses?

- (A) Enveloped virus particle.
- (B) Single-stranded DNA genome.
- (C) Infectivity is inactivated by ether treatment.
- (D) Virion exhibits helical symmetry.
- (E) Virion is about the same size as herpesviruses.

2. An 8-year-old child recently had erythema infectiosum. Her 33-year-old mother subsequently developed arthralgia followed by painful arthritis with swelling in the small joints of both hands. In addition to the apparent tropism for joints, human parvovirus B19 is highly tropic for which cell type?
- (A) CD4 T lymphocytes
 - (B) Renal tubule cells
 - (C) Erythroid cells
 - (D) Glial cells
 - (E) Peyer patches

3. The 8-year-old child in Question 2 had an illness with more than one phase. Which symptoms coincide with the second phase of the illness?

- (A) Sore throat
- (B) Skin rash
- (C) Headache
- (D) Diarrhea
- (E) Cough

4. A 42-year-old man with HIV/AIDS presented with aplastic anemia. Using the PCR, parvovirus B19 was detected in his serum. The patient presumably acquired his parvovirus B19 infection from another person. The most likely route of transmission is
- (A) By contact with respiratory secretions or droplets
 - (B) By contact with a skin rash
 - (C) Through sexual activity
 - (D) Through a recent blood transfusion

5. Which one of the following is a disease in which the role of parvovirus B19 has not been established?

- (A) Erythema infectiosum (fifth disease)
- (B) Transient aplastic crisis
- (C) Hydrops fetalis
- (D) Fulminant hepatitis

6. Which one of the following best describes the replication of human parvovirus B19?

- (A) Stimulates resting cells to proliferate
- (B) Uses blood group antigen P as cellular receptor
- (C) Readily establishes persistent infections
- (D) Entire replication cycle occurs in cytoplasm
- (E) Production of infectious progeny requires the presence of a helper virus

7. Which one of the following statements is most accurate concerning human infections by parvovirus B19?
- (A) Parvovirus B19 is transmitted readily by sexual intercourse.
 - (B) Patients with disseminated disease caused by parvovirus B19 should be treated with acyclovir.
 - (C) Parvovirus B19 does not cause any human disease.
 - (D) There is no vaccine for human parvovirus.

8. Human bocavirus is a newly discovered parvovirus. It has been detected most frequently in which type of sample?

- (A) Urine
- (B) Cord blood
- (C) Respiratory secretions
- (D) Fetal liver
- (E) Bone marrow

9. Which of the following is available as a treatment or preventive for parvovirus B19 infections?
- (A) Commercial immunoglobulin
 - (B) Vaccine containing recombinant VP2 viral antigen
 - (C) Bone marrow transplantation
 - (D) Antiviral drug that blocks virus–receptor interaction
10. Human erythroviruses and bocaviruses share the following properties except for which one?
- (A) Small, nonenveloped virus particles.
 - (B) Difficult to culture.
 - (C) Cause anemia.
 - (D) Global distribution.
 - (E) No vaccine exists.

Answers

1. B

4. A

7. D

10. C

2. C

5. D

8. C

3. B

6. B

9. A

3. Most herpesvirus infections are endemic worldwide. Which one of the following viruses shows marked geographic differences in seroprevalence?

- (A) Cytomegalovirus
- (B) Epstein-Barr virus
- (C) Herpes simplex virus type 2
- (D) Kaposi sarcoma herpesvirus
- (E) Varicella-zoster virus

4. A 19-year-old female college student has a fever, sore throat, and lymphadenopathy accompanied by lymphocytosis with atypical cells and an increase in sheep cell agglutinins. The diagnosis is most likely
- (A) Infectious hepatitis
 - (B) Infectious mononucleosis
 - (C) Chickenpox
 - (D) Herpes simplex infection
 - (E) Viral meningitis

7. A virus that causes human cancer is also associated with a nervous system disorder called tropical spastic paraparesis. That virus is
- (A) Polyomavirus JC
 - (B) Polyomavirus SV40
 - (C) Herpes simplex virus
 - (D) Human T-lymphotropic virus
 - (E) Human immunodeficiency virus

9. A 53-year-old woman develops fever and focal neurologic signs. Magnetic resonance imaging shows a left temporal lobe lesion. Which of the following tests would be most appropriate to confirm a diagnosis of herpes simplex encephalitis in this patient?
- (A) Brain biopsy
 - (B) Tzanck smear
 - (C) Polymerase chain reaction assay for viral DNA in cerebrospinal fluid
 - (D) Serologic test for viral IgM antibody

10. Which of the following tumors is caused by a virus other than Epstein-Barr virus?

- (A) Posttransplant lymphomas
- (B) Hodgkin disease
- (C) Kaposi sarcoma
- (D) AIDS-related central nervous system non-Hodgkin lymphomas
- (E) Burkitt lymphoma

20. Each of the following statements concerning Epstein-Barr virus is correct *except*

- (A) Many infections are mild or inapparent.
- (B) The earlier in life primary infection is acquired, the more likely the typical picture of infectious mononucleosis will be manifest.
- (C) Latently infected lymphocytes regularly persist after an acute episode of infection.
- (D) Infection confers immunity against second episodes of infectious mononucleosis.

Answers

3- D

4- B

7- D

9- C

10- C

20- B

END