Test Bank

Microbiology - HLS

FINAL - 2019 BATCH

BY

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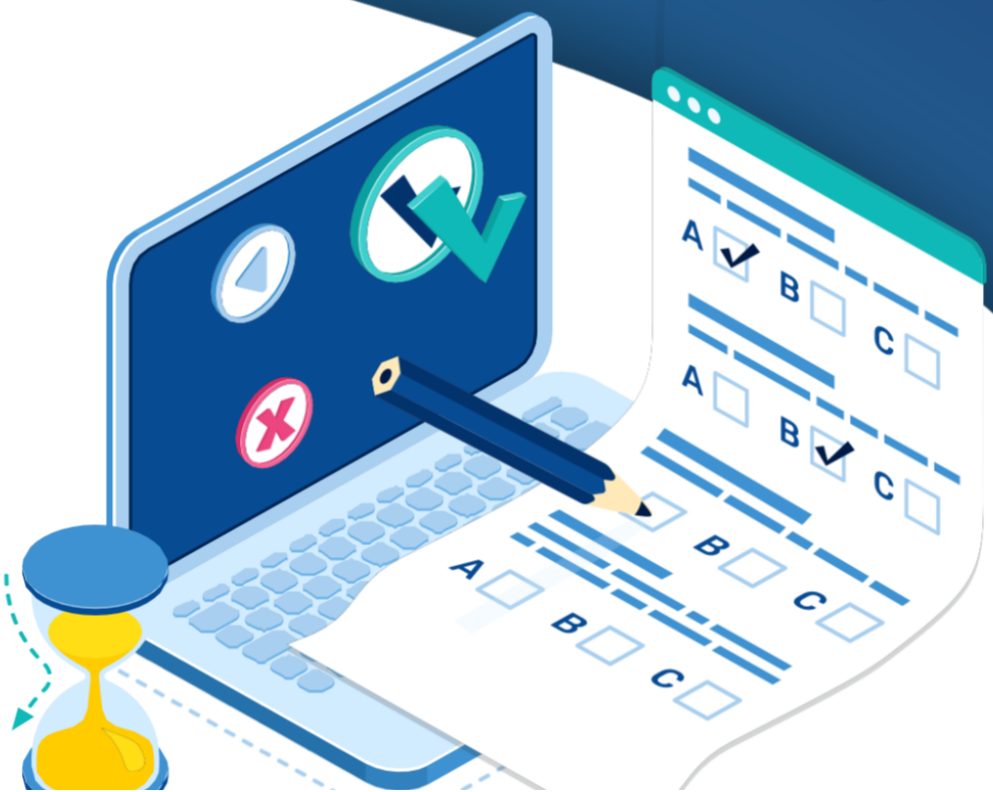
ACADEMIC TEAM

STUDENTS CLUB



Regarding *plasmodium* species, which one of the following is most accur?
(A) These organisms are transmitted by the bite of female *Anopheles* mosquitoes.
(B) The bite of the vector injects merozoites into the bloodstream that then infect red blood cells.
(C) Both male and female gametocytes are formed in the vector and are injected into the person at the time of the bite.
(D) Hypnozoites are produced by *P. falciparum* and can cause relapses of malaria after the acute phase is over.
(E) Malaria caused by *P. vivax* is characterized by a cerebral malaria and blackwater fever more often than malaria caused by the other three species.
Answer: A

Regarding drugs used to treat or prevent malaria, which one of the following is most accurate?
(A) The combination of atovaquone and proguanil is useful for the treatment of acute malaria but not for prevention.
(B) Chloroquine is the drug of choice in malaria caused by *P. falciparum* because resistance to the drug is rare.
(C) Mefloquine is useful for the prevention of chloroquine-sensitive *P. falciparum* but not for chloroquine-resistant strains.
(D) Artemisinin derivatives, such as artesunate and artemether, are effective in the treatment of multiple-drug resistant *P. falciparum*.
(E) Primaquine is useful in the treatment of infections caused by *P. falciparum* because it kills the hypnozoites residing in the liver.
Answer: D

Regarding *Trypanosoma cruzi*, which one of the following is most accurate?
(A) Humans are the main reservoir of *T. cruzi*.
(B) The drug of choice for the acute phase of Chagas' disease is chloroquine.
(C) The vector for *T. cruzi*, the cause of Chagas' disease, is the reduviid (cone-nosed) bug.
(D) Seeing trypomastigotes in a muscle biopsy supports the diagnosis of Chagas' disease.
(E) The main site of disease caused by *T. cruzi* is skeletal muscle, resulting in severe muscle pain.
Answer: C
Regarding leishmaniasis, which one of the following is most accurate?
(A) Mefloquine is effective in preventing disease caused by *L. donovani.*
(B) Large domestic animals such as cattle are the principal reservoir of *L. donovani*.
(C) Both visceral leishmaniasis and cutaneous leishmaniasis are transmitted by the bite of sandflies.
(D) Marked enlargement of the heart on chest X-ray is a typical finding of visceral leishmaniasis.
(E) Pathologists examining a specimen for the presence of *L. donovani* should look primarily at eosinophils in the peripheral blood.
Answer: C

Your patient is a 20-year-old man who, while playing soccer, experienced palpitations and dizziness and then fainted. An electrocardiogram showed right bundle branch block. Holter monitoring showed multiple runs of ventricular tachycardia. A ventricular myocardial biopsy was performed. Microscopic examination revealed a lymphocytic inflammatory process surrounding areas containing amastigotes. The patient was born and raised in rural El Salvador and came to this country 2 years ago. Of the following, which one is the most likely cause?
(A) *Leishmania donovani*
(B) *Plasmodium falciparum*
(C) *Toxoplasma gondii*
(D) *Trypanosoma brucei*
(E) *Trypanosoma cruzi*
Answer: E

Your patient is a 25-year-old man with fever and weight loss for the past 3 weeks. He is a soldier in the U.S. Army who recently returned from a tour of duty in the Middle East. Physical exam was noncontributory. Laboratory tests revealed anemia and leukopenia. Multiple blood cultures for bacteria and fungi were negative, as was a test for the p24 antigen of HIV. Computed tomography (CT) scan of the abdomen revealed splenomegaly. A bone marrow biopsy was performed, and a stained sample revealed amastigotes within mononuclear cells. Of the following, which one is the most likely cause?
(A) *Leishmania donovani*
(B) *Plasmodium falciparum*
(C) *Toxoplasma gondii*
(D) *Trypanosoma brucei*
(E) *Trypanosoma cruzi*
Answer: A

Your patient is a 55-year-old man with fever and increasing fatigue during the past week. Today, he was so weak he “could barely stand up.” He had been working in Cameroon and Chad for 2 months and returned 2 weeks ago. On examination, he was febrile to 40°C, hypotensive, and tachycardic. Pertinent lab work revealed anemia and thrombocytopenia. Blood smear revealed ring-shaped trophozoites within red blood cells. Of the following, which one is the most likely cause?
(A) *Leishmania donovani*
(B) *Plasmodium falciparum*
(C) *Toxoplasma gondii*
(D) *Trypanosoma brucei*
(E) *Trypanosoma cruzi*
Answer: B

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
Answer: B

An apparently fatigued but alert 38-year-old woman 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 *P. 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
Answer: A

Given a diagnosis of uncomplicated *P. falciparum* malaria for the patient in the previous question, 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
Answer: A

Given a diagnosis of *P. falciparum*, you should tell the patient that
(A) Relapse occurs with *P. vivax* and *P. ovale*, not *P. falciparum* and therefore no treatment for hypnozoites is necessary.
(B) Primaquine is used to prevent relapse of *P. 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.

Answer: A

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.
Answer: B

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
Answer: C

A 42-year-old man with HIV/AIDS presented with aplastic anemia. Using 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
Answer: A

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
Answer: D

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

Answer: B

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.
Answer: D

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
Answer: A

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
Answer: B

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
Answer: C

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.
Answer: B

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
Answer: D

Human T-cell lymphotropic virus (HTLV) causes T-cell leukemia in adults. Regarding this virus, which one of the following statements is most accurate?
(A) HTLV is transmitted primarily by the fecal–oral route.
(B) Oseltamivir cures the latent state established by HTLV within T cells.
(C) The genome of HTLV consists of double-stranded RNA; therefore, there is no polymerase in the virion.
(D) Infection by HTLV is diagnosed in the clinical laboratory by observing cytoplasmic inclusion bodies.
(E) Oncogenesis by HTLV is related to a viral transcription factor that activates the production of interleukin-2 and its receptor
Answer: E

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