

## **INFLAMMATION 2**

### **Questions for test-control**

#### **1. Which of the listed below factors are involved in exudate formation?**

- 1.problem in venous blood drainage
- 2.destruction of basement membrane in microcirculatory vessels
- 3.increased oncotic and osmotic pressure inside the capillaries
- 4.decreasing in intracapillary hydrostatic pressure
5. retraction of endothelial cells in postcapillary venules

#### **2. Which of these factors are involved in exudate formation?**

- 1.decreasing in blood oncotic pressure inside the capillaries
- 2.decreasing in capillary hydrostatic pressure
- 3.increased interstitial oncotic pressure
- 4.increased blood vessels permeability
- 5.decreasing in interstitial osmotic pressure

#### **3. Major conditions which predispose to edema formation are the following:**

- 1.decreasing in interstitial oncotic pressure
- 2.increased osmotic interstitial pressure
- 3.increased vessels permeability
- 4.increased hydrostatic pressure in venous end of the capillary
5. increased oncotic blood pressure

#### **4. Major conditions which provide an exudate formation are:**

- 1.poor tissue lymphodrinage
- 2.decreasing in capillary hydrostatic pressure
- 3.increased osmotic pressure in interstitium
- 4.increased oncotic pressure in interstitium
- 5.high permeability of capillary wall

#### **5.Transudation of plasma protein into interstitium is a result of:**

- 1 endothelial cells contraction
- 2.increased capillary hydrostatic pressure
- 3.increased interstitial oncotic pressure
- 4.slow down of blood flow
- 5.injury of microcirculatory vessels by the leukocytes products

#### **6. Increased permeability of microcirculatory vessels is caused by:**

- 1.lysosomal enzymes of leukocytes
- 2.increased intracapillary hydrostatic pressure
- 3.C3b complement component
- 4.C5a complement component
- 5.P-substance

#### **7. Which type of inflammatory exudate is mostly characteristic of severe damage of the basement membrane of capillary wall?**

- 1.catarrhal
- 2.fibrinous
- 3.hemorrhagic
- 4.serous
- 5.purulent

#### **8. Which of these conditions can provoke increased intracapillary hydrostatic pressure in the site of an acute inflammation?**

- 1.blood congestion
- 2.problems in blood drainage
- 3.spasm of arterioles
- 4.precapillary sphincters weakening
- 5.spasm of venules

#### **9. Hyperkalemia in exudate is a result of:**

- 1.disturbances in energetic supplying of the cells in site of inflammation
- 2.increased vascular permeability
- 3.activation of cell proliferation in the site of inflammation
- 4.active destruction of the cells
- 5.increased uptake of potassium by the leukocytes

#### **10. Which of these factors are responsible for increased colloid-osmotic pressure in the site of inflammation:**

- 1.increased proteolysis
- 2.accumulation of protons
- 3.salt dissociation
- 4.hypokalemia
- 5.protein transudation

#### **11. Cell consequence of leukocytes emigration seems to be the following:**

- 1.monocytes-lymphocytes-neutrophils
- 2.neutrophils-lymphocytes-monocytes
- 3.neutrophils-monocytes-lymphocytes

**12. Which of these cells are accumulated first in the site of non-specific acute inflammation?**

- |               |             |
|---------------|-------------|
| 1.eosinophils | 4.monocytes |
| 2.lymphocytes | 5.basophils |
| 3.neutrophils |             |

**13. Second postponed phase of leukocyte emigration in course of an acute inflammation mostly is associated with the following cells:**

- |               |             |
|---------------|-------------|
| 1.eosinophils | 4.monocytes |
| 2.lymphocytes | 5.basophils |
| 3.neutrophils |             |

**14. Following pivotal factors make leukocytes emigration more active:**

- 1.expression of adhesion molecules on the leukocytes surface
- 2.decreased blood flow
- 3.chemattractants
- 4.opsonins
- 5.expression of adhesion molecules on the epithelial cells

**15. Which of these substances possess by chemattractive properties for obligated phagocytes?**

- |              |                            |
|--------------|----------------------------|
| 1.histamine  | 4.LTB-4                    |
| 2.bradikinin | 5.C5a complement component |
| 3.kallikrein |                            |

**16. Which of the substances possess by chemattractive properties for neutrophils?**

- |                                 |              |
|---------------------------------|--------------|
| 1.C1 complement component       | 4.bradikinin |
| 2.C5a complement component      | 5.LTB-4      |
| 3.bacterial lipopolysaccharides |              |

**17. The major opsonins are the following:**

- 1.IgG
- 2.IgM
- 3.C3b complement fraction
- 4.C5a complement fraction
- 5.leukotriens

**18. The following assertions are true:**

- 1.enzyme myeloperoxidase together with the hydroperoxide and halides forms hydrochloric acid
- 2.myeloperoxidase complex consists of myeloperoxidase and superoxide radical
- 3.myeloperoxidase complex is a specific bactericidal system
- 4.myeloperoxidase system realizes an oxygen-dependent killing of the microbes
- 5.myeloperoxidase complex is working only in granulocytes

**19. Which of the following are known as obligated phagocytes?**

- |               |               |
|---------------|---------------|
| 1.platelets   | 4.monocytes   |
| 2.eosinophils | 5.neutrophils |
| 3.lymphocytes |               |

**20. The main characteristics of myeloperoxidase system are:**

- 1.hydroperoxide is obligated part of the system
- 2.possesses by specific attitude to the target cell
- 3.chlorides and bromides are necessary for secondary radicals formation
- 4.secondary radicals are presented by superoxide and hydroperoxide
- 5.chloramines and hypochloric acid are the secondary radicals

**21. Neutrophil granules contain the following substances:**

- 1.lysozyme
- 2.lactoferrin
- 3.leukotriens
- 4.bradikinin
- 5.myeloperoxidase

**22. The main biochemical features which characterize the site of an acute inflammation are:**

- 1.increased oncotic pressure
- 2.acidosis
- 3.high glucose concentration
- 4.increased potassium concentration
- 5.low concentration of lactic acid

**23. Match each bactericidal effect to the substance which is responsible for the effect:**

- |                    |   |
|--------------------|---|
| 1. lactoferrin     | A. destroys murein of bacterial capsule                       |
| 2. NADPH oxidase   | B. binds iron and such way inhibits proliferation of bacteria |
| 3. lysozyme        | C. forms HOCl*  |
| 4. myeloperoxidase | D. forms superoxide anion and hydroperoxide                   |

**24. Which factors can promote phagocytosis?**

1. LTB-4
2. IgG and IgM
3. glucocorticoids
4. anaphylatoxins
5. C3b complement component

**25. Which of the following substances are likely the end-products of the "respiratory burst" in neutrophils?**

1. hydroperoxide
2. NADPH-oxidase
3. cytoplasmic oxidase
4. superoxide
5. membrane oxidase

**26. "Respiratory burst" takes:**

1. activation of NADPH
2. phospholipase A activation
3. intensive oxygen uptake by the phagocytes
4. myeloperoxidase
5. halides

**27. Events which occur in phagosome are likely the following:**

1. production of reactive oxygen species
2. production of secondary oxidants
3. oxygen-dependent killing of the microorganisms
4. assembly of NADPH-elements
5. basic shift of Ph

**28. Events which occur in phagolysosome are the following:**

1. degradation of the objects of phagocytosis
2. granules exocytosis with release of their content
3. excessive oxygen uptake
4. NADPH restoration
5. acid shift of Ph

**29. Rolling of the leukocytes along the vessel wall associated with appearance of the following adhesion molecules on the leukocytes or endothelium:**

1. L-selectins
2. E-selectins
3. Weibel - Palade bodies
4. beta-integrins
5. superfamily of globulins

**30. Following adhesion molecules are responsible for the firm stick of the leukocytes to the endothelium:**

1. L-selectins
2. E-selectins
3. beta-integrins
4. ICAM – class 1 and ICAM class 2 molecules
5. Weibel-Palade bodies

### The second level

**31. Point out the pathogenetic factors which take part in formation of inflammatory edema.**

**32. List the pathogenetic mechanisms of anti-inflammatory effects of glucocorticoids**

**33. List the positive effects of exudate**

**34. Point out the stages of phagocytosis and their mechanisms**

**35. List the adhesion molecules which stimulate leukocytes to stick to the wall of vessels**