

INFECTIOUS DISEASES

1. Which of the following can impair mucociliary action in the respiratory tract?
 - A. Smoking
 - B. Aspiration
 - C. Intubation
 - D. Viral infection
 - E. All of the above
2. Which of the following statements is INCORRECT?
 - A. Gastric acid, pancreatic enzyme & bile secretion are the 1st line GIT defense against enveloped viruses
 - B. IgA antibodies form the 2nd line defense against ingested pathogens.
 - C. Antibiotics can alter normal bacterial flora in the GIT, and so weakened host defenses.
 - D. Mechanical obstruction or ileus can impair host GIT defense.
 - E. Antacids can impair host GIT defense.
3. Which of the following statements regarding intestinal pathogens is FALSE?
 - A. Vibrio Cholerae release enterotoxins in food, which causes secretory diarrhoea.
 - B. Salmonella typhi ulcerates gut mucosa to cause inflammation & haemorrhage.
 - C. Fungal GIT infection only occur in the immunosuppressed host.
 - D. Cysts of intestinal protozoa are resistant to gastric acid digestion.
 - E. Echinococcus passes through the gut briefly to access liver & lung.
4. Which of the following statements is TRUE?
 - A. Normal skin flora include bacteria, fungal species & some opportunistic species.
 - B. Low pH & fatty acid content of skin layer favours commensal bacteria over bacterial pathogens.
 - C. Any breach of skin integrity is a potential portal of pathogen entry.
 - D. Heat & moisture can weaken skin resistance to pathogens.
 - E. All of the above.
5. Which of the following statement regarding microbial spread is FALSE?
 - A. Microbial spread tends to occur along tissue planes rather than across tissue planes.
 - B. Microbial access to bloodstream is usually via lymphatics.
 - C. All 2^o foci of infection are small & multiple (ie. millet spread).
 - D. Persistent bacteraemia results in triggering of cytokines & mediators, leading to host septic responses.
 - E. Major sites of infection can be distal to the portal of entry.

6. Which of the following statements regarding vertical transmission of infection is FALSE?
- Treponema pallidum crosses placenta at the end of 2nd trimester to cause congenital syphilis.
 - Toxoplasmosis infection is most dangerous late in pregnancy
 - Bacterial & mycoplasmal placentitis can cause premature delivery & stillbirth.
 - Vertical transmission of infection must be transplacental infection.
 - All of the above.
7. Which of the following statement regarding microbial transmission is FALSE?
- Salivary gland viruses are primarily transmitted by aerosol.
 - Contagious agents are those that are directly transmissible from person to person via contact or aerosol.
 - Bacterial spores or protozoan cysts can survive in cool, dry environment.
 - Aerosol transmission of bacteria & fungi only occur if there is open lesions in the airway.
 - None of the above
8. Which of the following statements regarding viral infection is TRUE?
- Viral tropism for host cells is partly due to presence of specific host cell receptors.
 - Some microbes induce host cell damage by evoking tissue damaging host immune responses.
 - Uncoating of viruses within host cells leads to lost of viral infectivity.
 - Each virus family uses specific enzymes for transcription & replication.
 - All of the above.
9. Virus may kill host cells by:
- Lysis of host cell by inserting viral protein into host cell membrane.
 - Inhibition of host cell DNA, RNA or protein synthesis.
 - Evoke damaging host immune response by expression of viral protein on host cell surface.
 - Causing neoplastic growth
 - All of the above.
10. Which of the following statement is INCORRECT?
- Gram positive bacterial membrane lipoteichoic acid only binds to blood cells & oral epithelial cells.
 - Sex pili of bacteria is used to transmit plasmids or transposons between bacteria.
 - Bacterial tropism for host cell type is determined by minor protein on the tip of the pili.
 - Each bacteria may have trophism for more than one cell type
 - All of the above
11. Which of the following pairing of intracellular facultative bacteria & their trophic cell type is FALSE?

- A. Shigella - Epithelial cell.
 - B. Mycobacteria tuberculosis - Macrophage
 - C. Salmonella typhi - Epithelium & macrophage.
 - D. Legionella pneumophila - Epithelial cell.
 - E. Yersinia - Macrophage
12. Which of the following statements regarding intracellular bacteria action in the cytoplasm is FALSE?
- A. Enteroinvasive E coli inhibits host protein synthesis & rapidly replicate to lyse host cell.
 - B. Mycobacteria tuberculosis replicates in the macrophage phagolysosome
 - C. Legionella replicates within macrophage, and so avoided host immune response.
 - D. Toxoplasmosis inhibits increase of acidification that occurs with lysosome -endosome fusion.
 - E. Salmonella replicates in macrophage phagolysosome.
13. Which of the following is NOT an example of exotoxin?
- A. Diphtheria toxin
 - B. Lipopolysaccharide
 - C. Vibrio cholerae enterotoxin
 - D. Clostridium perfringens alpha toxin
 - E. None of the above.
14. Which of the following statements regarding immune evasion is INCORRECT?
- A. Clostridium difficile propagates in the intestinal lumen, and so is inaccessible to host immune defenses including secretory IgA.
 - B. Malaria invade hepatocytes before host immune response becomes effective.
 - C. Hemophilus Influenzae type b hide their antigen within the carbohydrate capsule & so escape phagocytosis.
 - D. Pneumococci changes their surface antigen during the infection to prevent immune clearance.
 - E. Pseudomonas secrete leukotoxin to kill neutrophils.
15. Which of the following is not an encapsulated bacteria?
- A. Meningococci
 - B. Gonococci
 - C. Pneumococci
 - D. Hemophilus Influenzae type b
 - E. Staphylococci

16. Which of the following pairing of pathogen & pathogenic response is FALSE?
- Spirochetes - Granulomatous inflammation
 - Viruses - Cytopathic/ cytoproliferative inflammation
 - Intracellular bacteria - suppurative inflammation
 - Clostridium perfringens - necrotising inflammation
 - Hepatitis B - necrotising inflammation
17. Which of the following statements regarding microbes is FALSE?
- All viruses are obligate intracellular parasites.
 - Bacteriophage, plasmids & transposons are mobile genetic segments that encode bacteria virulence.
 - Bacteria lacks nuclei but otherwise contain same organelles as eukaryotes.
 - Mycoplasma lack a cell wall.
 - Chlamydia lack ATP synthesis.
18. Which of the following statements regarding bacteria is TRUE?
- Gram negative bacteria has 2 phospholipid bilayer with a peptidoglycan layer.
 - Gram positive bacteria has 1 phospholipid bilayer covered by a peptidoglycan layer.
 - Most GIT flora are anaerobes
 - There are 10^{12} skin flora on human skin.
 - All of the above
19. How many bacteria exists are normal GIT flora?
- 10^{12}
 - 10^{13}
 - 10^{14}
 - 10^{15}
 - 10^{16}
20. Which of the following statements is INCORRECT?
- All fungi are characterized by thick ergosterol wall.
 - Systemic fungal infection only occurs in immunosuppressed host.
 - Dermatophytes are only confined to superficial skin layers.
 - All protozoa are motile organisms
 - All protozoa are transmitted by vectors.
21. Which of the following statements regarding respiratory tract flora is INCORRECT?
- Mucosal damage in respiratory tract infection is usually minimal.
 - Increased viscous exudation in airway is usually the predominant manifestation.
 - Bronchociliary function is impaired.
 - 30% of URTI is due to rhinovirus infection.
 - 2° bacterial infection may occur due to impaired bronchociliary function & airway obstruction.

22. Which of the following statements regarding upper respiratory tract infection is FALSE?
- Rhinovirus bind to ICAM-1 on respiratory epithelium, which is also the site that mediates T cell specific & antigen specific responses.
 - Rhinoviruses grows best at 37°C
 - Influenza A display significant antigenic drift & shift, resulting in epidemics of influenza.
 - Influenza hemagglutinin molecules mediate viral entry to respiratory epithelial cell.
 - Cytotoxic T cells are responsible for clearance of URTI viruses.
23. Which of the following rotavirus infection is FALSE?
- Viral gastroenteritis can cause severe dehydration & metabolic acidosis in infants.
 - Rotavirus infection is most common at the time of weaning from breast feeding.
 - Rotavirus is associated with epidemic outbreaks of gastroenteritis.
 - Rotavirus invade & destroy intestinal villus epithelial cells.
 - Diarrhoea in rotavirus infection is due to reduced bowel sodium & water absorption.
24. Which of the following statements regarding measles virus is INCORRECT?
- Multiple serotypes of measles virus exists.
 - Measles is transmitted by droplet spread.
 - Measles rash is a hypersensitivity response to viral antigen in the skin.
 - Koplik spot is pathognomic of measles infection.
 - Measles virus has tropism for respiratory epithelial cell & mononuclear cells.
25. Measles causes:
- Protein losing enteropathy
 - Keratitis leading to blindness.
 - Pneumonia
 - SSPE
 - All of the above.
26. Regarding childhood infection, which of the following statements is TRUE?
- 70% mumps parotitis is bilateral
 - Mumps orchitis may lead to testicular infarction
 - Poliovirus causes CNS infection in 1% cases
 - Sabin oral polio vaccine covers all 3 strains of polioviruses.
 - All of the above
27. EBV
- has tropism for B cells & epithelial cells.
 - may lyse host cells during productive infection
 - induce polyclonal activation of B cells, which is seen as atypical lymphocytes in peripheral blood.
 - induces formation of anti-viral-capside-antigen antibodies.
 - All of the above
28. Which of the following statements regarding VZV infection is FALSE?

- A. VZV disseminates by hematogenous route
 - B. Trigeminal ganglion is the most likely site of latency
 - C. Incubation period is about 2 days.
 - D. VZV induce more severe infection in the immuno-compromised host, including encephalitis, transverse myelitis & IS pneumonitis.
 - E. All of the above
29. Which of the following statements regarding bacterial pneumonia is FALSE?
- A. Infants & elderly more commonly develop lobar pneumonia than bronchopneumonia.
 - B. Lobar distribution is a function of organism virulence & vulnerability of host defense.
 - C. Bronchopneumonia is commonly bibasal in distribution
 - D. Pleural fibrinous reaction may organize & leave permanent adhesions.
 - E. Bacterial pneumonia can be due to hematogenous spread of microbe from other foci of infection.
30. Which of the following predisposes host to pneumonia?
- A. Coma
 - B. Inhalation of corrosive & hot gases.
 - C. Immunosuppression
 - D. CCF
 - E. All of the above
31. Which is the most common aetiologic agent in bacterial pneumonia?
- A. Hemophilus influenzae type b
 - B. Staphylococci
 - C. Streptococci pneumoniae
 - D. Pseudomonas
 - E. E Coli
32. Complication of pneumonia does NOT include the following:
- A. Abscess formation
 - B. Carcinoma
 - C. Empyema
 - D. Organization & solidification of lung portion
 - E. 2^o bacteria seeding to other organs.
33. Which of the following statements regarding Hemophilus influenzae is FALSE?
- A. It secretes protease that degrade respiratory tract IgA
 - B. It secretes a factor to impair mucociliary ladder.
 - C. LPS endotoxin induces WC chemotaxis & leukocytosis
 - D. All hemophilus infections are due to encapsulated species.
 - E. Cell wall peptidoglycan of Hemophilus influenzae damages the blood brain barrier.

34. *Hemophilus influenzae* does NOT cause the following in the immunocompetent host:
- A. Otitis media
 - B. Acute epiglottitis
 - C. Pneumonia
 - D. Conjunctivitis
 - E. Septicaemia
35. *Hemophilus meningitis* is most common in the following age group:
- A. 0-5 years old
 - B. 5-10 years old
 - C. 20-60 years old
 - D. 60+ years old
 - E. All of the above
36. *Mycobacteria tuberculosis* is NOT:
- A. a non spore forming organism
 - B. an aerobic organism
 - C. transmitted by aerosol spread
 - D. take 4-6 weeks to culture
 - E. Multiple drug resistant species are 80% fatal in AIDs patient & 50% fatal in normal host.
37. Which of the following statements regarding *mycobacteria tuberculosis* virulence factor is WRONG?
- A. Cord factor on the *mycobacteria* cell surface induces granulomatous formation.
 - B. Exotoxin is secreted by *mycobacteria* to degrade surrounding tissue
 - C. Sulfatides on *mycobacteria* cell surface inhibits macrophage lysosome fusion with phagosome containing *mycobacteria*
 - D. Cell surface heteropolysaccharide LAM induces macrophage to secrete $TNF\alpha$.
 - E. Cell surface heteropolysaccharide LAM induce IL 10 secretion to inhibit T cell proliferation which occurs in response to *mycobacterial* infection.
38. Granulomatous reaction due to *mycobacterial tuberculosis* infection develops over:
- A. 2-3 days
 - B. 1 week
 - C. 2-3 weeks
 - D. 1 month
 - E. 2-3 months

39. Which of the following statements regarding tuberculosis is TRUE?
- Delayed hypersensitivity reaction controls 95% primary mycobacterial tuberculosis infection in the normal host
 - Ghon complex consists of primary infection calcified scar in the subpleural lung parenchyma above or below the interlobular fissure between the upper & lower lobes & the enlarged caseous hilar lymph node.
 - Secondary tuberculous granuloma is most often found in the lung apices.
 - Pulmonary cavitation in 2^o TB predisposes to miliary spread via hematogenous route as the cavities rupture into blood vessels.
 - All of the above.
40. Which of the following are uncommon sites of miliary TB spread?
- Bone marrow, liver & spleen
 - Meninges & retina
 - Kidney, adrenals, fallopian tubes & epididymus
 - Heart, thyroid & pancreas
 - Bone (esp vertebrae)
41. Which of the following statements regarding tuberculosis in AIDS patients is TRUE?
- Reactivation or new infection is common in CD₄⁺ count < 200/mm³.
 - MAIs opportunistic infection develops in CD₄⁺ count < 60/mm³.
 - Up to 80% AFB +ve on sputum of AIDS patients but only 33% are PPD +ve.
 - Extrapulmonary complication develops in 70%
 - All of the above
42. Which of the following regarding bacterial enteritis is TRUE?
- Shigella causes dysentery only in human
 - Shigella contains shiga toxin which is associated with hemolytic uremic syndrome.
 - Campylobacter jejuni causes both watery diarrhoea & dysentery.
 - Yersinia causes distal ileal & colonic disease with ulceration
 - All of the above.
43. Staphylococci epidermidis infection is predisposed by:
- Intravenous drug use
 - Tampon use
 - Indwelling urinary catheter
 - Prosthetic heart valves
 - All of the above

44. Which of the following staphylococci toxin is a super-antigen?
- TSST-1
 - Exfoliative toxin
 - Enterotoxin
 - Alpha toxin
 - Beta toxin
45. How many percent of infective endocarditis is due to staphylococci aureus infection?
- <10%
 - 20-30%
 - 30-40%
 - 40-50%
 - >50%
46. Complications of staphylococci aureus infective endocarditis include:
- Focal GN
 - Diffuse GN
 - Septic emboli
 - Suppurative pericarditis
 - All of the above
47. Streptococci is NOT:
- Facultative anaerobes.
 - Most are beta- hemolytic
 - Anti-streptococci M protein antibodies may cross react with host cardiac myosin.
 - Characterized by the tendency to form local destructiveness & abscesses.
 - Bind host Ig FcR & degrade C5a.
48. Which of the following pairing of Clostridium & its toxin is FALSE?
- Clostridium Perfringens - alpha toxin
 - Clostridium Botulinum - botulinum toxin
 - Clostridium Difficile - Theta toxin
 - Clostridium Tetani - Tetanospasmin
 - None of the above
49. Which of the following statements regarding Clostridium is FALSE?
- Tetanospasmin from clostridium tetani travels up the peripheral nerve to block neurotransmitter release from the inhibitory nerves.
 - Botulinum toxin is secreted by Clostridium botulinum.
 - Toxin A from clostridium difficile is a potent enterotoxin & chemoattractant
 - 50% clostridium perfringens infection follow trauma
 - Botulinum toxin blocks ACh release, leading to descending paralysis from central to extremities.

ANSWERS:

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| 1. E | 11. D | 21. D | 31. C | 41. E |
| 2. B | 12. C | 22. B | 32. B | 42. E |
| 3. A | 13. B | 23. C | 33. D | 43. B |
| 4. E | 14. D | 24. A | 34. E | 44. C |
| 5. C | 15. B | 25. E | 35. A | 45. B |
| 6. D | 16. C | 26. E | 36. C | 46. E |
| 7. A | 17. C | 27. E | 37. B | 47. D |
| 8. E | 18. E | 28. C | 38. C | 48. C |
| 9. E | 19. C | 29. A | 39. E | 49. B |
| 10. A | 20. E | 30. E | 40. D | |