Inflammation Pathophysiology - 30 MCQ Questions

1. Which of the following BEST describes inflammation according to the lecture?

A. A permanent pathological destruction of tissues without any protective function

B. A protective response of vascularized tissues to infections and tissue damage that delivers defense cells and molecules to sites of injury

C. A process limited exclusively to allergic reactions and autoimmune diseases

D. A response involving only red blood cells without participation of plasma proteins or leukocytes

2. Which of the following is considered the MOST common medically important cause of inflammation?

A. Foreign body implantation

B. Trauma and burns

C. Bacterial, viral, fungal, and parasitic infections

D. Radiation exposure exclusively

3. Which of the following BEST explains the role of leukocytes in inflammation?

A. They permanently suppress tissue repair mechanisms

B. They migrate to the site of injury to eliminate offending agents and damaged tissue

C. They function only within blood vessels and never enter tissues

D. They exclusively synthesize fibrin within the circulation

4. Which of the following is classified as a granulocyte?

A. Lymphocyte

B. Monocyte

C. Neutrophil

D. Macrophage

5. Which of the following leukocytes is MOST important during acute inflammation?

A. Plasma cells

B. Neutrophils

C. Mast cells

D. Eosinophils

6. Which of the following BEST defines acute inflammation?

A. A slow inflammatory process characterized mainly by fibrosis and tissue scarring

B. A sudden short-duration inflammatory response dominated by vascular and exudative changes

C. A chronic process associated only with viral infections

D. A reaction occurring exclusively in connective tissues

7. Which of the following cardinal signs of inflammation is primarily caused by vasodilation?

A. Swelling

B. Pain

C. Heat and redness

D. Loss of function

8. Which of the following BEST explains the cause of swelling during inflammation?

A. Increased erythrocyte production

B. Increased vascular permeability leading to edema formation

C. Suppression of endothelial cell activity

D. Reduced plasma protein leakage

9. Which of the following chemical mediators is secreted mainly by mast cells and basophils?

A. Histamine

B. Nitric oxide

C. Bradykinin

D. Leukotriene B4

10. Which of the following BEST describes chemotaxis?

A. Directed migration of leukocytes toward a chemotactic stimulus

B. Destruction of endothelial cells by toxins

C. Conversion of fibrinogen into fibrin

D. Movement of plasma proteins back into blood vessels

11. Which of the following adhesion molecules is confined mainly to endothelial cells?

A. L-selectin

B. ICAM-1

C. E-selectin

D. Integrin

12. Which of the following leukocyte recruitment steps occurs FIRST?

A. Firm adhesion

B. Diapedesis

C. Chemotaxis

D. Margination and rolling

13. Which of the following BEST describes diapedesis?

A. Formation of fibrin within tissues

B. Migration of leukocytes between endothelial cells into tissues

C. Activation of complement proteins within plasma

D. Destruction of microbes by antibodies only

14. Which of the following complement components acts as an opsonin that enhances phagocytosis?

A. C3b

B. C5a

C. C3a

D. Factor XIIa

15. Which of the following complement components functions as a potent chemotactic factor for leukocytes?

A. C3b

B. C5a

C. Bradykinin

D. Histamine

16. Which of the following BEST describes the kinin system activation pathway?

A. Histamine converts fibrinogen into fibrin

B. Factor XIIa converts prekallikrein into kallikrein leading to bradykinin formation

C. Platelets activate complement directly to form antibodies

D. Leukocytes convert cytokines into prostaglandins

17. Which of the following effects is produced by bradykinin?

A. Suppression of vascular permeability

B. Bronchial smooth muscle contraction and vasodilation

C. Inhibition of pain sensation

D. Complete endothelial stabilization

18. Which of the following BEST explains the role of nitric oxide during inflammation?

A. Causes vasodilation and contributes to microbial killing

B. Converts fibrin into fibrinogen

C. Prevents all leukocyte migration

D. Exclusively stimulates platelet aggregation

19. Which of the following inflammatory patterns is characterized by the outpouring of thin watery fluid?

A. Fibrinous inflammation

B. Suppurative inflammation

C. Serous inflammation

D. Ulcerative inflammation

20. Which of the following inflammatory patterns is associated with bread-and-butter appearance in rheumatic pericarditis?

A. Serous inflammation

B. Suppurative inflammation

C. Pseudomembranous inflammation

D. Fibrinous inflammation

21. Which of the following BEST describes suppurative inflammation?

A. Inflammation characterized by excessive fibrin deposition without pus formation

B. Inflammation characterized by production of large amounts of pus or purulent exudate

C. Inflammation associated only with viral infections

D. Inflammation limited exclusively to serosal cavities

22. Which of the following organisms is commonly associated with localized suppuration according to the lecture?

A. Clostridium difficile

B. Mycobacterium tuberculosis

C. Staphylococci

D. Streptococcus pneumoniae

23. Which of the following BEST describes pseudomembranous inflammation?

A. Formation of a viable epithelial membrane over inflamed tissues

B. Formation of a nonviable pseudomembrane composed of fibrin, necrotic epithelium, and inflammatory cells

C. Exclusive infiltration of eosinophils into connective tissues

D. Inflammation characterized by fluid-filled blisters only

24. Which of the following diseases is associated with pseudomembranous colitis?

A. Rheumatic fever

B. Clostridium difficile infection

C. Viral meningitis

D. Tuberculosis

25. Which of the following BEST defines an ulcer?

A. A congenital defect within epithelial tissues

B. A localized excavation of tissue produced by necrosis and sloughing of inflammatory tissue

C. A benign accumulation of plasma proteins within blood vessels

D. A fibrotic lesion without inflammatory infiltration

26. Which of the following is a characteristic feature of chronic inflammation?

A. Dominance of neutrophilic infiltrates with absence of fibrosis

B. Simultaneous tissue injury, active inflammation, and healing with connective tissue deposition

C. Exclusively vascular changes without tissue destruction

D. Complete absence of macrophages and lymphocytes

27. Which of the following cells is considered the MOST important cell in chronic inflammation?

A. Neutrophil

B. Plasma cell

C. Macrophage

D. Basophil

28. Which of the following BEST explains granuloma formation?

A. Fusion of activated epithelioid macrophages into focal aggregates

B. Excessive proliferation of neutrophils within blood vessels

C. Formation of fibrin deposits inside lymphatics

D. Activation of platelets leading to thrombosis

29. Which of the following inflammatory cells is characteristically associated with parasitic infections and allergic reactions?

A. Plasma cells

B. Eosinophils

C. Monocytes

D. Fibroblasts

30. Which of the following is considered a beneficial effect of inflammation according to the lecture?

A. Persistent fibrosis and tissue destruction

B. Mechanical obstruction caused by edema

C. Promotion of immunity and dilution of toxins

D. Permanent endothelial injury and thrombosis

Model Answers

1. B
2. C
3. B
4. C
5. B
6. B
7. C
8. B
9. A
10. A
11. C
12. D
13. B
14. A
15. B
16. B
17. B
18. A
19. C
20. D
21. B
22. C
23. B
24. B
25. B
26. B
27. C

28. A

29. B

30. C