Osh State University

Medical Faculty

Department "Biochemistry, Pathophysiology and Pharmacology"

**«APPROVED»**

Head. Chair of MD, PhD Muratov Zh. K.

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GUIDELINES FOR TRAINEES

TO EXTRACURRICULAR WORK INDEPENDENTLY

SECTION: **PATHOPHYSIOLOGY OF BLOOD**

TOPIC: **Anemia.**

Developed: teacher Ismailov I.Dzh.

Methodical instructions approved at a meeting of the department

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OSH

**Study subject:** Pathology of the blood system. Anemia.

**Aim of lesson**: to study causes and mechanisms of different types of anemias. Analyse changes in blood in patients with different types of anemias.

**Format:** Preparing for the practical exercises.

**Questions for self-study:**

1. Anemias. Clinical symptoms of anemia and mechanisms of its development.

2. Classification of anemia by:

- etiopathogenesis;

- color parameter;

- severity of anemia;

- regenerative possibility;

- mechanism of erythropoiesis;

- erythrocyte’s size.

3. Posthemorrhagic anemia. Description, the picture of blood in acute and chronic posthemorrhagic anemias.

4. Iron deficiency anemias. Etiology, pathogenesis. Sideropenic syndrome. The picture of perefericial blood.

5. Vitamin B12, folic acid deficiency anemias. Etiology, pathogenesis. The picture of blood. Addison-Biermer disease.

6. Hemolytic anemias. Types (congenital, autoimmune e.g.). The picture of blood. Clinical symptoms.

7. Newborn hemolytic anemia.

**List of practical skills**

1. To be able to calculate the color index

2. To be able to interpret the change in the main indicators of red blood.

**Recommendations to UIRS:**

1. Making the album with the relevant tasks relating to using educational and methodological literature.

2. Master the techniques of creative use of the program material on this topic by using problem solving.

**Self-control on test tasks:**

*1. In what anemia the color index is increased?*

a) acute posthemorrhagic anemia

b) vitamin B12 deficiency anemia

c) chronic posthemorrhagic anemia

*2. In what anemia the count of reticulocytes is reduced?*

a) acute posthemorrhagic anemia

b) hemolytic anemia

c) aplastic anemia

*3. In what anemia the count of reticulocytes is increased?*

a) acute posthemorrhagic anemia

b) vitamin B12 deficiency anemia

c) aplastic anemia

*4. Megaloblastic anemia is:*

a) chronic posthemorrhagic anemia

b) folic acid deficiency anemia

c) aplastic anemia

d) hemolytic anemia

*5. In what anemia RBCs contain abnormal hemoglobin:*

a) thalassemia

b) iron deficiency anemia

c) folic acid deficiency anemia

*6. Syntesis of hemoglobin S is representative for:*

a) thalassemia

b) sickle-cell anemia

c) ellyptocytosis

*7. Decreasing activity of what enzyme of RBCs leads to hemolytic anemia due to deficiency of ATP?*

a) dehydrogenase glucose 6-phosphate

b) sodium-potassium ATPase

c) pyruvate kinase

*8. Decreasing activity of what enzyme of RBCs leads to hemolytic anemia due to oxidative stress?*

a) dehydrogenase glucose 6-phosphate

b) pyruvate kinase

c) hexokinase

*9. Abnormality synthesis of what substance lead to microspherocytosis?*

a) hemoglobin A

b) 2,3-biphosphoglyceric acid

c) spectrin

*10. Abnormality syntesis of what substance lead to elliptocytosis?*

a) hemoglobin А

b) 2,3-biphosphoglyceric acid

c) spectrin

**8.** **References:**

1. Lecture material.

2. General and clinical pathophysiology/ Ed. by A. V. Kubyshkin – Vinnytsa: Nova Knyha Publishers. – 2011. – P. 371-409.

3. Pathology/ ed. by E. Rubin, J.L. Farber. – 2nd ed. – 1994. – P.1010 – 1029.

4. Pathophysiology of disease: an introduction to clinical medicine/ ed. By S. J. McPhee, W. F. Ganong. – 2006. – P.127 –133.

5. Internal medicine/ ed. by Harrisons. – 17th edition. – N. Y. – 2008. – P. 355–362, 628–6

Study guide:

1. Educational-methodical recommendations for Pathophysiology / R.K Kalmatov, I.N Atabaev, .- Osh State University, 2014.

2.Pathophysiology Course / Tutorial., R.K Kalmatov, Osh State University, 2011.