

**Ministry of Health of the Republic of Belarus
Education Institution
"Gomel State Medical University"**

Department of Pediatrics with the course of the Faculty of Advanced Training and Retraining

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METHODOLOGICAL GUIDELINES

for a practical exercise
by a teacher with students
6th year of the Faculty of foreign students,
trainees in speciality 1-790101 in the discipline of pediatrics

Topic: Differential diagnosis of anaemia.

Time: 7 hours

Approved at the meeting of the Department of Pediatrics with the Course of the Faculty of Advanced Training and Retraining
(protocol №. 8 of the 14th of June 2022)

2022

LEARNING AND EDUCATIONAL OBJECTIVES, TASKS, MOTIVATION FOR LEARNING THE TOPIC

Educational objective:

- Formation of students' basic professional competence while studying the discipline of Pediatrics according to the curriculum
- Formation of students' knowledge in the diagnosis and differential diagnosis of anemia, dispensary and rehabilitation of children and adolescents with anemia; prospects of using the acquired knowledge in professional activities, abilities and skills necessary to work with patients of different ages; prevention of diseases in children and adolescents.

Educational objective:

- Fostering the students' sense of professional responsibility of the future medical worker;
- formation of professionally significant and socially-psychological qualities of the doctor's personality in the system of doctor-nurse-patient relations;
- formation of students' responsible attitude to their future professional activity.
- Formation of academic and work discipline, discussion of disciplinary issues (attendance of lectures and practical classes, unexcused absences, tardiness, debts on missed classes).

Objectives:

As a result of the training session the student should

know:

- Anatomical and physiological characteristics of the hematopoietic system.
- Ferrous metabolism in the body;
- The role of iron, proteins, micronutrients and vitamins in the growth and development of the child and in the functioning of different systems and organs;
- The etiology of iron deficiency conditions;
- The norm of hemoglobin in children of different ages;

be able to:

- interview a patient, collect anamnesis, perform an objective examination and identify the main symptoms of the disease;
- determine the group of nosologies for differential diagnosis;
- determine the patient's examination plan and interpret the results;
- provide emergency and planned treatment assistance;
- prescribe treatment for a patient with deficiency anaemia.

know:

- methods of objective (palpation, percussion, auscultation) and additional (measuring, laboratory, instrumental, histological, immunological, etc.) examination
- communication skills with patients of different ages and their parents, medical personnel.

Motivation for learning the topic:

As part of the educational process of this discipline, the student must acquire not only theoretical knowledge, practical skills and abilities in the specialty, but also develop his value-personal, spiritual potential, be ready to actively participate in industrial, socio-cultural and public life.

MATERIAL EQUIPMENT

Tables on the theme of the lesson, history of hospital patients, set of hemograms, hemostasiograms, biochemical blood tests, myelogram, urine tests, electrocardiograms, X-rays; task bank for independent work; selection of thematic patients in the hospital departments.

CONTROL QUESTIONS FROM RELATED DISCIPLINES

1. "Human Anatomy:
 - The human circulatory system.
2. "Normal Physiology":
 - Functioning of the hematopoietic system;
 - Interpretation of normal haemograms from an age perspective.
3. "Pathological anatomy":
 - Morphology of diseases of the blood system.
4. "Pathological Physiology":
 - Disorders of haemopoiesis in iron, protein, vitamin, micronutrient deficiencies.
5. "Propaedeutics":
 - Anatomical and physiological features of hematopoiesis in children;
 - Semiotics of anaemia in children.
6. "Biological Chemistry":
 - The role of iron, protein, trace elements and vitamins in haemopoiesis.
7. "Pharmacology":
 - Principles of pharmacodynamics and pharmacokinetics of drugs.
 - Factors determining the therapeutic efficacy, side effects and toxicity of drugs.

CONTROL QUESTIONS ON THE TOPIC OF THE CLASS

1. Post-haemorrhagic anaemias (acute and chronic). Etiopathogenesis. Clinic. Diagnostics. Treatment.
2. Anaemia due to erythropoiesis disorders (hypochromic, normochromic, hyperchromic). Etiopathogenesis. The clinic. Diagnostics. The treatment.
3. Anemia due to increased destruction of red blood cells (hemolytic anemia). Etiopathogenesis. Clinic. Diagnostics. Treatment.
4. Differential diagnosis of anemia in children.
5. Emergency conditions in haematology: haemolytic crisis.
6. Prevention of anemia in children. Dyspenserization of children with diseases of the blood system.

PROCESS OF THE STUDY

Theoretical part.

Anemia is widespread in the pediatric population.

Anaemia deficiency is a group of anaemias, the origin of which is associated with iron, vitamin, trace element or protein deficiency during the development of the child (intrauterine, early childhood and adolescence). The extremely high prevalence of these diseases, and above all of iron deficiency anaemia, is mainly related to the period of intrauterine development, the health of the expectant mother, her nutrition and adequate prophylaxis during pregnancy, the organization of the child's living and feeding during the first year of life (type of feeding), and the organization of living, feeding and associated diseases in the older, especially adolescent years. These anaemias are accompanied by delayed physical and neuropsychological development of children in the early stages of formation, disturbances in the formation of the immune system and other systems and organs of the growing child.

According to WHO, 20% of the world's population has some degree of iron deficiency. In the paediatric population the prevalence of iron deficiency ranges from 17.5% in schoolchildren to 50% in infants.

Certain forms of anaemia are life threatening or are inevitably associated with physical and sometimes mental retardation.

Timely diagnosis, adequate treatment and prevention of deficiency anemias, especially iron deficiency anemia should be organized by pediatricians and general practitioners.[7]

Practical part

The students are instructed and attention is paid to the organisation of the work of the structural unit. The selection of patients is made in accordance with the topic of the class.

During the practical work the student should carry out:

- collection of complaints and anamnesis,
- clinical examination of the child,
- make a preliminary diagnosis and develop an examination plan,
- Interpret the results of the laboratory and instrumental methods of investigation,
- Formulation of the final clinical diagnosis,
- Formulation of a treatment and rehabilitation plan,
- writing prescriptions for medicines.

Monitoring the learning of the topic

1. Demonstration of case studies with clinical case studies:

- Iron deficiency anaemia,
- B12, folic deficiency anaemia,
- Haemolytic anaemia,
- Minkowski-Schoffar disease,
- thalassemia,
- sickle cell anaemia
- hypoplastic anaemia.

2. Decipher the proposed haemograms of children of different ages with anaemia of different genesis.

3. Solution of situational tasks

Task 1.

A 7-month-old infant with a birth weight of 3400 g is on improper artificial feeding (receives whole cow's milk and 200 grams of semolina per feeding). On examination the child is pale, lethargic, mucous membranes are pale and tissue turgor is reduced. A systolic murmur is detected at the apex of the heart. The heart rate is 136 per minute. The liver + 2 from under the rib edge, spleen is not palpated. General blood count: Hb 56 g/l, erythrocytes $3.3 \times 10^{12}/l$, c.p. 0.7, anisocytosis +, poikilocytosis++, reticulocytes 2%, sedimentation rate 8 mm/hour, leukocytes $9.6 \times 10^9/l$.

Task:

1. What is your diagnosis? Identify the leading syndrome. State his symptoms.
- 2 Evaluate the blood count.
3. What might have caused the child to develop this condition?
4. Plan an examination of the patient.
5. Prescribe a treatment. Write a prescription for an iron medication.

Task 2.

A 10-year-old girl, on admission complains of weakness, dizziness, lack of appetite, tinnitus, occasional thinning of stool and numbness in the fingertips. Dietary intake often includes fresh, lightly salted fish. On examination: malnutrition, skin waxy pale with yellowish tinge, puffiness of face, tongue bright red with pronounced papillae. Liver +2 cm, spleen +2 cm. Blood count: er. - $1.3 \times 10^{12}/l$, leukocytes - $5.5 \times 10^9/l$, platelets - $160 \times 10^9/l$, reticulocytes - 100/100. In the leukocytic formula: neutrophils hypersegmented 12%, normoblasts 5: 100, megaloblasts 2: 100. Total protein - 66 g/l.

Task:

1. Your presumptive diagnosis.
2. Your examination plan.
3. What is the suspected reason for your illness?
4. Consultation of which specialists is necessary.
5. Prescribe a therapy. Write a prescription for iron remedy.

Task 3.

A 4-year-old boy was admitted to the hospital with complaints of poor appetite, perversion of taste - he eats chalk and paper. His diet consists mostly of cereal soups and porridges. Does not like meat or vegetables. Weight 14 kg. On objective examination: pale skin, mucous membranes. Nail plates with transverse striation, angular stomatitis. Heart sounds are rhythmic, tachycardia up to 102 per min, gentle systolic murmur at the apex. Blood count: Hb - 76g/l, er. - $3.9 \times 10^{12}/l$, CP - 0.6, sedimentation rate - 6 mm/hour, reticulocytes 8 %, hypochromia ++, microcytosis.

Task:

1. State the diagnosis.
2. List the symptoms of sideropenic syndrome.
3. State the suspected cause of the disease.
4. Methods of laboratory diagnosis of this disease.
5. Prescribe treatment. Write a prescription for an iron preparation (hemofer).

Task 4.

A 2-year-old girl was admitted to the clinic for emaciation, pallor, and poor appetite. Pallor appeared in the 2nd month, but she was not under systematic observation, her blood was not tested. Two months before admission, her condition worsened, pallor and lethargy increased and she was admitted to hospital. The girl of the second pregnancy was born prematurely with a body weight of 1100 grams from twins. She was artificially fed from one month of age and fed irrationally, unilaterally, mainly with milk and porridge. Psychosomatic development was behind peers: started to sit up at 9 months, walked at 1 year 4 months, spoke at 2 years of age, erupted her first teeth at 8 months. On the 1st year of life she had chicken pox and had frequent acute respiratory infections. On admission - girl's condition is moderately severe, very pale, lethargic, malnutrition (body weight 8400). Turgor of tissues is reduced. The pronounced frontal and parietal tubercles, "chests" on the ribs, "bracelets" on the wrists, chest deformed, muscular hypotonia. Lungs without features. Heart tones were muffled, systolic murmur was heard over the apex, heart rate - 134 per minute. The liver was enlarged by 2 cm and the spleen by 1 cm. Peripheral blood count: er. $2.95 \times 10^{12}/l$, Hb - 68 g/l, CP. Aleukocytes $14.7 \times 10^9/l$, e - 6; n/a - 2; s/w - 67; l - 20; m - 5; sed rate 11 mm per hour.

Task:

1. Identify syndromes present in the child.
2. Formulate and justify the diagnosis.
3. Name the periods of intrauterine hematopoiesis.
4. Main areas of treatment. Write a prescription for iron preparations.

GUIDELINES FOR ORGANISING AND CARRYING OUT THE SIW

The time allocated for independent work is used by students for:

- Studying the topics (issues) for independent study;
- problem solving;
- research and creative assignments;
- preparing thematic reports, presentations;
- completing practical assignments;
- designing information and demonstration materials (stands, posters, charts, tables, newspapers, etc.);
- compilation of thematic selection of literary sources, internet sources;
- Duty in health care organisations;
- compiling a review of scientific literature on the issues of the class.
- preparation of lectures, discussions with patients on the prevention of blood diseases and the formation of a healthy lifestyle;
- compiling case studies on the topic of the class.

The main methods for organizing independent work:

- making a report;
- Examining topics and problems that are not covered in the class;
- preparation and participation in active forms of learning.

The list of SRS tasks:

- Study of clinical guidelines (examination and treatment protocols for children) with blood diseases.
- Iron deficiency anaemia,
- B12, folio-deficiency anaemia,
- haemolytic anaemia,
- Minkowski-Schoffar disease,
- thalassemia,
- sickle cell anaemia
- Hypoplastic anaemia.
- Write prescriptions for iron, folic acid, cyanocobalamin preparations;
- To carry out research work on the topic of the class.

GUIDELINES ON THE ORGANISATION AND IMPLEMENTATION OF THE GSSS

The recommended forms of MSDS organisation are:

1. solution of situational tasks on the topic of the class;
2. tests on the subject of the lesson.

List of MSRS tasks:

1. Solution of situational tasks:

Task 1

A 12-year-old girl is admitted to the department with complaints of nasal bleeding.

The anamnesis shows that over the last 6 months the girl has been ill frequently, with fever up to febrile, decreased appetite and fatigue.

On admission the child's condition is severe. Temperature was subfebrile. Skin and visible mucous membranes are pale. The face, front surface of the chest, mucous membranes of the mouth have numerous petechial elements, slight bleeding from the gums. There are hemorrhagic crusts in the nasal passages. Peripheral lymph nodes are small and painless. Her lungs are vesicular and without rales. Heart sounds are rapid, with soft systolic murmurs at the apex. Abdomen is soft and painless, liver and spleen are not palpated. Urine of normal colour.

Additional findings:

General blood count: Hb - 72 g/l, Rhe - $2.8 \times 10^{12}/l$, Retic - 0.2%, Thrombus - single, Leuk - $1 \times 10^9/l$, p/a - 1%, c - 4%, l - 95%, COE - 35 mm/hour.

Myelogram: bone marrow poor in cellular elements, no blast cells, granulocytic sprout - 11%, erythroid sprout - 8%, megakaryocytes - not found.

General analysis of urine: colour - yellow, specific gravity - 1018, protein - traces, squamous epithelium - 2-4 in p / s, white blood cells - 0-1 in p / s, red blood cells - 25-30 in p / s, cylinders - none, mucus - none, bacteria - none.

Task:

1. Presumptive diagnosis.
2. Examination plan.
3. Explain the pathogenesis of the haemorrhagic syndrome.
4. What are the current methods of treatment for this one.
5. Prevention of emergency conditions.

6. Describe the histological picture of the bone marrow characteristic of the disease.

Task 2.

A 3.5-year-old girl M. was admitted to the hematology department with complaints of acute weakness, pale and jaundiced skin, fever, dark-colored urine.

The anamnesis says that the child had been ill for about 2 weeks, when she had had a cough, mucous nasal discharge, temperature of 38.5°C. The child was treated with analgin, biseptol. 4-5 days ago parents noticed increased weakness, the child became sleepy, dark urine appeared. District pediatrician suspected infectious hepatitis. Past medical history was without any special features.

At admission the condition is very severe. Consciousness is confused. Abrupt pallor of skin, hysterical sclerosis. Systolic murmur is heard in the heart. The liver protrudes from under the rib arch by 4 cm, spleen by 3 cm and palpation is slightly painful. She is urinating well and the urine is dark beer coloured. Her stool was coloured yesterday.

Additional findings of investigation:

General blood count: Hb - 55 g/l, E - $2.2 \times 10^{12}/l$, CP. - 0.98, Retic - 11%, Thrombus - $230 \times 10^9/l$, Leuk - $12 \times 10^9/l$, myelocytes - 1%, p/l - 7%, s - 56%, e - 1%, l - 30%, m - 5%, sed rate - 45 mm/hr, anisocytosis expressed, microcytic counts in some visual fields.

Biochemical blood count: total protein - 70 g/l, urea - 3.7 mmol/l, creatinine - 60 mmol/l, bilirubin: direct - 7 $\mu\text{mol/l}$, indirect - 67.2 $\mu\text{mol/l}$, free hemoglobin - 0.1 $\mu\text{mol/l}$, potassium - 4.0 mmol/l, ACT - 28 units/l, ALT - 30 units/l.

Urinalysis: positive urobilin, no free hemoglobin, protein - 0.33%, leukocytes - 1-2 w/w.

Coombs test with red blood cells positive.

The task:

1. Presumptive diagnosis.
2. What type of haemolysis is present in this disease?
3. List the possible complications.
4. With which diseases should a differential diagnosis be made?
5. What emergency therapy should be administered?
6. What morphological changes are observed in intracellular haemolysis?

Task 3

A 2.5-year-old boy Y. was admitted to the department with complaints of jaundice.

It is known from the medical history that the boy was born as a result of his first normal pregnancy and an emergency delivery. At birth there was prolonged marked jaundice of the skin, for which a banner blood transfusion was carried out. When the child was 7 months old his parents noticed that he had turned a little yellow but did not consult a doctor. Three days ago the boy had a fever of 37.8°C and turned yellow. In the clinic the blood test was done and showed anaemia - haemoglobin 72 g/l. The family history shows that the mother is healthy and the father's sclerae periodically turn yellow.

On admission the child's condition is severe. The boy is lethargic and sleepy. Skin and mucous membranes are pale and hysterical. The skull deformity attracts attention: turreted skull, saddle-shaped nose bridge, gothic palate. Peripheral lymph nodes are small and mobile. Heart tones are rapid, with a systolic murmur at the apex. The abdomen is soft and painless. Liver +1 cm, spleen +4 cm below the edge of the rib cusp. Stool and urine are intensively stained.

Additional findings:

General blood count: Hb - 72 g/l, Rhe - $2.0 \times 10^{12}/l$, C.P. - 1.1, Retic - 16%, Leuk - $10.2 \times 10^9/l$, n/a-2%, s-45%, e-3%, l-37%, m-13%, sed rate -24 mm/hour.

Biochemical blood count: total protein - 82 g/l, bilirubin: indirect - $140.4 \mu\text{mol}/l$, direct - none, free hemoglobin - none.

Erythrocyte osmotic resistance: min - 0.58, max - 0.32.

60% of erythrocytes are spherical in shape.

Task:

1. Preliminary diagnosis, rationale.
2. What type of haemolysis is present in this disease?
3. What is the best method of treatment, is it indicated for this patient and why?
4. List the complications of this disease.
5. Explain the mechanism of bone deformities.
6. What are the laboratory indicators of haemolysis in this patient?
7. State the biochemical signs of intracellular and intravascular hemolysis.

Task 4.

A 3-year-old girl is admitted to the clinic with complaints of pallor and poor appetite. Parents noted restless sleep, irritability and fatigability. She was born of a second pregnancy with toxemia and threat of miscarriage at 9 weeks. She was born prematurely, birth weight

Weight at birth was 2100 g, length 49 cm. Since 2 months of age she has been on artificial feeding. Did not receive juices, vegetable puree, from 5 months in the diet of semolina. Had acute respiratory viral infection at 4 and 9 months of age, 1.5 year old - acute pneumonia. Her first teeth appeared at 8 months, she was able to sit up from 9 months, at 12 months she was able to stand with her feet. By one year of age she did not walk.

Objective data: pale and dry skin. On the oral mucosa aphthae with grayish plaque and a roll on the periphery. Hair was brittle, dull, transverse striation of nail plates was noted. Pulse 112 bpm, symmetrical, rhythmic, satisfactory filling. The upper edge of relative cardiac obtuseness was the second intercostal space, the left edge 2.5 cm outside the midclavicular line, the right edge was the right parasternal line. Heart tones are muffled, no murmurs. The liver protrudes from under the rib arch by 2 cm, the edge is flat and smooth. The spleen is not palpable.

Peripheral blood: Haemoglobin - 72 g/l, erythrocytes - $2.9 \times 10^{12}/l$, CP - 0.72, leucocytes - $8 \times 10^9/l$, p/a - 6%, s/a - 4%, monocytes - 12%, lymphocytes - 42%, sed rate - 25 mm/hr, reticulocytes - 10%, anisocytosis, microcytosis, erythrocytosis.

Task:

1. Your diagnosis and its justification.

2. What is the etiology of the disease. What are the mechanisms of the disease.
3. A plan for further investigation.
4. Treatment plan.

Task 5

A 15-year-old girl was admitted to the clinic with complaints of weakness, epigastric pain, decreased appetite, headaches, dizziness and recurrent fainting.

Past medical history: menstruation since 12 years of age, amenorrhoea since 14, at the same age fainting and dizziness occurred.

Objectively: the girl was overfed, skin was alabaster pallor, moist, vascular pattern was marked. Pulse 72 bpm, symmetrical, satisfactory filling. The upper edge of relative cardiac dullness is the 3rd rib, the left edge is the left nipple line, the right edge is the midpoint between the right edge of the sternum and the parasternal line. The abdomen is painless on palpation. The liver is at the edge of the rib cusp, and the spleen is not palpable. Clinical blood count: Haemoglobin - 128 g/l, erythrocytes - $3.2 \times 10^{12}/l$, CP - 0.8, leucocytes - $4.0 \times 10^9 /l$, p /a - 2%, s /a-35%, monocytes - 5%, lymphocytes - 55%, sed rate - 8 mm / h, anisocytosis, poikilocytosis, hypochromia.

Task:

1. Your diagnosis and its rationale.
2. What is the etiology of the disease. What are the mechanisms of the disease.
3. A plan for further investigation.
4. A treatment plan.

Task 6.

A 14-year-old girl was admitted to the clinic with complaints of weakness, dizziness, intermittent pain in the epigastric region for 3 years. At first she was prone to constipation and then to diarrhea. Tongue had recently grown larger and showed flushing and loss of appetite. State of moderate severity, lethargic and emotionally labile. Malnourished, asthenic. Skin was pale with lemon-yellow tint, sclerae were subitoxic, mucous membranes were clean. The tongue was bright red and inflamed. Pulse 95 beats per minute, symmetrical, satisfactory filling. Heart sounds muffled. The abdomen is painful on palpation in the epigastric region. The liver is at the edge of the rib cusp. Spleen is not enlarged.

Blood count: hemoglobin - 130 g/l, erythrocytes - $3.2 \times 10^{12}/l$, CKD - 1.1, leukocytes - $4.0 \times 10^9 /l$, p /a - 2%, s /a - 35%, monocytes - 5%, lymphocytes - 55%, sed rate - 8 mm / h. Smear: reticulocytes ++, schistocytes ++, Keibot rings++, Jolly bodies++, significant number of neutrophils with polysegmented nuclei.

Serum iron level 750 µg/l, vitamin B12 content 10 µg/ml.

EFGDS result - signs of atrophic gastritis.

Task:

1. Your diagnosis and its rationale.
2. What is the etiology of the disease. What are the mechanisms of the disease.
3. A plan for further investigation.

4. Treatment plan.

2. test control

1. Which composition of children's food most often leads to the development of megaloblastic anaemia in children?

1. Cow's milk
2. Mother's milk from a mother suffering from iron deficiency anaemia
3. Goat milk
4. Soya milk 2.

2. Which sign is the main one in the diagnosis of hypochromic anaemia?

1. Decrease in hemoglobin
2. Decrease in red blood cells
3. Increase in reticulocytes
4. Low colour index.

3. Which drug is not used in the treatment of iron deficiency anaemia in children aged 1 year?

1. Iron sulphate
2. Reconstituted iron
3. Ferrogardument
4. Aloe syrup with iron

4. Which of the following laboratory indicators is characteristic of iron deficiency anaemia?

1. Hyposideropenia
2. Microcytosis
3. macrocytosis
4. thrombocytosis

5. Which index is not characteristic of megaloblastic anaemia?

1. Hypersegmentation of neutrophil nuclei
2. Subicteriosis of the sclerae
3. microcytosis
4. Gunther's glossitis

5. Macrocytosis

6. Which changes are not characteristic of folate deficiency anaemia?

1. Decreased number of erythrocytes
2. Decrease in hemoglobin levels
3. changes in erythrocyte size

4. Hypersegmentation of neutrophil nuclei

7. The average life span of red blood cells is:

1. 10 days
2. 20 days
3. 60 days
4. 120 days
5. 180 days

8. The regenerative forms of erythrocytes include:
 1. Reticulocytes .
 2. Polychromatophils .
 3. Poikilocytes
 4. anisocytes
9. Examination of preserved blood before transfusion is performed:
 1. Before shaking
 2. Immediately after shaking
 3. 3 min after shaking
 4. 5 minutes after shaking
 5. 10 min after shaking
10. Which agglutinogens are contained in AB(4) erythrocytes by major blood groups?
 1. red red blood cells contain agglutinin A
 2. red red blood cells contain agglutinin B
 3. red red blood cells contain agglutinogens A and B
 4. red blood cells do not contain agglutinogens A or B.
11. Which agglutinins are contained in serum O(1)?
 1. Serum contains agglutinin "a"
 2. Serum contains agglutinin "b".
 3. Serum contains both agglutinins.
 4. Serum contains no agglutinins
12. An absolute indication for blood transfusion is:
 1. Immunity stimulation
 2. stopping bleeding
 3. Reduction of intoxication
 4. Replacing blood loss
 5. Parenteral nutrition
13. Which agglutinins are found in serum A(2)?
 1. Serum contains agglutinin "a"
 2. Serum contains agglutinin "b".
 3. Serum contains both agglutinins.
 4. Serum contains no agglutinins
14. Which agglutinins are contained in AB(4) serum?
 1. Serum contains agglutinin "a".
 2. Serum contains agglutinin "b".
 3. Serum contains both agglutinins.
 4. Serum contains no agglutinins
15. In iron deficiency anaemia the number of reticulocytes:
 1. Reduced
 2. Normal
 3. Elevated

16. In vitamin B12-deficient anaemia the number of reticulocytes:
1. Reduced
 2. Normal
 3. Elevated
17. Latent iron deficiency is characterized by:
1. Decreased haemoglobin
 2. Normal haemoglobin content
 3. Increase in haemoglobin
18. The duration of treatment of patients with iron deficiency anaemia with iron preparations in a therapeutic dose is carried out:
1. 1-2 weeks
 2. 4-6 weeks
 3. until the haemoglobin level is normalized
 4. 2-3 months
19. A maintenance dose of iron preparations is administered to patients for a period of time:
1. 2-3 weeks
 2. 2-3 months
 3. 5-6 months
20. The maintenance dose of iron preparations is
1. 20% of the therapeutic dose
 2. 40% of the therapeutic dose
 3. 50% of the therapeutic dose
 4. 75% of the therapeutic dose
 5. 100% of the therapeutic dose

Answers: 1 - 3; 2 - 4; 3 - 2; 4 - 1,2; 5 - 3; 6 - 2; 7 - 4; 8 - 1; 9 - 1; 10 - 3; 11 - 3; 12 - 4; 13 - 2; 14 - 4; 15 - 2, 3; 16 - 1; 17 - 2; 18 - 3; 19 - 2; 20 - 3;

Forms of MSDS performance monitoring:

1. checking and evaluating the correctness of solving situational tasks;
2. test control.

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