



MIDTERM
COLLECTED
QUESTIONS
OF
PATHOLOGY 019

- 1) In the cellular phase of inflammatory response, the later strong adhesion of leukocytes to endothelium is mediated by:**
 - a. Integrin (ICAM-1)
 - b. CD31 (PECAM-1)
 - c. P and E Selectins
 - d. Interleukins and Tumor necrosis factor (ILs and TNF)
 - e. Alpha and Beta Chemokines

- 2) Restoration of blood flow following myocardial infarction may impose more tissue injury sometimes, the main mechanism directly responsible for this paradoxical effect is:**
 - a. Decreased ATP production.
 - b. Increased reactive oxygen species formation.
 - c. Accumulation of misfolded proteins.
 - d. Hypoxia.
 - e. Decreased PH.

- 3) The strong anti-inflammatory action of steroids is mediated by:**
 - a. Stimulation of histamine production
 - b. Stimulation of lipoxygenase enzyme
 - c. Inhibition of cyclooxygenase-1 (Cox-1)
 - d. Inhibition of phagocytosis
 - e. Inhibition of phospholipase leading to decreased production of leukotrienes and prostaglandins

- 4) A tissue biopsy from the colon for one of your patients who suffered from diarrhea was taken. The pathologist calls you and is worried about a parasitic infestation. The most likely inflammatory cellular infiltrate that he observed would be:**
 - a. Lymphocytes
 - b. Plasma cells
 - c. Eosinophils
 - d. Macrophages
 - e. Eosinophils, fibroblasts and tissue macrophages.

- 5) In intracellular accumulations, one of the following is an example of accumulation due to inherited enzyme deficiency:**
 - a. Silicosis.
 - b. Lysosomal storage diseases.
 - c. Anthracosis.
 - d. Steatosis.
 - e. Alpha 1 antitrypsin deficiency.

- 6) The process of coating microbes to enhance their phagocytosis is defined as:**
- Apoptosis
 - Opsonization
 - Diapedesis
 - Effective phagocytosis
 - Transmigration
- 7) After sun exposure, a fair skinned patient noted a brownish discoloration over the skin of her face and dorsum of hands. Which of the following substances most likely accumulated at these sites?**
- Melanin pigment.
 - Hemosiderin pigment.
 - Lipofuscin pigment.
 - Bilirubin pigment.
 - Glycogen pigment.
- 8) ONE of the following changes is associated with cellular hypertrophy:**
- Autophagy
 - Decreased function.
 - Protein degradation,
 - Decreased protein synthesis.
 - Increased protein synthesis.
- 9) Which of the following is a typical example of adaptive physiological atrophy?**
- Left ventricular changes in hypertension.
 - Endometrial changes after menopause.
 - Breast lobules changes during lactation.
 - Uterine smooth muscle changes in pregnancy.
 - Skeletal muscle changes in athletes.
- 10) Which of the following patterns of necrosis can be caused by focal bacterial and fungal infections:**
- Caseous necrosis.
 - Coagulative necrosis.
 - Liquefactive necrosis.
 - Fibrinoid necrosis.
 - Fat necrosis.

- 11) Exposure to a high dose of radiation injury with resultant DNA damage is associated with which of the following cellular responses:**
- Bax/Bak activation.
 - BH3 sensor inhibition.
 - Bcl2 activation.
 - Caspase inhibition.
 - Cytochrome c inhibition.
- 12) Myeloperoxidase enzyme in macrophages catalyzes the conversion of:**
- H₂O₂ to hypochlorite.
 - Oxygen to superoxide.
 - H₂O₂ to water.
 - H₂O₂ to hydroxyl group.
 - Superoxide to H₂O₂.
- 13) A child was brought to the emergency room with sore throat. The Tonsils are red and congested, and he was febrile (Temp: 39.8 °c). Which mediator(s) is/are responsible for these 3 inflammatory features?**
- Prostaglandins
 - Interleukins
 - Leukotrienes.
 - Bradykinin
 - Complement system proteins
- 14) Which one of the following mediators is implicated in the pathogenesis ischemic heart disease and brain strokes?**
- Prostaglandin C₄
 - Leukotriene B₄
 - Leukotriene E₄
 - Prostaglandin E₄
 - Thromboxane A₂.
- 15) Which one of the following serum markers that we usually measure to indicate the presence of non-specific inflammatory reaction?**
- Liver transaminases
 - Anti-nuclear antibodies
 - C-reactive protein
 - Prostaglandins C, D and E
 - Tumor necrosis factor

16) Which of the following statements best describes the "inflammatory response"?

- a. In normal humans it is protective
- b. Always associated with systemic effects
- c. Transforms to chronic inflammation in 50% of the cases
- d. Events sequence is haphazard in 20% of the cases
- e. Its mediators are the same in amount

17) Which mediator is synthesized from arginine by an enzyme?

- a. Nitric oxide synthase
- b. Nitric oxide
- c. Hydrogen peroxide
- d. Oxygen super-oxide
- e. Myeloperoxidase

18) Elimination of self-reactive lymphocytes by apoptosis is mediated by which of the following molecules:

- a. BH3.
- b. Bcl2.
- c. P53.
- d. Fas-Fas ligand.
- e. Bax/Bak

19) This is a cartoon image representing an important inflammatory cell. Which of the following statements best describes this cell feature or function?

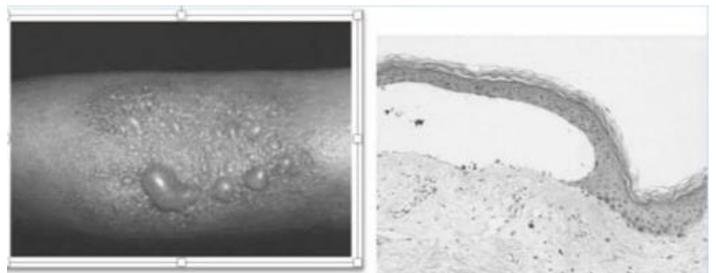
- a. It contains high level of nitric oxide
- b. This cell secretes neutrophil extracellular traps (NET)
- c. The life span is 5-6 days
- d. This cell is a major producer of cytokines mediators
- e. It is a major chronic inflammatory cell infiltrate



20) Which of the following mediators is a cytokine produced by macrophages?

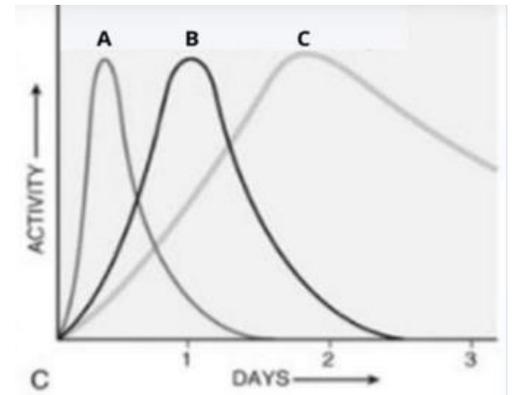
- a. Bradykinin
- b. Prostaglandin E
- c. Histamine
- d. Tumor necrosis factor (TNF)
- e. Thromboxane A2

- 21) A 49-year-old male patient came with recent non-intentional weight loss, fever and lymphadenopathy. A lymph node biopsy showed multiple necrotizing granulomas. The top differential diagnosis should**
- Sarcoidosis
 - Non-specific chronic inflammation
 - Viral lymphadenitis
 - Tuberculous lymphadenitis
 - Auto immune necrotizing lymphadenitis
- 22) A 23-year-old female patient with chronic history of bronchial asthma who underwent removal of polyps from nose. The tissue examination revealed benign polyp with numerous numbers of eosinophils (hundreds). The pathologic explanation for this finding is?**
- Allergic reaction/polyp
 - Acute parasitic inflammation
 - Chronic fibrinous inflammation
 - Eosinophilic granulomatous inflammation
 - Acute suppurative inflammation
- 23) Accumulation of misfolded proteins in the cytoplasm, activates which of the following enzymes:**
- Superoxide dismutase.
 - Glutathione peroxidase.
 - Catalase.
 - Caspase.
 - Telomerase.
- 24) One of the following can cause pathologic apoptosis:**
- Turnover of gut epithelium.
 - Viral infections.
 - Involution of endometrium after menopause.
 - Embryogenesis.
 - Elimination of self-reactive lymphocytes.
- 25) Below is a picture of a hand (left) and its pathologic microscopic image. The best description of this type of reaction is?**
- Ulcerative inflammation
 - Fibrinous inflammation
 - Suppurative inflammation
 - Serous inflammation
 - Exudative inflammation



26) Which one of the following statements is correct?

- a. Curve A represent the macrophages and lymphocytes cellular infiltration phase
- b. Curve B represents the initial neutrophilic infiltration phase
- c. Curve A represents the initial cellular phase
- d. Curve C represents the initial edematous phase
- e. Curve B represents the initial vascular phase



27) One of the followings is an IRREVERSIBLE change in cell injury:

- a. Cellular swelling.
- b. Mitochondrial densities.
- c. Myelin figures.
- d. Cell membrane blebs.
- e. Nuclear karyorrhexis.

28) Which one of the following best describes the vascular leakage in the early vascular phase of acute inflammation?

- a. It is an early phase due to retraction of endothelial cells
- b. It is due to increased intravascular oncotic pressure
- c. It is due to direct endothelial cell injury by adhering neutrophils.
- d. The process is best called transcytosis induced by growth factors
- e. It is mediated by blockage of the lymphatic channels

29) The changes in the epithelial lining of the lower esophagus in patients with reflux esophagitis, from squamous epithelium to glandular epithelium is termed:

- a. Metaplasia.
- b. Atrophy.
- c. Dysplasia.
- d. Hyperplasia.
- e. Hypertrophy.

30) Which receptors are responsible for recognizing pathogens proteins in the initial phases of inflammation?

- a. Receptors for lectins and collectins.
- b. Receptors for circulating complement system proteins.
- c. Toll-like receptors
- d. Receptors for immunoglobulins E (IgE).
- e. Receptors for damage associated molecular patterns (DAMPs).

- 31) The major function of the alternatively activated macrophage (M2) is?**
- Inhibition of inflammation and activation of repair
 - Bacterial recognition
 - Nitric oxide production
 - Activation and stimulation of viral intracellular killing
 - Opsonization and phagocytosis
- 32) After removal of the appendix for a patient; the pathology report came back with "acute appendicitis". What did the pathologist most likely see under microscopic examination?**
- Atypical glands with abnormal mitosis
 - Loss of appendicular architecture and granulomas
 - Numerous eosinophils
 - Fibrosis and numerous lymphocytes
 - Numerous tissue neutrophils
- 33) Coagulative necrosis is characterized by which of the following:**
- Central caseation.
 - Liquified center.
 - Preserved tissue architecture initially.
 - Cheesy like material.
 - Caused by bacterial infections.
- 34) Which one of the following histopathological findings would be most consistent with Sarcoidosis?**
- Serous transudative inflammation
 - Non-necrotizing granulomatous inflammation
 - Suppurative exudative inflammation
 - Ulcerative inflammation
 - Necrotizing granulomatous inflammation
- 35) Brown atrophy is a term that refers to the deposition of which of the following substances:**
- Melanin pigment.
 - Glycogen pigment.
 - Lipofuscin pigment.
 - Hemosiderin pigment.
 - Bilirubin pigment.

36) Which of the following arachidonic acid metabolites is a strong chemotactic agent?

- a. Leukotriene E4
- b. Leukotriene B4
- c. Leukotriene C4
- d. Prostacyclin
- e. Prostaglandin G2

37) The hallmark of CCL4 toxicity in the liver is:

- a. Influx of inflammatory cells.
- b. Caseous necrosis.
- c. Endoplasmic reticulum stress.
- d. Protein accumulation.
- e. Fatty change.

38) The pathologist calls you to let you know that your patient tissue biopsy revealed the presence of "necrotizing granulomatous inflammation". What would be the most important question to ask the pathologist?

- a. Was there any atypical mitosis?
- b. Were there asteroid bodies in the granulomas?
- c. Were the granulomas large or small?
- d. Was there an increase in the number of plasma cells?
- e. Did you do acid fast stain (tuberculosis stain)?

39) Calcium deposition in damaged aortic valves can be explained as:

- a. Excessive calcium nutritional intake.
- b. Dystrophic calcification.
- c. Hypercalcemia.
- d. Apoptosis.
- e. Metastatic calcification.

40) Lipid peroxidation of cellular and organelle membranes in the process of cell injury is mediated by:

- a. Membrane pump failure.
- b. Low PH.
- c. Direct acting toxins.
- d. ATP depletion.
- e. Reactive oxygen species.

Answers:

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

DON'T WORRY, the first 100 years are the hardest :)

HAVE FUN ♥

Collected by: Sanaa Halabiah