

## Robbins Review Questions - Chapter 8

1. Which of the following best describes the primary route of transmission for most gastrointestinal pathogens?
  - a. Inhalation of airborne droplets
  - b. Direct skin-to-skin contact
  - c. Ingestion of food or water contaminated with fecal material
  - d. Vector-borne transmission through insect bites
2. Which of the following normal physiologic mechanisms helps prevent urinary tract infections?
  - a. Concentration of urine in the renal medulla
  - b. Expulsion of urine from the bladder during voiding
  - c. Secretion of bile into the duodenum
  - d. Peristalsis of the ureters
3. Which of the following microbial strategies helps prevent phagocytosis by neutrophils and macrophages?
  - a. Antigenic variation
  - b. Production of a polysaccharide capsule
  - c. Establishment of viral latency
  - d. Inhibition of host cytokine release
4. Which virus is responsible for the most devastating immunodeficiency worldwide?
  - a. Epstein-Barr virus
  - b. Cytomegalovirus
  - c. Hepatitis B virus
  - d. Human immunodeficiency virus
5. The predilection of a virus to infect certain cell types and not others is called:
  - a. Virulence
  - b. Latency
  - c. Tropism
  - d. Antigenic drift
6. A patient with pulmonary tuberculosis develops well-formed granulomas in the lung. Which immune mechanism most directly drives the formation of these granulomas?
  - a. T cell-mediated activation of macrophages
  - b. A. IgE-mediated mast cell degranulation
  - c. Complement-mediated lysis of bacteria
  - d. Neutrophil extracellular trap formation
7. A patient develops septic shock from a gram-negative bacterial infection. The patient's fever and hypotension are largely due to lipopolysaccharide (LPS) in the bacterial outer membrane. This toxin is best classified as:
  - a. Exotoxin
  - b. Endotoxin
  - c. Superantigen
  - d. Neurotoxin
8. Which group of viruses most frequently establishes latent infections in humans?
  - a. Orthomyxoviruses

- b. Picornaviruses
  - c. Retroviruses
  - d. Herpesviruses
9. A patient presents with recurrent painful vesicular lesions on the lip and later develops unilateral eye pain with decreased vision. Slit-lamp examination reveals dendritic corneal ulcers. Which virus is most likely responsible?
- a. Herpes simplex virus type 1
  - b. Cytomegalovirus
  - c. Epstein-Barr virus
  - d. Coxsackievirus
10. Which cell type serves as a major latent reservoir for cytomegalovirus (CMV)?
- a. Neutrophils
  - b. Monocytes
  - c. Erythrocyte
  - d. Platelets
11. A biopsy from a transplant patient with fever and leukopenia shows enlarged cells with prominent intranuclear inclusions surrounded by a clear halo. Which virus is most likely responsible?
- a. Herpes simplex virus
  - b. Epstein-Barr virus
  - c. Cytomegalovirus
  - d. Adenovirus
12. Which virus is the cause of infectious mononucleosis and is associated with the pathogenesis of several human tumors?
- a. Cytomegalovirus
  - b. Epstein-Barr virus
  - c. Herpes simplex virus
  - d. Human papillomavirus
13. A patient with X-linked agammaglobulinemia is exposed to Epstein-Barr virus (EBV). Unlike immunocompetent individuals, he does not develop latent EBV infection or shed the virus. Which conclusion best explains this observation?
- a. EBV requires neutrophils for latency
  - b. EBV replicates only in epithelial cells
  - c. EBV establishes latency primarily in B cells
  - d. EBV requires complement proteins for persistence
14. Infections caused by *Staphylococcus aureus* are characteristically associated with which type of inflammation?
- a. Granulomatous inflammation
  - b. Serous inflammation
  - c. Pyogenic inflammation
  - d. Fibrinous inflammation
15. Infections by this organism cause suppurative infections of the skin oropharynx, lungs and heart valves. They are also responsible for a number of postinfectious syndromes, which includes rheumatic fever.
- a. Staphylococci
  - b. Enterococci

- c. Nocardia
  - d. Streptococci
16. Which of the following organisms appears as gram-positive bacilli in cerebrospinal fluid (CSF) and is virtually diagnostic in patients with pyogenic meningitis?
- a. Neisseria meningitidis
  - b. Streptococcus pneumoniae
  - c. Listeria monocytogenes
  - d. Haemophilus influenzae
17. Gram-negative bacteria are increasingly concerning in clinical practice primarily because they:
- a. Cannot survive outside the human body
  - b. Are increasingly resistant to antibiotics
  - c. Are uniformly susceptible to penicillin
  - d. Produce highly virulent exotoxins
18. \_\_\_\_\_ is an opportunistic aerobic gram-negative bacillus that is a frequent, deadly pathogen in people with cystic fibrosis, severe burns, or neutropenia.
- a. Pseudomonas aeruginosa
  - b. Bordetella pertussis
  - c. Haemophilus ducreyi
  - d. Granuloma inguinale
19. This gram negative bacteria causes an invasive, frequently fatal infection and is often transmitted from rodents to humans by flea bites. It can also be spread between humans by aerosols.
- a. Pseudomonas aeruginosa
  - b. Chancroid
  - c. Staphylococcus aureus
  - d. Yersinia pestis
20. A patient presents with chronic cough, weight loss, night sweats, and hemoptysis. Biopsy shows granulomatous inflammation with caseous necrosis. Chest imaging shows upper lobe cavitory lesions. What best describes the causative disease?
- a. It is a rare infection limited to immunocompromised hosts
  - b. It is the leading infectious cause of death worldwide
  - c. It is primarily a self-limited viral illness
  - d. It only affects the gastrointestinal tract
21. Early in infection, Mycobacterium tuberculosis primarily replicates within which cell type?
- a. Neutrophils
  - b. Macrophages
  - c. B lymphocytes
  - d. Eosinophils
22. Immunity to Mycobacterium tuberculosis is primarily mediated by which cell subset?
- a. CD4+ T cells
  - b. CD8+ T cells
  - c. Macrophages
  - d. B cells
23. The initial parenchymal lesion of primary tuberculosis in the lung is called:

- a. Ranke complex
  - b. Ghon focus
  - c. Caseating cavity
  - d. Rasmussen aneurysm
24. The combination of a primary pulmonary lesion and involvement of regional lymph nodes in tuberculosis is called:
- a. Ranke complex
  - b. Caseating granuloma
  - c. Ghon focus
  - d. Ghon complex
25. The hallmark of Mycobacterium avium complex (MAC) infection in patients with HIV is:
- a. Caseating granulomas with few organisms
  - b. Abundant acid-fast bacilli within macrophages
  - c. Eosinophil-rich inflammation
  - d. Extensive neutrophilic abscess formation
26. Leprosy, or Hansen disease, is a slowly progressive infection caused by M. leprae that mainly affects \_\_\_\_\_.
- a. Skin and peripheral nerves
  - b. Skin and CNS
  - c. Eyes and lungs
  - d. Lungs and heart
27. What is the hallmark vascular lesion found in all stages of syphilis?
- a. Fibrinoid necrosis of medium-sized arteries
  - b. Proliferative endarteritis with plasma cell-rich infiltrate
  - c. Cholesterol embolization of small arteries
  - d. Septic thrombophlebitis
28. The secondary stage of syphilis is marked by painless, superficial lesions of the skin and mucosal surfaces. It occurs 2 to 10 weeks after the primary lesion in approximately 75% of untreated people. Skin lesions frequently occur on the palms or soles of the feet and may be maculopapular, scaly, or pustular. Moist areas of the skin, such as the anogenital region, inner thighs, and axillae, may have broad-based elevated plaques called \_\_\_\_\_.
- a. Chancre
  - b. Boils
  - c. Condylomata lata
  - d. Erythema migrans
29. The most common form of tertiary syphilis demonstrates a scarcity of treponemes and intense inflammatory infiltrate suggestive of an immune response. Which of the following best describes the most common manifestation?
- a. Dilation of the aortic root and arch, leading to aortic valve insufficiency and aneurysms of the proximal aorta
  - b. CSF pleocytosis alongside spirochetes in the CSF
  - c. Gummas in the bone, skin, and mucous membranes of the upper airway and mouth

- d. A single firm, nontender, raised, red lesion located at the site of treponemal invasion on the penis, cervix, vaginal wall, or anus
30. Early in the disease of this arthropod-borne illness caused by spirochetes, skin at the location of infection develops an expanding area of redness, often with a pale center. This disease has a tendency to cause persistent chronic arthritis.
- a. M. leprae disease
  - b. Borrelia disease
  - c. Syphilis
  - d. Lyme disease
31. The neurotoxins produced by *Clostridium botulinum* and *Clostridium tetani* have which common effect?
- a. Stimulation of neurotransmitter release
  - b. Inhibition of neurotransmitter release
  - c. Destruction of myelin sheaths
  - d. Activation of complement pathways
32. A 22-year-old woman presents with dysuria and mucopurulent cervical discharge. Nucleic acid amplification testing confirms infection with a bacterial sexually transmitted pathogen. Which of the following is the most common bacterial sexually transmitted infection worldwide?
- a. *Neisseria gonorrhoeae*
  - b. *Treponema pallidum*
  - c. *Chlamydia trachomatis*
  - d. *Haemophilus ducreyi*
33. Which organism is the most prevalent fungal pathogen of humans?
- a. *Aspergillus fumigatus*
  - b. *Candida albicans*
  - c. *Cryptococcus neoformans*
  - d. *Histoplasma capsulatum*
34. The development of oral thrush in an otherwise healthy adult without an obvious cause should prompt evaluation for which condition?
- a. HIV infection
  - b. Acute streptococcal pharyngitis
  - c. Iron deficiency anemia
  - d. Hyperthyroidism
35. A patient with advanced immunosuppression develops meningitis. CSF shows round yeast forms measuring 5–10  $\mu\text{m}$  with a prominent capsule that stains intensely red with mucicarmine and periodic acid-Schiff. Which organism is most likely responsible?
- a. *Candida albicans*
  - b. *Aspergillus*
  - c. *Cryptococcus*
  - d. *Histoplasma*
36. Major conditions which predispose to *Aspergillus* infection are
- a. Autoimmune disease
  - b. HIV and concurrent *Mycobacterium avium* complex infection

- c. Increased thick mucus production trapping fungal organisms, commonly associated with cystic fibrosis
  - d. Neutropenia and use of corticosteroids
37. Mucormycetes are characterized by which histologic feature, making them distinct from *Aspergillus* hyphae?
- a. Septate hyphae with acute-angle branching
  - b. Nonseptate hyphae with right-angle branching
  - c. Encapsulated yeast forms only
  - d. Pseudohyphae formation in tissue
38. The diagnostic test for malaria infection is:
- a. Acid-fast stain of sputum
  - b. Gram-stained sputum smear
  - c. Giemsa-stained peripheral blood smear
  - d. Mucicarmine stain of tissue
39. Chagas disease most commonly affects which organ?
- a. Heart
  - b. Liver
  - c. Kidneys
  - d. Lungs
40. Infection by this parasitic protozoa most commonly occurs after eating contaminating undercooked meat or by accidental ingestion following cleaning of a cat's litter box.
- a. *Taenia solium*
  - b. *Echinococcus granulosus*
  - c. *Strongyloides*
  - d. *Toxoplasma gondii*
41. The leading cause of preventable blindness in sub-Saharan Africa is:
- a. Trachoma
  - b. Vitamin A deficiency
  - c. *Onchocerca volvulus* infection
  - d. Diabetic retinopathy

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2. B (pg 341)
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4. D (pg 344)
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