

BLOOD

1. A patient is 44 years old. Laboratory examination of his blood revealed that content of protein in plasma was 40 g/l. What influence will be exerted on the transcapillary water exchange?

- A. Filtration will be decreased, reabsorption – increased
- B. Both filtration and reabsorption will be decreased
- C. Both filtration and reabsorption will be increased
- D. Exchange will stay unchanged
- E. ***Filtration will be increased, reabsorption - decreased**

2. Long-term starvation cure of a patient resulted in diminished ratio of albumines and globulines in plasma. What of the following will be result of these changes?

- A. Decrease of ESR
- B. Hypercoagulation
- C. ***Increase of ESR**
- D. Increase of hematocrit
- E. Decrease of hematocrit

3. Examination of a pregnant woman revealed twice as much concentration of fibrinogen in blood plasma. What ESR can this woman have?

- A. 0-5 mm/h
- B. 5-10 mm/h
- C. 2-12 mm/h
- D. ***40-50 mm/h**
- E. 10-15 mm/h

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5. To lose some weight a woman has been limiting the amount of products in her diet. 3 months later she developed edemas and her diuresis increased. What dietary component deficiency is the cause of it?

- A. Fats
- B. Vitamins
- C. Carbohydrates
- D. Minerals
- E. ***Proteins**

6. After a surgery a 36-year-old woman was given an intravenous injection of concentrated albumin solution. This has induced intensified water movement in the following direction:

- A. From the intracellular fluid to the cells
- B. ***From the intracellular fluid to the capillaries**
- C. No changes of water movement will be observed
- D. From the cells to the intracellular fluid
- E. From the capillaries to the intracellular fluid

7. A patient has osmotic pressure of blood plasma at the rate of 350 mOsmol/l (norm is 300 mOsmol/l). This will cause hypersecretion of the following hormone:

- A. Cortisol
- B. Adrenocorticotropin
- C. *Vasopressin**
- D. Natriuretic
- E. Aldosterone

8. Person felt thirsty after staying in heat for a long time. Signals of what receptors caused it first of all?

- A.* Osmoreceptors of hypothalamus**
- B. Sodium receptors of hypothalamus
- C. Osmoreceptors of the liver
- D. Glucoreceptors of hypothalamus
- E. Baroreceptors of aortic arch

9. A woman with III (B), Rh⁻ blood group born a child with II (A) blood group. The child is diagnosed with hemolytic disease of newborn as a result of rhesus incompatibility. What blood group is the child's father likely to have?

- A. *II(A), Rh⁺**
- B. III(B), Rh⁺
- C. I(O), Rh⁺
- D. I(O), Rh⁻
- E. II(A), Rh⁻

10. A pregnant woman had her blood group identified. Reaction of erythrocyte agglutination with standard sera of 0 $\alpha\beta$ (I), B α (III) groups didn't proceed with standard serum of A β (II) group. blood group under examination is:

- A. B α (III)
- B. AB (IV)
- C. -
- D. 0 $\alpha\beta$ (I)
- E. *A β (II)**

11. It was established that agglutination of the recipient's blood erythrocytes had been caused by standard sera from the I and II groups. Serum from the III group as well as anti-Rh serum hadn't produced any agglutination. Which blood group and rhesus is allowed to be transfused this recipient?

- A. *B, α (III) Rh⁻**
- B. O, α,β (I)Rh⁺
- C. A, β (II)Rh⁻
- D. AB (IV), Rh⁺
- E. AB (IV), Rh⁻

12. Blood group of 30 year old man was specified before an operation. His blood is Rh-positive. Reaction of erythrocyte agglutination was absent with standard sera of 0 $\alpha\beta$ (I), A β (II), B α (III) groups. blood under examination is of the following group:

- A. A β (II)
- B. *0 $\alpha\beta$ (I)**
- C. AB (IV)
- D. B α (III)
- E. -

13. On blood grouping on the system ABO, standard serum of the I and II groups caused erythrocytes agglutination of the examined blood and serum group of the III didn't. What agglutinogens are in this erythrocytes?

- A. *B**
- B. A
- C. A and B
- D. C
- E. D and C

14. When defining blood group according to the ABO system, using salt solution of monoclonal antibodies, agglutination didn't occur with any of the solutions. What blood group is it?

- A.-
- B. B (III)
- C. AB (IV)
- D. A (II)
- E. *0 (I)**

15. Determination a patient's blood group with monoclonal test-reagents revealed positive agglutination reaction to anti-A and anti-B reagents, and negative reaction to anti-D. What blood group does this patient have?

- A. III (B) Rh⁻
- B. *IV (AB) Rh⁻**
- C. II (A) Rh⁺
- D. I (O) Rh⁺
- E. IV (AB) Rh⁺

16. A patient is diagnosed with hereditary coagulopathy that is characterized by factor VIII deficiency. Specify the phase of blood clotting during which coagulation will be disrupted in the given case:

- A. Clot retraction
- B. *Thromboplastin formation**
- C. Fibrin formation
- D.
- E. Thrombin formation

17. A 3-year-old boy with pronounced hemorrhage syndrome has no antihemophilic globulin A (factor VIII) in the blood plasma. Hemostasis has been impaired at the following stage:

- A. External mechanism of prothrombinase activation
- B. Conversion of fibrinogen to fibrin
- C. Blood clot retraction
- D. *Internal mechanism of prothrombinase activation**
- E. Conversion of prothrombin to thrombin

18. A 16 year old boy after an illness has diminished function of protein synthesis in liver as a result of vitamin K deficiency. It will cause disturbance of:

- A. *Blood coagulation**
- B. Osmotic blood pressure
- C. Erythropoietin secretion
- D. Erythrocyte sedimentation rate
- E. Anticoagulant generation

19. A patient visited a dentist to extract a tooth. After a tooth has been extracted, bleeding from the tooth socket continued for 15 minutes. Anamnesis states that the patient suffers from active chronic hepatitis. What phenomenon can extend the time of hemorrhage?

- A. Hypocalcemia
- B. Decrease of albumin content in blood
- C. Increased activity of anticoagulation system
- D. Thrombocytopenia
- E. ***Decrease of fibrinogen content in blood**

20. A clinic observes a 49 year old patient with significant prolongation of coagulation time, gastrointestinal haemorrhages, subcutaneous hematomas. These symptoms might be explained by the deficiency of the following vitamin:

- A. ***K**
- B. B₁
- C. B₆
- D. H
- E. E

21. After a tourniquet application a patient was found to have petechial haemorrhages. The reason for it is the dysfunction of the following cells:

- A. ***Platelets**
- B. Monocytes
- C. Lymphocytes
- D. Eosinophils
- E. Neutrophils

22. A 38-year-old woman with an uterine hemorrhage lasting for 2 days was delivered to the admission ward. Which of the following will be revealed in the patient's blood?

- A. Leukocytosis
- B. Increase of the colour index
- C. ***Decrease of the hematocrite index**
- D. Deceleration in ESR
- E. Eosinophilia

23. A man weights 80 kg, after long physical activity his circulating blood volume is reduced down to 4 l, hematocrit makes up 50%, whole blood protein is 80 g/l. These blood characteristics are determined first of all by:

- A. ***Water loss with sweat**
- B. Increased diuresis
- C. Increased number of erythrocytes
- D. Increased circulating blood volume
- E. Increased protein concentration in plasma

24. A 3-year-old child has eaten some strawberries. Soon he developed a rash and itching. What was found in child's leukogram?

- A. Neutrophilic leukocytosis
- B. Monocytosis
- C. Lymphocytosis
- D. ***Eosinophilia**
- E. Hypolymphemia

25. Two hours after exam a student had a blood count done and it was revealed that he had leukocytosis without significant leukogram modifications. What is the most probable mechanism of leukocytosis development?

- E. Leukopoiesis intensification and deceleration of leukocyte lysis
- F. *Redistribution of leukocytes in organism**
- G. Deceleration of leukocyte migration to the tissues
- H. Deceleration of leukocyte lysis
- I. Leukopoiesis intensification

26. A female patient underwent liver transplantation. 1,5 months after it her condition became worse because of reaction of transplant rejection. What factor of immune system plays the leading part in rejection reaction?

- A. *T-killers**
- B. B-lymphocytes
- C. T-helpers
- D. Interleukin-1
- E. Natural killers

27. A 35 year old man consulted a dentist about reduced density of dental tissue, high fragility of teeth during eating solid food. This patient suffers the most probably from the deficiency of the following mineral element:

- 1. Iron
- 2. Potassium
- A. Magnesium
- 3. Sodium
- 4. *Calcium**

28. Blood count of an athlete is as follows: erythrocytes – $5,5 \cdot 10^{12}/l$, Hb – 180 g/l, leukocytes – $7 \cdot 10^9/l$, neutrophils – 64%, basophils – 0,5%, eosinophils – 0,5%, monocytes – 8%, lymphocytes – 27%. First of all, such results indicate the stimulation of:

- A. Granulocytopoiesis
- B. Immunogenesis
- C. Leukopoiesis
- D. *Erythropoiesis**
- E. Lymphopoiesis

29. Examination of a 43 y.o. anephric patient revealed anemia symptoms. What is the cause of these symptoms?

- A. *Reduced synthesis of erythropoietins**
- B. Enhanced destruction of erythrocytes
- C. Iron deficit
- D. Vitamin B₁₂ deficit
- E. Folic acid deficit

30. Along with normal hemoglobin types there can be pathological ones in the organism of an adult. Name one of them:

- A. *HbS**
- B. HbA₁
- C. HbA₂
- D. HbF
- E. HbO₂